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The motivations of offenders who carry and use acid and other corrosives in criminal acts

Research Report 121

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Background and aims of the research

This report presents the findings of a study that explored the motivations of offenders who carry and/or use acid and other corrosive substances. This fulfils an action within the Government's Serious Violence Strategy (Home Office, 2018) and the Acid Attacks Action Plan to undertake research due to the growing concerns over the increased use of acid and corrosive substances in crime. The project was conducted in three phases.

1. To provide an understanding of the contexts in which corrosive substance attacks occur and the characteristics of these cases, police case file data from 648 recorded offences involving corrosive substances, across eight police force areas, were collected.
2. Interviews were conducted with 25 offenders convicted of offences where a corrosive substance had been used. The key aim of these interviews was to gain a better understanding of the main motivations for carrying and using corrosive substances in crime events.
3. Consultations took place with 29 experts working in the criminal justice sector or within other agencies that have an interest in corrosive substance crime. The main purpose of these consultations was to gain a better understanding about what kinds of preventative strategies could be developed to reduce the number of crimes involving corrosive substances.

The main headline findings from the study are outlined below.

1. The contexts and characteristics of corrosive substance crime

The police case file data collection exercise identified a number of key characteristics about crimes where corrosives were used.

- **Types of corrosives used**

  Household products (such as bleach) were the most commonly used corrosive (35%), followed by ammonia (32%) and corrosives labelled as acids/alkalis (15%). There was some variation in use of corrosives by crime type. Ammonia was the corrosive most likely to feature in a robbery, with 51% of such crimes involving that substance. Household bleach was the corrosive most likely to be used in offences of domestic violence.

- **Victim/suspect demographics**

  Victims and suspects were most likely to be male (72% and 88% respectively) and between the ages of 16 to 24 (the mean age for victims was 33 and for suspects this was 27). Suspects under the age of 24 were most likely to use substances that are described as acid/ammonia or noxious substances, whereas those over this age were more likely to

use substances described as household corrosives. In 63% of cases where acid/ammonia or noxious substances were used, the main suspect was under 24.

- **Victim/suspect relationships**

  A total of 52% of corrosive crimes were incidents between strangers, 13% between friends/social acquaintances, 12% between partners/ex-partners and 6% between criminal rivals. In crime events between partners/family members, household products (such as bleach) were used in three out of four cases. In cases involving criminal rivals, corrosives such as acid and ammonia were more likely to be used.

- **Level of injury sustained by victims**

  The vast majority of offences involving a corrosive substance did not end in serious injury, with the injuries described as 'moderate' in 65% of cases. In total, 8% of cases resulted in no injury with 27% leading to a serious injury to a victim. In cases where acid was used, 52% resulted in a serious injury as did 21% where ammonia was used. If the victim and offender were described as 'criminal rivals/associates', 48% of victims sustained a serious injury. Males were more likely to sustain a serious injury compared to females.

- **Locations of corrosive substance crimes**

  The majority of corrosive substance crimes occurred either on the street (42%) or in/around a dwelling (34%). There was a concentration of corrosive-based crime in areas of deprivation, with over 50% of these crimes occurring in areas that were in the top 20% of most deprived locations.

- **Temporal aspects of corrosive substance crime**

  The highest proportion of corrosive substance crimes (around one in three) occurred over the summer months of July, August, and September. Nearly 40% occurred between the hours of 6pm to midnight with the smallest proportion (one in ten) between the hours of 6am and midday.

2. Why offenders carry corrosive substances

Interviews were conducted with offenders who had used a range of corrosives – such as acid, ammonia and bleach – in crime events. They reported that corrosives were carried for a variety of reasons, including the following:

- **The ease of availability**

  Most corrosives were considered easy to obtain. Many forms of corrosives that were used (such as low concentrate ammonia) are available online or from retailers.

- **Perceived 'low-risk' of possessing corrosives**

  Little concern was expressed by interviewees in terms of being caught by the police for possession. Several mentioned they felt the consequences of carrying a corrosive would be preferable to being caught in possession of a knife.

- **Ease of disguising possession**

  Several interviewees spoke about how easy it was to disguise the possession of a corrosive in a way that fitted seamlessly around the everyday routine activities of offenders and people in the world around them.

- **Low financial costs**

  Although concerns over the financial costs of weapons were not a pressing concern for most interviewees, several did mention that the low costs of corrosives made them attractive.

- **The need for self-protection**

  In some locations there had become a normalisation of weapons carrying that led to offenders carrying weapons for the purposes of self-protection.

- **To enhance criminal and street reputation / self-presentation**

  Several offenders mentioned how the normalisation of weapons carrying meant that doing so was necessary to preserve their reputation and to be seen as credible by others.

3. Why offenders use corrosive substances in crime events

Four principal reasons emerged as to why offenders said they used a corrosive in a crime event.

1. **To achieve a specific instrumental criminal outcome**

   Across several cases outlined by offenders, the corrosive was used to achieve a specific intended and planned instrumental outcome such as a robbery (n=8).

2. **To punish / exact revenge**

   In interview, offenders mentioned several incidents they had been involved in where a corrosive was used in order to punish victims or to exact revenge for some sort of wrong doing (n=9).

3. **Fear of attack / self-defence**

   Several interviewees pointed to the fact that in the heat of the moment they were fearful of being attacked themselves and so stated that they used a corrosive pre-emptively (n=8).

4. **To fulfil behavioural/peer group expectations**

   In several cases (n=6), offenders said they did not necessarily plan beforehand to use a corrosive but felt under pressure from peers/co-offenders to use a corrosive as the crime event unfolded.

Offenders were also able to point to a number of factors around the utility of corrosives that made them appealing as a weapon. Eight principal factors emerged including the following.

1. **Physical harm control**

   For some, the benefit of using corrosives was the level of control that users had over the extent of physical harm they wanted to cause to victims.

2. **Adaptability**

   There was a sense from the interviews that corrosives were seen as an adaptable and versatile weapon – ‘a weapon for any crime’.

3. **Element of surprise**

   There can be an element of surprise to a corrosive attack that was not as achievable with other weapons.

4. **Weapon readiness/speed**

   Several interviewees expressed a view that corrosives can be more 'ready to use' and 'easy to hand' than other weapons that need to remain hidden most of the time.

5. **Instant visual incapacitation of victims**

   A specific utility, not evident with knives or guns, was that corrosives are effective at instantly visually incapacitating a victim, allowing a further crime (usually robbery) to be carried out.

6. **Putting physical distance between an offender and victim**

   For many offenders, using corrosives allowed them to keep a physical distance from victims.

7. **Silent to use**

   Beyond being able to keep a distance from the victim, it is a silent weapon to use.

8. **Ends crime events quickly / reduces uncertainty about the outcomes of violent crimes**

   A key appeal of corrosives is the perception that they can end crime events quickly and also reduce the level of uncertainty in crime events. It was thought that using corrosives could make capture less likely for suspects and also make it less likely that offenders would be injured when violent clashes occurred.

4. Potential preventative strategies

The views of experts and offenders were solicited in relation to potential preventative strategies. Several of these differed little from approaches that might be used to tackle serious violence involving a range of different weapon types. It was, however, acknowledged, by several experts, that there was a requirement to improve knowledge and intelligence about corrosive substance crime. This might come through police recording practices that have a flag for corrosive-based crimes, mandatory reporting to the police of corrosive attacks by victims who present at Accident and Emergency (A&E) departments, and developing joint police and NHS corrosive substance crime databases. Such improved knowledge would enable better monitoring of numbers of crimes and could be of potential use in informing preventative strategies. In relation to this, both the expert interviewees and offenders pointed to several potential preventative strategies that could be developed to target corrosive crime going forward. These were based around the following themes.

1. **Increasing the effort to obtain/purchase corrosives**

   A number of experts clearly felt that the current voluntary commitments for retailers were a step in the right direction, for example the restriction of sales of corrosives. It was also felt that work in conjunction with Trading Standards to look at prosecution for illegal supply of corrosives could be conducted. Further suggestions were to educate retailers on the terms of sales, and training for retail staff at sales counters on regulations as well as potential signs to look out for in relation to people to whom sales should not be made.

2. **Increasing the risks of detection to those carrying corrosives**

   It was felt that the key to reducing corrosive-based crime was to reduce the likelihood of possession. While the new provisions in the Offensive Weapons Bill (now the Offensive

Weapons Act 2019) were welcomed by experts, it was noted that currently, the police do not have the forensic-specific facility that enabled the quick identification of substances. In addition, it was suggested further efforts should be made to generate publicity and knowledge about the harsher sentences that have been given for using corrosives in crime. It was also felt that a further offence of preparing for a corrosive attack could be created for when corrosives are placed into sports drink or 'squirty' bottles in preparation for criminal acts.

3. **Heightening awareness of victim/offender impact**

   This might be achieved through school education and public education on the dangers of corrosive substances and what to do after an attack. It was also suggested that making the dangers of exposure much clearer on the packaging of corrosive substances in order to highlight the serious physical damage that can be done to human beings – similar to the contemporary health warnings on cigarette packages – could be beneficial. Further work with relevant agencies might also want to heighten awareness of using corrosives within the context of domestic violence.

4. **Changing the design of bottles to prevent them from being used in corrosive crimes**

   Some experts suggested consideration might be given to working with manufacturers to change bottles so they will not hold corrosives without melting or the surface of the bottle changes colour if filled with a corrosive.

5. **Tackling onset and risk factors for offenders**

   Targeting locations of highest risk through piloting projects aimed at young 'at risk' people and providing adequate youth facilities/activities in high-risk locations, might also be considered in order to divert young people away from such crimes.

6. **The use of prison interventions**

   Several practitioners suggested that those convicted of corrosive substance crime need carefully designed interventions to reduce the risk of them using corrosives when they leave prison. It was suggested these interventions needed to be run by people who understood the issues and motivations behind attacks.

1. Introduction

This report presents the findings of research that explored the motivations of offenders who carry and/or use acid and other corrosive substances. The study was commissioned due to growing concerns over the increased use of acid and other corrosive substances in criminal acts between 2012 and 2017. Increases in what has been commonly labelled as 'acid attacks' have been observed in several locations in England (Lipscombe & Hutton, 2017) and many of these attacks have received widespread media attention. Although the use of weapons has been a source of public concern and a main policy focus (Home Office, 2018), the use of acid and other corrosives are of serious concern given the potential significant harm and life changing injuries that these can have on victims and survivors. Against this backdrop it was clear that while some previous research existed in relation to acid attacks, no known research had directly considered why some people choose to carry acid (or other corrosive substances), and why they then use such substances in crime events.

Acid throwing has been defined as 'intentional acts of violence in which perpetrators throw, spray or pour acid onto victims' faces or bodies (Kalantry & Kestenbaum, 2011, p. 1). Such attacks have a long history, thought to date back to at least the 16th century (Tan *et al*., 2015). Historical records document cases of 'vitriolic' attacks, whereby 'vitriol' (a sulphuric acid-based substance used in the treatment of precious metals) was thrown onto a victim, usually as a 'crime of passion'. Traditionally, acid attacks have been identified as a particular problem within the 'developing' world or within 'low- and middle-income countries' and has been linked to wider societal problems with gender inequality, often leading to its discussion within the broader context of violence against women (Chowdhury, 2011; ActionAid, 2017).

A body of evidence shows that acid violence is most common in countries where acids are available to buy for everyday domestic use, or where they are prevalent due to their use in the manufacture and processing of certain goods (Kalantry & Kestenbaum, 2011; ASTI, 2015). For example, sulphuric acid is widely used in Bangladesh in the textile trade to dye fabrics (ActionAid, 2011; Kalantry & Kestenbaum, 2011) and it can be purchased from auto repair shops and jewellery stores (Chowdhury, 2005). In Cambodia it is used in the manufacturing of rubber and is widely available. Sulphuric acid can be bought at petrol stations and street sellers in Uganda. Customers can take their own container along and pay to have acid poured into it; it is very cheap and although it needs to be diluted for its most common use in car batteries, it continues to be sold in concentrated form (Acid Survivors Foundation Uganda, 2011; Asaria *et al.*, 2004). In Jamaica, sulphuric acid obtained from car batteries and sodium hydroxide from household cleaning supplies are both commonly used in attacks (Branday *et al*., 1996). In the USA, alkalis such as caustic soda (or lye) are commonly used due to their easy extraction from household drain cleaners (Mannon *et al*., 2007).

Attempts to legislate against this specific form of violence are relatively recent. On a global scale this has been spearheaded by the work of non-governmental organisations (NGOs) such as Acid Survivors Trust International (ASTI), ActionAid and Acid Survivors Foundation (ASF), which have been instrumental in raising awareness about acid violence in Bangladesh, India,

Pakistan, Cambodia, Uganda and Colombia. Furthermore, this has led to increased regulation of corrosive substances, and legislative changes to prosecute perpetrators of acid attacks (ASTI, 2015; ASTI, 2017). However, despite the attempts to legislate, there has been very little systematic research that has explored the motivations behind the use of acid in crime. Indeed, Haque & Ahsan (2014) lament the scarcity of available data and the lack of scientific literature. While some international literature exists that provides estimates of the extent of acid attacks, particularly within South Asian countries (e.g. Kalantry & Kestenbaum, 2011; ASTI, 2015), little is known about the *modus operandi* (MO) or motivations for such attacks. The international literature focuses either on medical harms, such as the presentation of chemical burns victims, medical intervention, and long-term care and rehabilitation; or comes from NGOs concerned with these attacks as a form of gender-based violence on young females by male perpetrators.

Although incidents of vitriol throwing were commonly reported in the UK media between the years of 1840 to 1940 (Watson, 2017, p. 108), more recently acid attacks began to receive considerable media coverage in the UK after a spate of attacks over a short period of time in the summer of 2017, largely in London (Mann, 2017). Khan (2017) argued that the UK media only became interested in acid attacks when *"it became the weapon of choice on the streets and the targets became more random"*, resulting in *"an undercurrent of fear amongst the general population"*.

Although there is a paucity of research in relation to acid carrying and use, there is literature on the use of weapons, such as guns and knives, that highlights a number of issues that are relevant to this study (for a review see Brennan, 2017). Commonly, definitions of weapons carrying (and subsequent research) tend to refer to the carrying of an object, such as a gun or a knife (e.g. Dawson & Goodwill, 2013), and has neglected the use of liquids (such as corrosives) as a weapon. The literature recognises that a range of objects could be defined as a 'weapon' and the different circumstances in which objects might be acquired to be used in crime are varied (for example, some offenders might go to a location carrying a weapon, others might use situationally available objects as weapons – especially in domestic violence cases). While survey and crime data have been used as measures of the extent of weapons use in crime (Brennan, 2019), it has also been recognised that there are challenges in measuring how many people carry and use weapons. Despite this, a body of work has developed that identifies the benefits of using weapons in crime. This highlights that the key benefits of using weapons are in overcoming any resistance (especially in robbery), neutralising differences in physical strength between victims and offenders, and reducing the likelihood of involvement from capable guardians (Cook, 1991; Beauregard & Leclerc, 2007).

Many theories of weapons carrying are informed by rational choice theories and point to the offender's need to self-protect and self-preserve, and the perceived utility of particular weapons. However, as Brennan (2017) observed, few research studies have distinguished between the differences in reasons for *carrying* and the reasons for the *actual use* of weapons. Evidence in relation to weapons *use* places an emphasis on rational choice theories, but also suggests weapons users tend to have a violent disposition (Michie & Cooke, 2006) or that differential association – largely driven by the availability and exposure to weapons in a community – are key to weapons use (Harding, 1993; Brennan, 2017; 2019). However, a key criticism of the previous literature (as highlighted by Brennan, 2017) is the lack of offender-focused studies that aim to engage with weapons users in order to understand their reasoning processes.

Against this backdrop, the principal aims of this project were to conduct research focused in England and Wales to understand:

- why people are carrying and using acid and other corrosives in violent attacks and criminal acts
- how offenders arrive at the decision to carry and use a corrosive substance as a weapon, as opposed to other weapons or no weapons at all
- how offenders decide to carry or use a particular type of corrosive substance
- where and how offenders purchased the corrosive product
- how offenders carry the corrosive
- the characteristics of offenders who carry and use corrosives (including demographics such as age, gender etc.) and what (if anything) makes them stand apart from other offender groups
- the characteristics of victims, the victim/offender relationship and if offenders are part of any wider networks (e.g. street gangs, drugs markets, modern slavery or organised criminal gangs)

The project was designed around three main strands of fieldwork.

1. The collection of police case file records on 648 offences involving corrosive substances.
2. Interviews with convicted offenders (n=25).
3. Consultations with 29 ‘experts’ working in the criminal justice sector or within other agencies that have an interest in corrosive substance crime.

This report is structured into four main sections.

1. **Project methodology**

   This outlines the methods that were used to collect data.

2. **The contexts of corrosive substance attacks**

   This includes an overview of the types of corrosives used in crime events, the characteristics of victims/suspects, the extent of injuries sustained, and the spatial and temporal characteristics of corrosive crimes.

3. **Offender motivations to use corrosives and choice of weapons**

   This considers the antecedents to attacks and why corrosives are carried, motivations for using corrosives and their intended use.

4. **Potential preventative strategies:**

   This considers preventative strategies that might be developed.

2. Project methodology

To answer the research questions, the project methodology comprised of three elements:

1. Case file analysis of crimes involving corrosive substances.
2. Interviews with convicted offenders.
3. Consultation with experts from across a range of criminal justice agencies, hospitals and charities.

Each stage of the methodology is outlined in detail below.

2.1. Case file analysis

Case file data were collected from eight police force areas. The information included in the case files were crime reports and investigation records held by police forces on offences which involved a corrosive substance. These reports and records were based on information given by victims and witnesses in relation to the crime. The primary aim of the case file analysis was threefold:

1. To gain an understanding of the contexts in which corrosive substance attacks occur.
2. To gain an understanding of the characteristics of cases across different police areas.
3. To generate a list of convicted offenders as a potential interview sample.

The data used in the analysis were based on 648 crimes involving corrosives collected from eight police force areas in 2018. The crimes had been committed over three years (five years for Northumbria). The data captured the following information (see Annex 1 for further details of the data collected).

- **Background details of the attack**

  The index offence(s), date, time, location of attack and the type of corrosive substance used.

- **Victim details**

  The number of victims and their age, gender, ethnicity, nationality and the victim-offender relationship.

- **Suspect details**

  The number of suspects in the case, their age, gender, ethnicity, nationality, their previous offending history and whether they were affiliated to a gang.

- **Details of the attack**

  The antecedents of the attack, how the corrosive substance was carried and dispensed, the level of injury to victims and motivation for the attack.

- **Post attack charges and sentence detail**

  Details of dates of arrest, whether suspects were charged with an offence, conviction details and length of sentence.

Initially, 12 police force areas were invited to take part in the research through a letter of invitation sent via the National Police Chiefs' Council's (NPCC) lead on corrosive substance attacks. These forces were selected for participation principally on the basis that they appeared to have a comparatively high number of corrosive substance attacks and they represented a mixture of urban and more rural areas. An indication of the number of corrosive crimes by force area were available through data collected from two voluntary data collection exercises that had been run by NPCC.[1] The voluntary data collection exercises invited all 43 English and Welsh police forces to return data on the numbers of crimes involving corrosives for November 2016 to April 2017 (first exercise - 6 months) and then for October 2017 to December 2017 (second exercise - 3 months) that had occurred in their area.[2] The letters of invitation went to the appropriate Assistant Chief Constable in the force, who then cascaded the request to the relevant lead for corrosive crime or another appropriate contact.

The initial request asked for the total number of corrosive crimes recorded in their area for three years from January 2015 to December 2017 and, of these, how many resulted in a suspect being charged. As there is no specific Home Office code for corrosive crime or a separate recording category, in order to identify offences involving such substances, analysts had to conduct free text searches in crime systems using terms such as 'corrosive substance', 'acid' and 'noxious substance'. However, in some forces, where corrosive substance attacks had been more widely reported (such as the Metropolitan Police Service (MPS) and Northumbria) systems already existed to capture data on this crime type. Based on these returns and conversations with force leads, it was decided to include eight areas in the study. While data from these eight police force areas can provide a useful insight into the nature of corrosive crime, findings from this study are not necessarily representative of the entirety of England and Wales.

Across all the eight forces – except Northumbria – data were collected on all crimes where corrosive substances were used over a three-year period. In Northumbria, data had already been collected for a five-year period for the force's own operational purposes; to reduce the burden on this force, all of these cases were incorporated into the study. Due to the large number of crimes involving a corrosive substance in the MPS it was initially decided to sample 25% of these cases, selected at random using MPS software. The final sample achieved was 35% of all available cases. The extra 10% of cases were collected in order to increase the sample size of cases with a named suspect. Some of these suspects (those who were sentenced offenders) were then contacted to invite to interview. While the inclusion of the additional 10% of cases with a named suspect may have led to an overrepresentation of cases that were both more serious in nature and 'easier' for the police to solve (that is, cases where the suspect and victim had a prior relationship, the offence was witnessed or the suspect confessed), it also enabled a more thorough examination of the demographic characteristics of suspects, something which was of key importance to this study.

Where forces had already collected anonymised data on corrosive cases, relevant police personnel were able to securely send the relevant information as an Excel file. To try and minimise the need for data cleaning and recoding of data, a coding sheet (see Annex 1) was sent out to forces that specified what data variables were required, the categories to be used in the coding and how they should be coded. In addition, the research team explained the process

[1] For the first exercise (referred to throughout this report as NPCC1), 39 forces provided returns; for the second exercise (referred to as NPCC2), all 43 forces in England and Wales as well as the British Transport Police, provided returns.

[2] In addition to the numbers of corrosive substance crimes, data were also collected in relation to types of corrosives used, age of victim and offenders, seriousness of injury, motivation for the crime, how corrosives were transported and location of incidents.

to the relevant personnel (via phone) prior to coding taking place. A brief description of each offence was also included as free text. Data were screened for coding errors prior to analysis. Once assured that the data quality was of a high standard, data were then entered in to a statistical software package by the project team. Where forces did not have pre-collected anonymised data, such as MPS, coding took place *in situ*, as detailed crime files were not permitted to be removed from where they were held. Information on cases from within the MPS area was collated from crime reports recorded on the MPS Crime Reporting Information System (CRIS). CRIS records lines of enquiry and the progress of the investigation; thus, while CRIS records suspect and victim demographics and offence details (as described by victims and witnesses), it does not include full interview transcripts or expert reports etc. While it is likely, therefore, that certain pieces of information will be missing from CRIS reports, they are generally regarded as a rich source of information, and data obtained from them are considered by the police to be detailed and reliable (MPS Rape Review, 2005). Once data have been either received from relevant forces or recorded by the research team, they were combined into one master Excel file, and a corresponding SPSS file, for the purposes of analysis.

The number of cases per police force area is presented in Table 1. In this table (for the purposes of comparison), the number of offences involving a corrosive substance that had been previously reported to the Home Office in the two NPCC data collection exercises is also presented.

In total, the case file analysis was based on 648 crimes. In addition, data were available from MPS on a further 539 crimes including details about the types of offences associated with the use of corrosive substances. These additional cases are included in the analysis where appropriate and, where included, increased the number of cases for the MPS to 832. It should also be noted that as the geographical distribution of cases is heavily concentrated in London, at several points throughout this report, analysis is presented that compares the characteristics of cases in London to those outside the London area.

Table 1: The number of offences involving a corrosive substance included in the case file analysis for the eight police force areas over a three-year period (2015 to 2017) and crimes reported in the NPCC voluntary counting exercises (November 2016 to April 2017, and October 2017 to December 2017)

Force area	Number of offences involving a corrosive substance included in the analysis (36 months)	Number of offences involving a corrosive reported to the NPCC (combined 9 months)
MPS – London	293 (832)*	255
Northumbria	129**	33
Essex	76	28
Kent	43	17
Greater Manchester Police (GMP)***	28	36
West Midlands	35	14
Hampshire	32	21
Suffolk	12	~ (under 5)
Total number of cases in study	**648 (1,187)**	**N/A**

*Over the three-year period there were 832 cases in MPS. Full data were collected on a sample of 293 (35%) cases.

**The number of cases for Northumbria related to a five-year period.

*** GMP data were provided for the three-year period and checked internally. It is thought the difference in the number of cases collected over the three-year period for the case file analysis and the number returned for the NPCC data collection exercise over a nine-month period are a function of initial challenges in identifying corrosive substance crimes in police data systems.

2.1.1 Limitations with the case file data

There are potential limitations with the police case file data that need to be considered here. As many commentators have noted, such as Maguire & McVie (2017), what can be gleaned from police data is limited due to low reporting of some crime types and poor record keeping.

Identifying crimes that involve corrosives is problematic for some police forces, as often databases do not contain a discrete offence category for an offence involving corrosives. As indicated above, two of the forces collected data specifically on corrosive crime, so were able to quickly identify cases. However, for others, free text searches on crime recording systems had to be completed in order to identify cases. Inevitably this means that some cases that did, in fact, involve corrosives, but did not include any of the key words searched for (e.g. 'corrosive substance', 'acid', 'noxious substance') will not have been included in the sample. It needs to be borne in mind that, as with all crime recording, sometimes there was limited information or descriptions of individual cases, as very little information was given to police officers by those reporting the incident. Indeed, there were some specific variables where data were limited. For example, information was collected, where possible, on the ethnicity of victims and suspects; however, when these data were reviewed it was decided that the quality was not sufficiently robust enough to undertake meaningful analysis. Complete data on suspect and victim ethnicity were available for only a subset of cases. Missing data on suspect ethnicity was a particular issue, partly reflecting the fact that in some cases, victims and witnesses were unable to identify suspects. Where information was available, standard ethnicity categories were not used and, overall, the pattern of recording ethnicity across different forces was variable. On balance, it was

decided that any analysis by ethnicity would not yield a meaningful picture of the overall ethnicity mix of suspects and victims involved in corrosive offence incidents.

A further limitation was that no accurate assessment of the proportion of corrosive substance crime reported to the police could be made. The Crime Survey for England and Wales data (to 31 March 2018) estimated that around 38% of all violent crime was reported to the police, which increased to 57% for wounding offences (Office for National Statistics (ONS), 2019). Therefore, one might assume that a large proportion of corrosive crime never comes to the attention of the police. Indeed, an ophthalmologist[3] interviewed for the project suggested that people can occasionally appear at Accident and Emergency (A&E) departments who have been victims of attacks that never come to the attention of the police for various reasons. The assumption here might be that these are people involved in street feuds or forms of criminality that would make them not want to draw police attention. However, without any systematic corroboration between hospital admission records and police reports it is difficult to estimate to what extent such discrepancies exist. Some evidence from studies on crime involving weapons do suggest that where weapons are used in violence there might be higher rates of reporting (Brennan, 2011; ONS, 2019). However, it is unclear whether crimes involving corrosives are more likely to be reported to the police than those crimes where other types of weapons are used or no weapons at all.

Previous research on weapons use also notes that crime reports have limitations in that they do not go into sufficient detail to understand offender motivation for carrying and eventually using a weapon (Brennan, 2017). In order to build an understanding of offender motivations for carrying and using corrosives, interviews were conducted with convicted offenders.

2.2. Interviews with convicted offenders

The second strand of the methodology involved conducting interviews with a sample of adult offenders convicted for offences where corrosive substances were used as a weapon. Only adult offenders were interviewed due to the difficulty of obtaining ethical approval to interview children under the age of 18. The names of offenders were obtained from police force areas through the case file data collection exercise. Their details were securely given to a contact at Her Majesty's Prison and Probation Service (HMPPS) and approaches to the relevant prisons were made. All offenders were interviewed face-to-face and, where possible, interviews were recorded and transcribed.[4,5] Before the interviews, potential interviewees were sent a project pack (see Annex 2) that included:

- an overview of the project
- a privacy impact notice
- a consent form
- an overview of the interview schedule

The key aim of the offender interviews was to gain a better understanding of the context behind incidents and the main motivations for carrying and using corrosive substances. To gain this

[3] Ophthalmology is a branch of medicine and surgery which deals with the diagnosis and treatment of eye disorders. An ophthalmologist is a specialist in ophthalmology.
[4] The interview recordings were deleted after transcription in order to comply with ethical and data protection requirements.
[5] Some prisons would not allow recording devices to be taken into the establishment. In such cases, detailed notes were taken throughout the interviews. These hard copies were destroyed once electronically transcribed, in line with data protection requirements.

understanding, a 'crime scripts' approach was used as a broad framework for the interviews. This approach has been applied to several crime types (from shoplifting to money laundering – for example Gilmour, 2014), where the sequences of crime events and the dependencies necessary for events to occur are identified. Sacco and Kennedy (2008) usefully suggest that most crime events can be separated into three distinct phases – precursors, transactions, and aftermaths. Therefore, the interviews were developed with a view to try and understand:

- precursors/contexts/antecedents to corrosive substance attacks
- the transactions between victims and offenders during corrosive substance crimes
- what offenders did in the aftermath of the attack

With this sequential process in mind, an interview schedule based around the crime event was developed. In addition, offenders were probed in detail about what deterrents and preventative measures might have made them change their decision to carry and use a corrosive substance. The schedule had six main sections and included the following:

1. **Offender background**

   Details of where the offender lived, their family history and previous offending history.

2. **Precursors to the crime event**

   Why they chose to carry a corrosive substance, how the substance was obtained, why the corrosive was selected over other types of weapons (such as a knife or gun) and their knowledge about how to use the substance in an attack.

3. **Transactions**

   How the attack came to happen, who was involved, their relationship to the victims, how the corrosive substance was used and why it was used.

4. **Aftermath**

   How the offender left the scene and how they were eventually arrested.

5. **Deterrence and prevention at the time of offending:**

   Knowledge about potential legal penalties, if the offender considered the likelihood of getting caught and what might have stopped the attack.

6. **Deterrence and prevention post offending:**

   How it might be made more difficult to purchase corrosive substances, what might have prevented offenders from using a corrosive substance and whether tougher sentences might impact on the decision to use corrosives.

Table 2 presents an overview of the participation rates in the interviews and the attrition points. A total of 174 potential interviewees were identified from the casefile analysis. These were all offenders who had been named in the police case files as being involved in a corrosive crime. Of these, 89 were located in the prison estate[6] and approached for interview. In 49% of cases where potential interviewees were located in the prison estate, no response was received from the prison concerned after a request to approach the prisoner had been made. A total of 16% (14) of potential interviewees immediately refused to participate when approached by HMPPS

[6] The offenders who could not be located in the prison system were still awaiting sentence, serving community sentences or had been released from prison.

and a further 7% (6) agreed to interview but then refused to participate at the interview (or refused to come to the interview). In total, 28% (25) were interviewed.

Table 2: Response rates for offender interviews

Category	Number (%)
Total number of potential interviewees identified/approached in prisons	89 (100%)
No response from prison after request for interview	44 (49%)
Potential interviewee refused interview on initial approach	14 (16%)
Potential interviewee initially agreed but then refused at interview	6 (7%)
Interview completed	25 (28%)

Of the 25 interviewees who completed interviews:

- Eleven were aged 18 to 21 at the time of the main corrosive crime that was the focus of the interview; a further eleven were aged 22 to 30 and three were over the age of 31.
- Twenty-three were male.
- Seven were serving sentences of over ten years, with eight serving sentences of between five to ten years.[7] The remainder were serving sentences less than five years in length.
- Nine had used a form of acid, 12 had used ammonia and three had used a form of bleach (two referred to this as industrial bleach).

The transcribed interviews were loaded into the data analysis computer package NVivo. A number of steps common when analysing qualitative data were followed (e.g. Braun & Clarke, 2006). Firstly, interview data were examined to identify descriptive information on, for example, details of the circumstances of the crime, the victim/offender relationship, how the corrosive was obtained/purchased (e.g. from where it was obtained, who supplied it and how it was contained when it was supplied to the offender) and how the corrosive was thrown. Secondly, the interview transcriptions were closely read with the principal research questions (around motivations for using corrosives) and the crime scripts process of crime events (precursors/ transactions and aftermath) in mind. Thirdly, a long list of different codes was identified describing important features of the data of relevance to the research question guiding the analysis. Codes were then sorted into potential themes – a theme being a coherent and meaningful pattern in the data relevant to the research question – and relevant participant quotations from within the identified themes were collected. For example, four themes were identified pertaining to the decision to carry corrosives ('ease of availability', 'perceived risk of possession', 'ease of disguising possession' and 'low financial cost'). Finally, the themes were then reviewed and refined (e.g. two themes were collapsed into one if there was too much overlap between them) by the research team, and in some cases sub-themes were created. As this coding process was conducted, other themes were identified also of interest in the research, for example views of interviewees on weapons possession generally, and the utility of particular weapons.

[7] It should be borne in mind that sentence length may be influenced by other factors beyond the nature of the index offence.

2.2.1 Limitations with the offender interviews

There were, of course, limitations with the offender interviews that need to be borne in mind. As indicated by Table 2, some difficulties were encountered in securing interviews, and on occasion interviews were arranged with the consent of offenders who then decided to withdraw. This may mean that certain types of offender (those who are willing to be interviewed) are likely to be over-represented in the data. Further to this, researchers have noted that qualitative interviews with offenders can yield limited useful data due to social desirability, cognitive dissonance and poor recall / memory loss. As a way to try and mitigate for this as far as possible, details given by offenders were cross-referenced with details held in the case file data. The sample was also limited in that it only included offenders over the age of 18 and those who were serving custodial sentences (and therefore likely to have committed more serious offences), so the data cannot be considered to be representative of all offenders who use corrosives.

2.3. Consultation with expert practitioners

The main purpose of the consultation with experts was to gain a better understanding about how preventative strategies could be developed to reduce the number of crimes involving corrosive substances. In total, 29 practitioners from criminal justice agencies and support groups were consulted through face-to-face interviews (n=10) and an online survey (n=19).[8] The experts were recruited through networks that were known to the NPCC Corrosive Substances Working Group and included:

- 20 police officers of various ranks involved in the policing of corrosive substance crime
- one Crown Prosecutor and three practitioners from Youth Justice / probation working with people at risk or convicted of crimes involving corrosive substances
- a range of four charities and campaign groups who work with victims such as: Acid Survivors Trust International; Stop Acid Attacks – Campaign against Acid Violence; and Changing Faces
- an ophthalmologist who had been involved in the treatment of corrosive attack survivors

Those agreeing to participate were asked questions in relation to their understanding of corrosive crime and potential preventative strategies, as follows:

- **Current trends in the use of corrosive substances**

  Why offenders were carrying corrosives as opposed to other types of weapons, the types of corrosives carried and how offenders obtained corrosives.

- **The main causes and motivations for using corrosive substances**

  The types of attacks they were used in and if offenders understood the potential consequences to victims.

- **Potential preventative strategies**

  What might work in relation to deterrence and prevention, and if offenders were aware of the legal consequences for carrying and using corrosive substances.

[8] The online survey was developed to try and collect information from as many experts as possible.

A full face-to-face interview schedule is attached at Annex 3 and the online survey at Annex 4.

2.3.1 Limitations with the expert practitioner consultation

While we encouraged a wide participation in the survey, ultimately practitioners completed the online survey of their own volition. Participation was not exhaustive, and there may be views that we did not encounter as a result. It should also be borne in mind the experts were expressing their own views about the motivations for corrosive substance crime and possible preventative strategies. These views may or may not reflect the wider evidence on what works in dealing with such offences.

2.4. Research ethics, General Data Protection Regulations (GDPR) and information sharing requirements

Ethical approval was obtained via the University of Leicester (UoL) ethics process and agreement was also granted to conduct the research through HMPPS National Research Council (NRC).[9] UoL also entered into information sharing agreements or a memorandum of understanding arrangement with all participating police forces, HMPPS and the Ministry of Justice. GDPR came into force part way through the project (May 2018) and it was necessary for the project to comply with these requirements. For example, there was a requirement to have a valid legal reason for the transfer and use of personal data about offenders between agencies, such as the police and HMPPS and UoL, as well as processes for personal data to be securely transported and stored, and destroyed after publication of this study. In addition to this, permission was sought and granted from the NPCC lead on corrosive substance attacks to use the data collected in the two national voluntary data collection exercises with police forces for the purpose of this study.

[9] UoL research ethics was granted in November 2017 and NRC approval in December 2017.

3. The context behind corrosive substance attacks

In this section, analysis is presented on:

- the types of corrosives used, their associated crime types
- the demographic characteristics of victims and suspects
- the extent of injuries sustained in corrosive substance crimes
- the spatial and temporal characteristics of corrosive substance crimes

We predominantly draw on data collected from police case files, although, where appropriate, reference is also made to both of the NPCC voluntary data collection exercises conducted with police forces. Some caution needs to be expressed in relation to the case file data due to the number of missing cases across some variables and thus for some variables it was not possible to conduct meaningful analysis. Therefore, the number of cases available for analysis is given under each table and figure.

3.1. The types of corrosives used and their associated crime types

In this section we outline the types of corrosives that are used in crime. The offences associated with corrosives were categorised in four main crime types: robberies, burglaries, violence against the person offences and others.[10] The offence category was known in a total of 1,187 cases. As illustrated in Table 3, the highest proportion of offences where corrosives were used was violence against the person (77%) and robberies (18%). This shows similarities to the proportions observed in NPCC2[11] where 14% were robbery cases and 76% violence against the person. There is some variation in the distribution by police force area and care has to be taken here due to the low numbers of cases in some forces; however, it can be seen that the use of corrosives were used in robberies in the MPS (22% of cases).

Identifying the exact type of corrosive used in a crime from police data was difficult. Data were available on the type of corrosive used in 455 crimes, while in 193 (30%) of all the case file records (n=648), corrosives were recorded as ‘unknown liquids’. Further to this, corrosives were generally recorded in police files as either noxious substances, ammonia, acid/alkali or household products (such as bleach).[12] This is problematic as it limits our understanding of what types of corrosives are being used in crime, and whether there is a distinction between ‘hard to obtain’ corrosives (such as high-strength sulphuric acid) and common household cleaning products such as bleach. However, this lack of knowledge is understandable as unless somebody reporting the offence had specific knowledge about the substance, or police

[10] Others included offences such as threats to kill, sexual offences and to administer a poison.
[11] See footnote 1 for an explanation of the difference between NPCC1 and NPCC2. NPCC2 data are used here as offence categories were not available for the NPCC1 data.
[12] ‘Others’ included substances such as CS gas or those simply described as ‘caustic’ in police records.

officers / an expert (such as a forensic scientist) were able to test the substance, it can be difficult to ascertain what type of corrosive was used.

Table 3: Use of corrosives as a weapon by police force area, by main index offence

Police force (number of cases)	Crime type				Row %
	Robbery (%)	Burglary (%)	Violence against the person (%)	Others (%)	
MPS (832)	22	3	75	0	100
Northumbria (129)	12	4	81	3	100
Essex (76)	12	0	85	3	100
Kent (40)	2.5	2.5	95	0	100
GMP (25)	4	0	96	0	100
West Midlands (35)	6	0	86	8	100
Hampshire (32)	0	0	91	9	100
Suffolk (12)	25	0	75	0	100
No. of cases (1,187)	**18**	**2.5**	**77**	**2.5**	**100**
Total estimated proportion nationally in NPCC2 (200) *	**14**	**0**	**76**	**5**	**95**

Base: case file data (n=1,187) and NPCC2 (n=200)

*The percentage for NPCC2 totals 95% as another category (endangering life) is included in the NPCC2 data and the remaining 5% of cases fall into this category.

In Table 4, we present the association between the types of substances used and the crime type (where the substance was known). This shows that overall household products (such as bleach) were the most commonly used corrosive, followed by ammonia (32%), then corrosives labelled as acids/alkalis. However, there was some variation in crime types that is worth noting here; for example, ammonia was the corrosive most likely to feature in a robbery, with 51% of such crimes involving that substance.

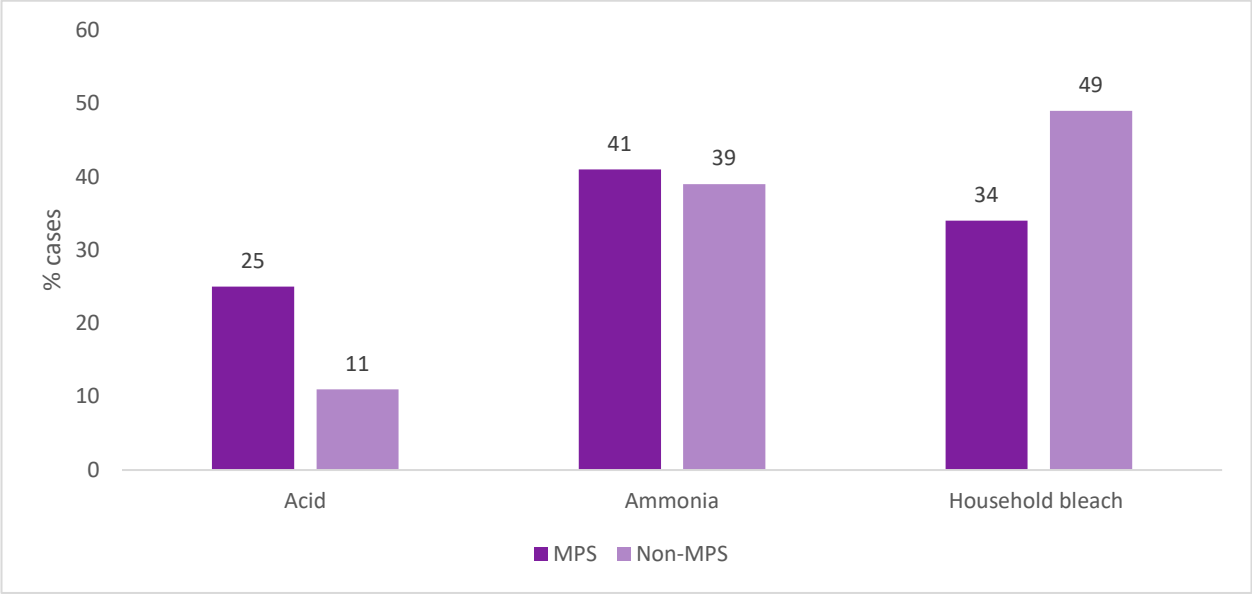
Table 4: Types of corrosives used in violent crime

Violent crime type (number of cases)	Type of corrosive					Row %
	Acid or alkali (%)	Ammonia (%)	Household product: bleach, cleaner, anti-freeze (%)	Noxious substance (%)	Others (%)	
Violence – with malicious, serious wounding, ABH (288)	17	31	34	12	6	100
Violence – common assault offences (85)	11	34	43	6	6	100
Robbery (51)	16	51	20	12	2	101
All others (21)	0	38	38	14	10	100
All cases (455)	**15**	**32**	**35**	**11**	**7**	**100**

Base: case file data: 455 out of all 648 case file cases, 30% (193) were recorded as ‘unknown liquids’ and have been excluded in this table.

In Figure 1, comparison is made between the overall proportions of offences where different types of corrosives are used across the MPS and forces outside of the MPS area. Care has to be taken in relation to how the data are interpreted due to differences in how corrosive substances are recorded across force areas. As indicated above, there were 193 cases where a substance was used, but it was unclear what the substance was. Therefore, these have been omitted from the comparison below. In a further 49 cases, which were all outside the MPS area, the substance was recorded as 'noxious'. As it is unclear what type of substance this is in these cases, these have also been omitted from the analysis. Finally, there were 32 cases where substances were recorded as 'others', with only three of these in the MPS. Therefore, due to the small numbers in this category, these have also been omitted from the analysis. The data illustrates that bleach is the most commonly used corrosive outside of the MPS area (in just under a half of cases) but substances described as 'acid' are most likely to be used in the MPS area. Here one in four corrosive substance crimes involved the use of acid. Bearing in mind the large number of cases where we were uncertain of the type of corrosive, this tentatively suggests that, within the MPS area, substances that are less likely to be readily available (such as acids) are more commonly used than outside of the MPS area.

Figure 1: Types of corrosives used (MPS compared to non-MPS areas)



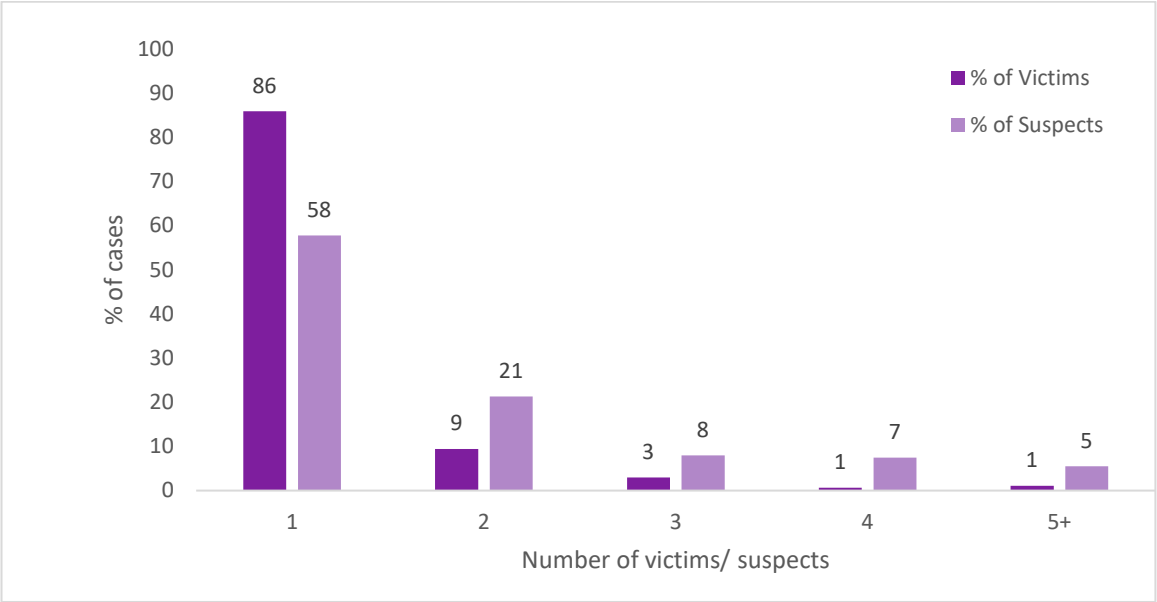
Base: case file data: 374 cases out of 648 cases. This includes 179 cases in the MPS where substances were identified as acid, ammonia or household bleach, and 195 from non-MPS areas. A further 274 cases have been omitted from the analysis as they were either 'unknown' (193); recorded as noxious (49) or recorded as 'others' (32).

3.2. The demographic characteristics of victims and suspects

In this section we consider the demographic characteristics of victims and suspects in corrosive substance crime and also the victim/suspect relationship. In the case files, details of at least one suspect were available in 565 cases. For the purpose of the data collection and the analysis presented below, a suspect is defined as the *main assailant* in the case, and suspect detail relates to any description of a suspect in relation to the case whether they went on to be charged or not. Later in the report we refer to offenders, who are suspects that have been convicted.

First, we begin by presenting the numbers of victims and suspects that are observed per case (see Figure 2). On average there was one victim per case (with a range of 1 to 17) and an average of two suspects per case (with a range of 1 to 12). As illustrated in Figure 2, for the majority of cases there was only one victim (86%) and one suspect (58%). However, it was common for more than one suspect to be related to a case, which is apparent in 42% of all cases.

Figure 2: Proportion of cases with one or more victims/suspects



Base: case file data: 638 cases where number of victims known and 564 where number of suspects known.

There were some differences observed in the numbers of victims and suspects when a comparison is made between the MPS and other police force areas that are worth noting here. Table 5 outlines the percentage of cases by the number of suspects and victims in the MPS area as compared to the non-MPS force areas in the dataset. This suggests that corrosive substance crimes recorded by the MPS were more likely to have more than one victim (as is apparent in 24% of cases in the MPS area compared to 6% outside the MPS), and more than one suspect (as is apparent in 57% of cases in the MPS area as compared to 28% outside the MPS). Data published by ONS on the nature of violent crime in England and Wales for April 2017 to 2018 suggested that around 75% of all violence involved just one suspect (ONS, 2019). Therefore, the relatively high proportion of cases in the MPS with multiple suspects was a departure from what one might expect to observe for violence in general.

Table 5: Proportion of cases with one or more victims/suspects

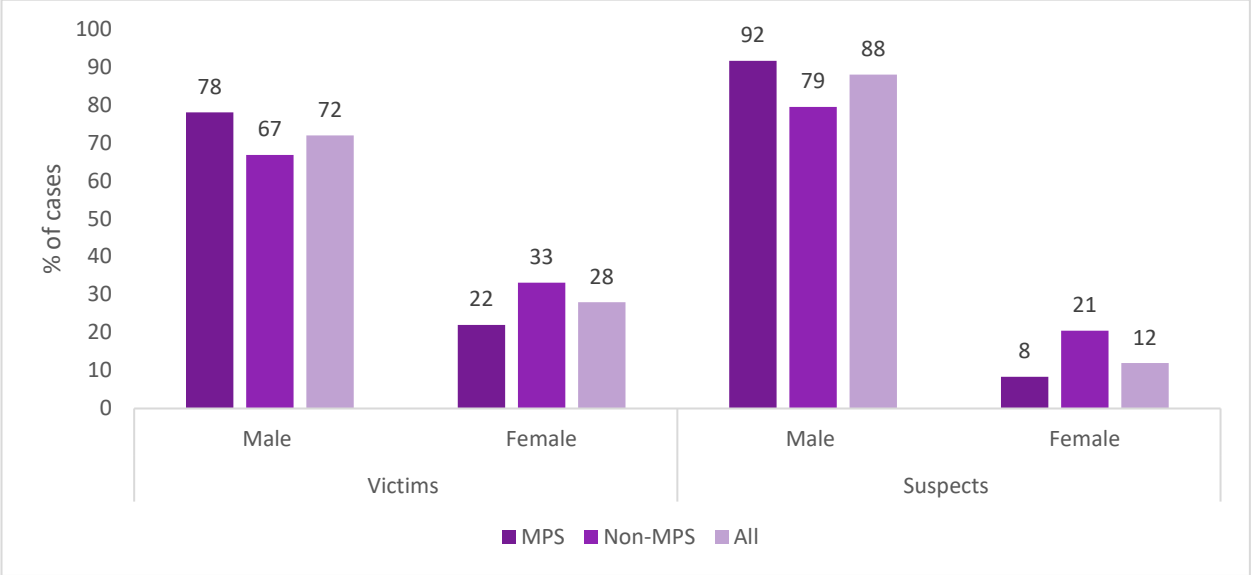
Number of victims/suspects	Victims (%)		Suspects (%)	
	MPS	Non-MPS	MPS	Non-MPS
1	76	94	44	72
2	15	4	29	14
3	5	1	10	6
4	1	1	9	6
5+	2	0	9	2
Column total % (number of cases)	**99 (292)**	**100 (346)**	**101 (282)**	**100 (283)**

Base: case file data: details on the number of victims were available in 638 cases (292 MPS and 346 non-MPS), with data missing for one case in the MPS and nine outside of the MPS. A total of 565 cases had a suspect, of which 282 were in MPS and 283 non-MPS. All cases where there were suspects had details in relation to the number of suspects in the case. The total may not add to 100% due to rounding of numbers.

Figure 3 presents findings in relation to gender. The analysis relates to the characteristics of the main victim and suspect in each case where the data were available (these were the victims and suspects who were marked on the police case file as being the first

victim/suspect). Some care has to be taken here in relation to making assumptions about who the main victim and suspect were in the cases reviewed. As illustrated above, in a high proportion of cases there were multiple victims and suspects. Here, an assumption has been made that the first named victim/suspect in the case is the main/principal victim/suspect.

Figure 3: Victim and suspect gender (% of victims and suspects)



Base: case file data relating to the main victim and suspect in the case. Data in relation to gender were available for 632 victims. Of these 291 were in the MPS (data missing for two cases) and 341 outside of the MPS (data missing in 14 cases). Data were available for 393 suspects. Of these 276 were in the MPS (data missing in six cases) and 117 non-MPS (data missing in 166 cases).

As is illustrated in Figure 3, victims and suspects were most likely to be male – this was the case for 72% of victims and 88% of suspects. This closely concurred with the data from NPCC1 and NPCC2 where the majority of victims (65%) and suspects (85%) were male. However, there were some differences in relation to the gender of victims and suspects by force area. In the MPS area both victims and suspects were more likely to be male. It should be noted that previous research has suggested that males are more likely to *carry* weapons than females (Brennan, 2017) and that this potentially translates into weapons *use*.

With regard to the age of victims and suspects (please note, data on age were missing for half of the suspects), there were some similarities with patterns observed for violence generally. The mean age for victims was 33 (the median was 31) and for suspects this was 27 (the median was 24).[13] However, as outlined in Table 6, the age profile of victims and suspects shows that both suspects and victims were most likely to be in the 16-24 age group (which concurs with the general patterns for violence observed in ONS data). However, in the MPS area, suspects and victims tended to be younger than those outside of the MPS. In the MPS area the mean age of suspects was 25 (compared with 31 outside of this area) and for victims it was 31 (compared with 35 outside of this area). Indeed, over 36% of victims in the MPS were between the ages of 16 to 24 (compared to under one in four outside of the MPS. One-half of all suspects in the MPS area were between the ages of 16 and 24 compared to just over one-quarter outside the MPS.

[13] This shows similarities to the NPCC1 and NPCC2 data collection findings. In NPCC1 the mean age for victims was 32 and for offenders, 26. In NPCC2 it was 32 and 23 respectively.

Table 6: Victims and suspects by age

Age group	Victims (%)			Suspects (%)		
	MPS	Non-MPS	All	MPS	Non-MPS	All
Under 16	5	5	5	9	9	9
16 to 24	36	23	29	50	27	42
25 to 34	24	26	25	25	33	27
35 to 44	17	18	18	12	15	13
45 and over	18	27	23	5	15	9
Column total % (number of cases)	**100 (292)**	**99 (343)**	**100 (635)**	**101 (195)**	**99 (97)**	**100 (292)**
Mean age per area (years)	***31***	***35***	***33***	***25***	***31***	***27***

Base: case file data relating to the main victim and suspect in the case. Data in relation to age were available for 635 victims. Of these 292 were in the MPS (data missing for one case) and 343 outside of the MPS (data missing in 12 cases). Data were available for 292 suspects. Of these 195 were in the MPS (data missing in 87 cases) and 97 non-MPS (data missing in 186 cases). The total may not add to 100% due to rounding of numbers.

Although a relationship is observed between robbery and the use of ammonia (Table 4), a relationship was also observed between the age of the suspect and the types of corrosives used. This is illustrated in Table 7, where the analysis compared the types of corrosives used by those aged under 24 to those suspects over that age. Caution should be exercised here as data were only available on age of suspects and the type of corrosive used in 202 cases out of 648 total cases. However, this showed that suspects who were under the age of 24 were most likely to use substances that were described as acid/ammonia or other noxious substances, whereas those over this age group were more likely to use those substances described as household corrosives. In 63% of cases where acid/ammonia or noxious substances were used, the main suspect was under 24.

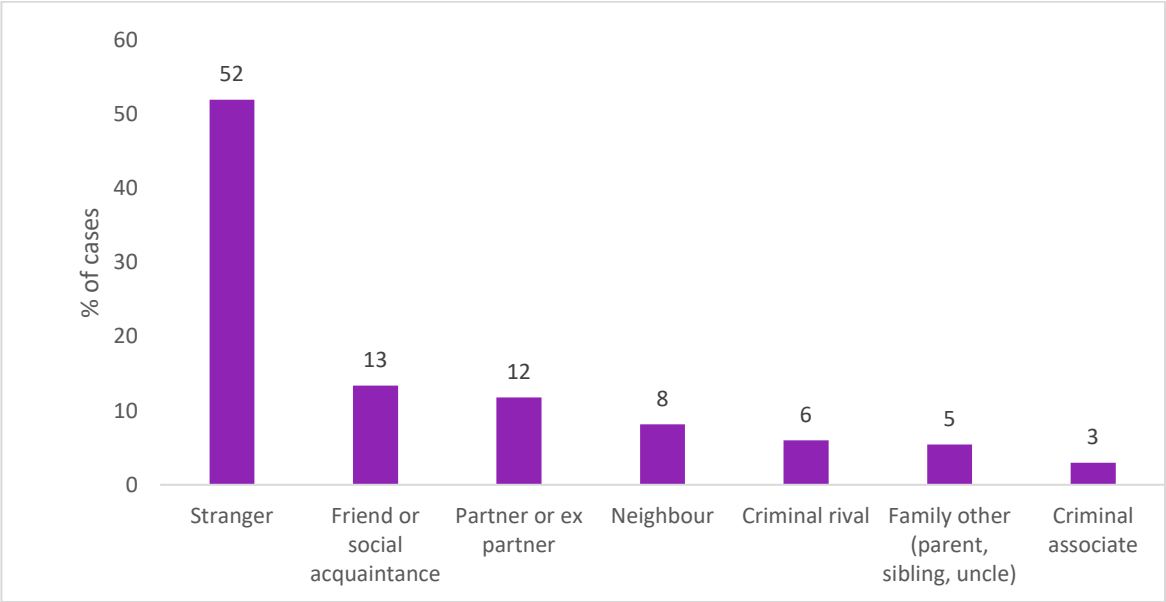
Table 7: Suspect age and the use of corrosives by type

Type of corrosive (number of cases)	Age group		Row %
	Under 24	Over 24	
Use of acid/ ammonia/ other noxious substances (108)	63%	37%	100%
Use of household corrosives (94)	37%	63%	100%

Base: case file data: 202 cases where suspect age and type of substance used is known.

Although a number of characteristics of victims and suspects have so far been identified, of key interest in understanding the context of corrosive crime is to understand the victim/suspect relationship, as this can potentially reveal how the two parties initially came into contact. This is outlined at Figure 4. Some caution has been exercised as the relationship was unknown in 31% of cases and these have been excluded from the analysis. Overall, in 52% of cases the incident was between strangers, with a further 13% between friends / social acquaintance and 12% between partners / family members. Again, the observations noted are not dissimilar to those in the NPCC2 data, where relationships between victim and suspect were unknown in 28% of cases, 36% involved strangers and 17% were described as ‘domestic’ (involving partners or ex-partners).

Figure 4: The victim/suspect relationship in corrosive substance crimes



Base: case file data: 445 cases. 31% (203) of the 648 cases did not capture the victim /suspect relationship and have been removed when calculating the percentages in this graph.

Further analysis suggests there is an association between the victim/suspect relationship and the type of corrosive that was used (Table 8). This could be ascertained in 304 cases. However, it was observed that in crime events between partners / family members, household products (such as bleach) were used in around three out of four cases. In contrast (and with the proviso that there were a relatively small number of cases), in cases involving criminal rivals, corrosives such as acid, ammonia and other noxious substances were more likely to be used.

Table 8: The victim/suspect relationship and types of corrosives used

Relationship (number of cases)	Acid or strong alkali % (55)	Ammonia % (91)	Noxious substance % (13)	Household product: bleach, cleaner, anti-freeze % (120)	Others % (25)	Row %
Partner/ family (23%; 71)	4	10	0	79	7	100
Criminal associate/ rival (11%; 32)	38	34	9	13	6	100
Neighbour (7%; 22)	9	50	0	36	5	100
Friend or social acquaintance (14%; 43)	23	21	14	33	9	100
Stranger (45%; 136)	21	39	3	28	10	101

Base: Case file data: 304 cases. 193 cases where substances were unknown are removed and 203 where victim/suspect relationship not known (52 cases where unknown substances and victim/suspect relationship unknown).

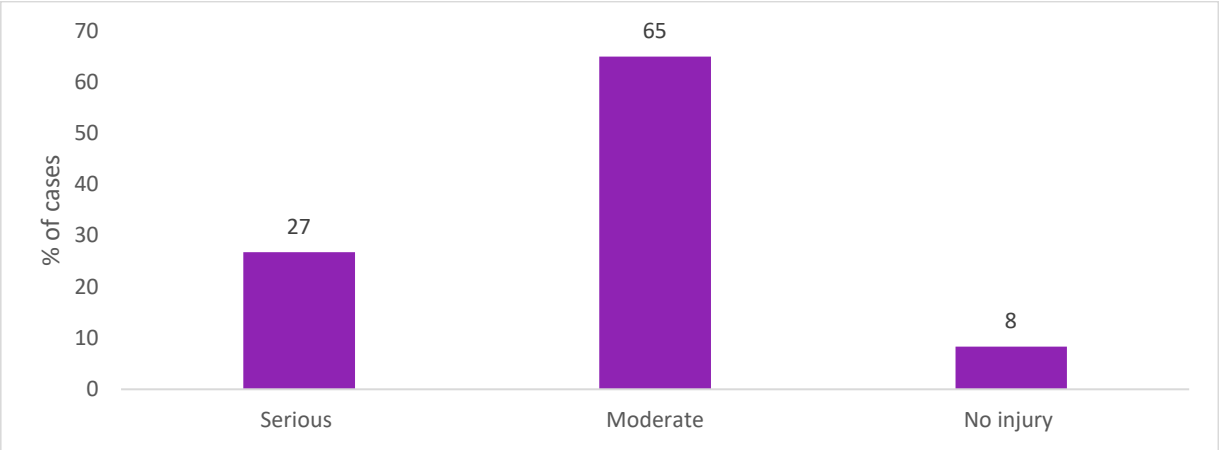
3.3. The extent of injuries sustained in corrosive substance crimes

A wide body of literature has identified the types of serious injuries that can result from the use of corrosives (e.g. Kaukinen, 2002; Kunst *et al.*, 2011; Demarble *et al.*, 2018; Phillips, 2018). In this section we outline the extent of injuries sustained during corrosive crimes, the relationship between the types of substances and injuries sustained, the ways in which victim/offender

relationships are associated with the extent of injury and finally, the relationship between gender and injuries sustained.

The extent of injuries sustained in corrosive substance crimes was known in 542 cases (Figure 5). This shows that, in total, a serious injury[14] was sustained by at least one victim in 27% of cases. This is higher than the proportion of victims said to have sustained serious injuries in NPCC2 (data not available for NPCC1) where 13% sustained serious injury. Some care has to be taken as to how this is interpreted as, in the MPS area, cases that had a named suspect associated with them were oversampled in order to be able to locate offenders in prison for the qualitative interviews. There is a possibility that this led to an oversampling of cases that were more serious (in terms of injuries sustained) in that area. The case file analysis also identified that a victim sustained a moderate or minor injury in 65% of cases. It is worth noting that in 8% of cases there was no visible physical injury to victims. However, in a number of these cases there were burns to victims' clothing.

Figure 5: Extent of injury sustained in corrosive substance crimes



Base: case file data: 542 cases where extent of injury known.

The data shows that the extent of injury that one might expect to observe in a crime where a corrosive substance was used is dependent on the type of corrosive used. As illustrated in Table 9, in cases where it was recorded that strong acid or alkali was used, 52% of victims were recorded as receiving a serious injury, as compared to 21% of cases where ammonia was used. Some care should be taken with the interpretation due to the high number of cases where the exact nature of the substance was unknown.

[14] Serious injury was defined by UoL researchers as any injury that was recorded as grievous bodily harm (GBH), or wounding where there were serious harms to a victim such as burns to the skin or loss of sight. Moderate or minor injury was defined as any assault with injury, or common assault where there was irritation to the skin or eyes, soreness or reddening of the skin.

Table 9: Injuries sustained in corrosive crimes by types of corrosives used

	Strong acid or alkali (%)	Ammonia (%)	Noxious substance (%)	Household product: bleach/ cleaner (%)	Other substances (%)	Unknown substance (%)
Serious	52	21	9	23	46	24
Moderate	41	66	91	72	45	67
No injuries	7	13	0	5	8	9
Column total % (number of cases)	**100 (66)**	**100 (117)**	**100 (22)**	**100 (132)**	**99 (26)**	**100 (184)**

Base: case file data: 358 cases where the extent of injury was known and the substance was known. There are a further 106 cases where level of injury was unknown that have been omitted from the analysis. The total may not add to 100% due to rounding of numbers.

It was also apparent that the nature of the relationship between victims and suspects had an impact on the extent of injuries that were sustained. This was known in 396 cases and is outlined in Table 10 where the extent of injuries was considered by victim/suspect relationship. It was observed that where the relationship between the victim and suspect was described as 'criminal associate' or 'criminal rival', around half received a serious injury. This is compared to an average of 27% of victims receiving a serious injury across all other relationship categories.

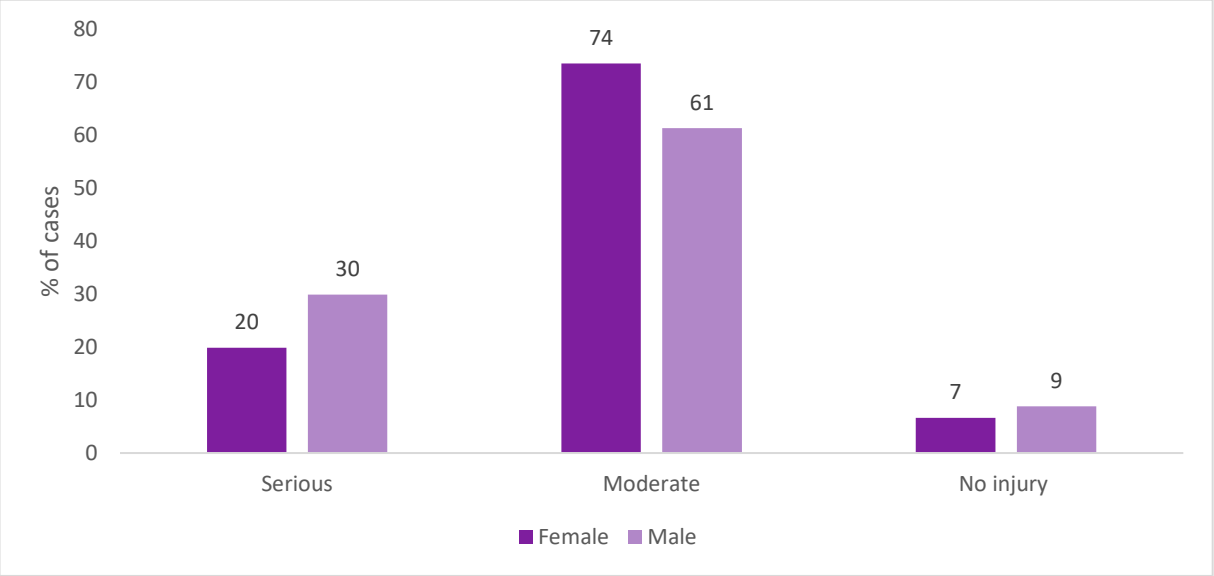
Table 10: Victim/suspect relationship and the extent of injury sustained

Extent of injury	Partner or ex-partner (%)	Family (%)	Criminal associate (%)	Criminal rival (%)	Neighbour (%)	Friend (%)	Stranger (%)
Serious	23	19	58	48	24	35	28
Moderate	70	67	33	48	70	59	63
No injury	7	14	8	4	6	7	9
Column % (number of cases)	**100 (44)**	**100 (21)**	**99 (23)**	**100 (23)**	**99 (33)**	**101 (46)**	**100 (217)**

Base: case file data: 396 cases out of 648 cases where victim/offender relationship and extent of injury known. The total may not add to 100% due to rounding of numbers.

It was also observed that if the primary victim was male, there appeared to be a higher proportion of serious injuries compared with cases where the main victim was female (Figure 6). In 30% of cases where the primary victim was male, a serious injury was sustained, compared with 20% of cases where the primary victim was female. This is explained by the fact that males are more likely to be victims of attacks involving the most hazardous substances, such as acid.

Figure 6: Level of injury sustained and gender of victims

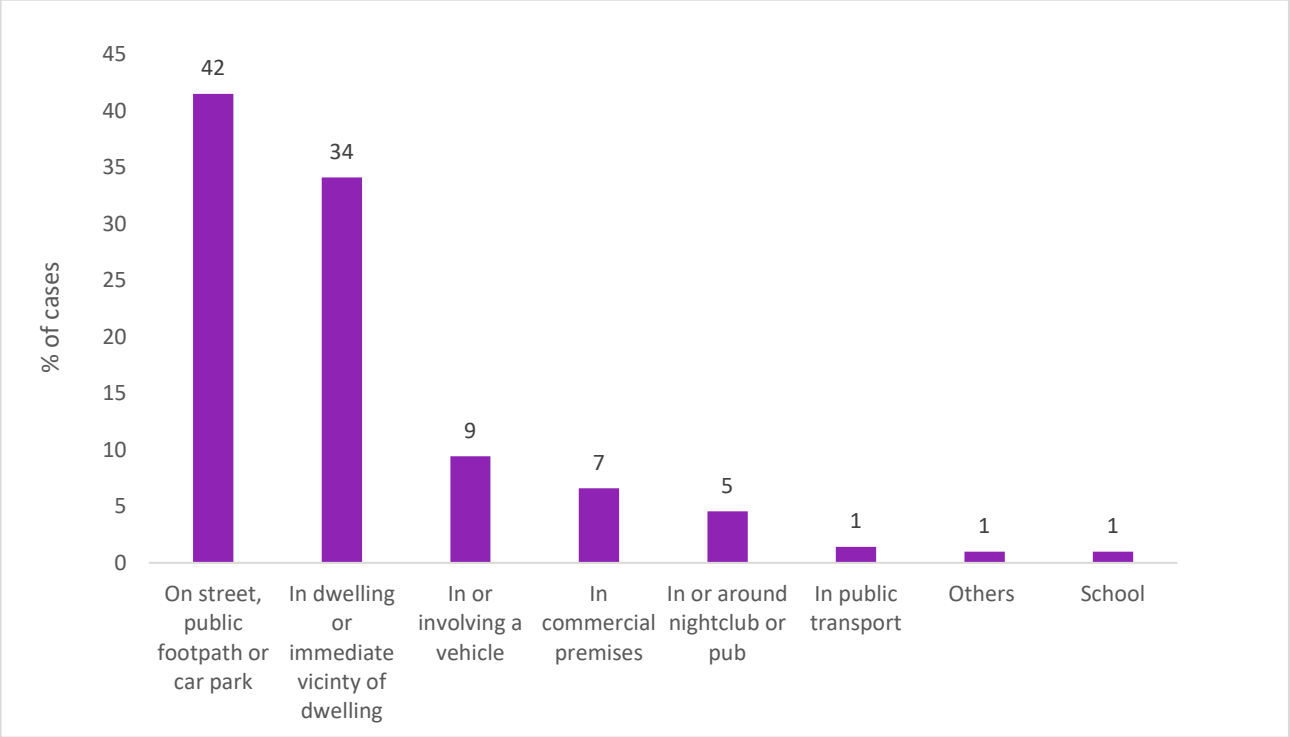


Base: case file data: 536 cases where gender of victim and extent of injury known. Cases with primary victim male = 385. Cases with primary victim female = 151.

3.4. The spatial and temporal characteristics of corrosive substance offences

In this section we consider the spatial and temporal characterises of corrosive substance crimes. As illustrated in Figure 7, the majority of corrosive substance crimes occurred either on the street (42%) or in/around a dwelling (34%). This finding was similar to the data recorded in NPCC2 (no data on location available for NPCC1), where 41% of crimes were recorded as being on the street, and 33% were residential. However, this was higher than what is recorded for violence generally, of which 10% of incidents occurred on the street (ONS, 2019). The analysis also observed a difference between the location of the offence and the types of substances that were likely to be used. In offences that occurred in/around dwellings, the corrosive substance used was most likely to be a household cleaner/bleach (55% of cases). For corrosive substance crimes that occurred on the street, the substance was recorded as acid, ammonia or another noxious substance in 70% of cases.

Figure 7: Locations of corrosive substance crimes

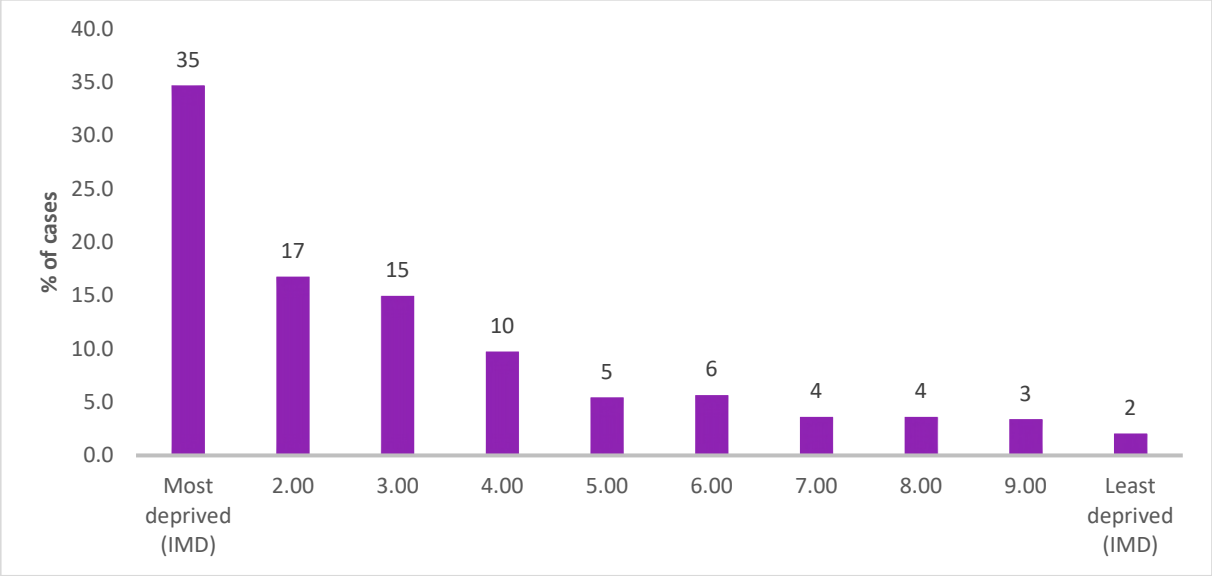


Base: case file data = 636 cases where locations were known. Data missing in 12 cases.

Previous research on violence and knife crime has identified a relationship between location and incidence rates of offences. Several authors have noted that weapons-based crime and the carrying of weapons is more common within communities with higher levels of deprivation and visible signs of physical disorder (e.g. Coid *et al.*, 2013; Baumer *et al.* 2003; Brennan, 2019; Greater London Authority, 2018). Indeed the concentration of violence – and property crimes – in more deprived areas is well established (ONS, 2019). Therefore, further analysis on the locations of corrosive crimes was undertaken, focusing on the distribution of corrosive crimes by an area's 2015 English Index of Multiple Deprivation (IMD) score.[15] In total, postcode data on the location of the offence were available for a total 440 of the 648 cases. The IMD area ranking – from most deprived through to least deprived – was assigned to each of the 440 crime locations. The analysis is illustrated in Figure 8. For these cases, there is a clear concentration of corrosive crimes in areas with the highest deprivation – over half of the corrosive crimes analysed occurred in areas that are in the top 20% most deprived locations.

[15] The English Indices of Deprivation 2015 are based on 37 separate indicators, organised across seven distinct domains of deprivation which are combined, using appropriate weights, to calculate the Index of Multiple Deprivation 2015. One of the seven domains is a 'crime domain'. For this analysis, the crime domain has been excluded as its inclusion was not expected to have a major impact on the analysis. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/465791/English_Indices_of_Deprivation_2015_-_Statistical_Release.pdf

Figure 8: Percentage of corrosive crimes by Indices of Multiple Deprivation



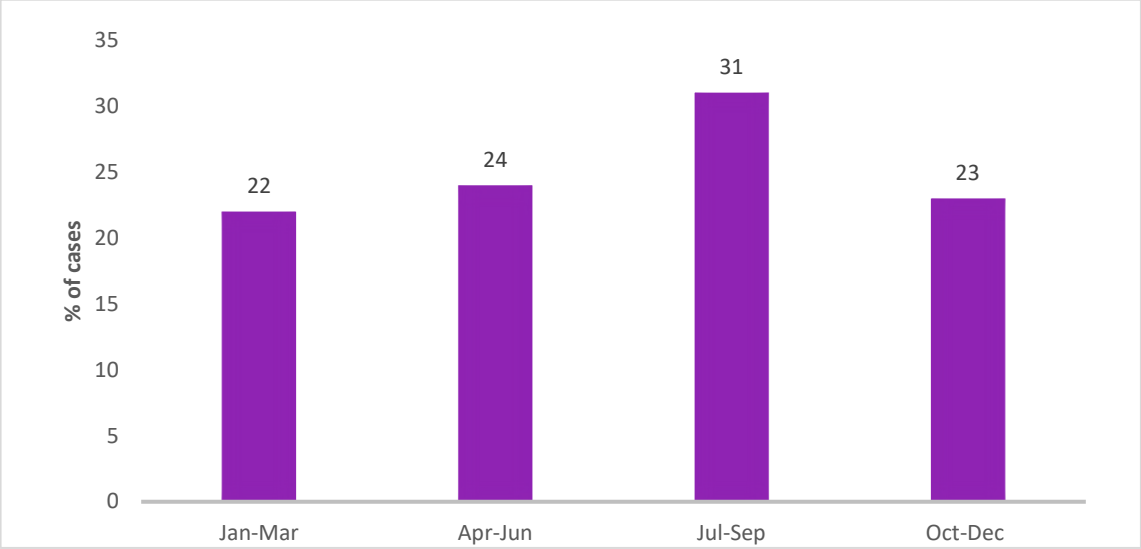
Base: case file data = 440 cases with full postcodes data of where the crime took place that could be matched to an areas ranked IMD score. The total may not add to 100% here due to rounding of numbers.

Further analysis was completed comparing the locations of crimes in the MPS (London) to all other areas. This showed that 57% of all offences in the MPS area were in the top 20% of the most deprived areas, as were 44% of corrosive crimes outside the MPS area. Care should be taken here in how these analyses are interpreted. As stated above, previous research has commonly identified an association between locations of violence and deprivation, but the association between deprivation and crime – weapons carrying/use in particular – is a complex one (for a helpful overview, see Webster & Kingston, 2014). Many other factors will also be important, including individual exposure to violence, perceptions of the extent of weapons carrying in a community and the extent to which weapons carrying is normalised (Harding, 1993; Brennan, 2019). Thus, it does not follow that all areas with high rates of deprivation will have higher rates of weapons-based offending.

Temporal analysis of corrosive crimes reveals that there were slight seasonal variations in terms of when attacks occurred, and the times of day when they were most likely to occur.[16] The seasonal patterns are highlighted in Figure 9, where the data from the case file analyses have been presented for each quarter. This revealed that the highest proportion (around one in three) occurred over the summer months of July, August and September. Similar patterns have previously been observed across many other crime types; longer hours of daylight and summer weather means more people are active in public spaces (such as on the street) where such crimes are most likely to occur (e.g. Baumer & Wright, 1996).

[16] In our analysis of the case files, there was little variation in the days of the week when offences occurred. The highest proportion of attacks (15%) occurred on a Saturday and Wednesday, with the smallest proportion (12%) on a Monday.

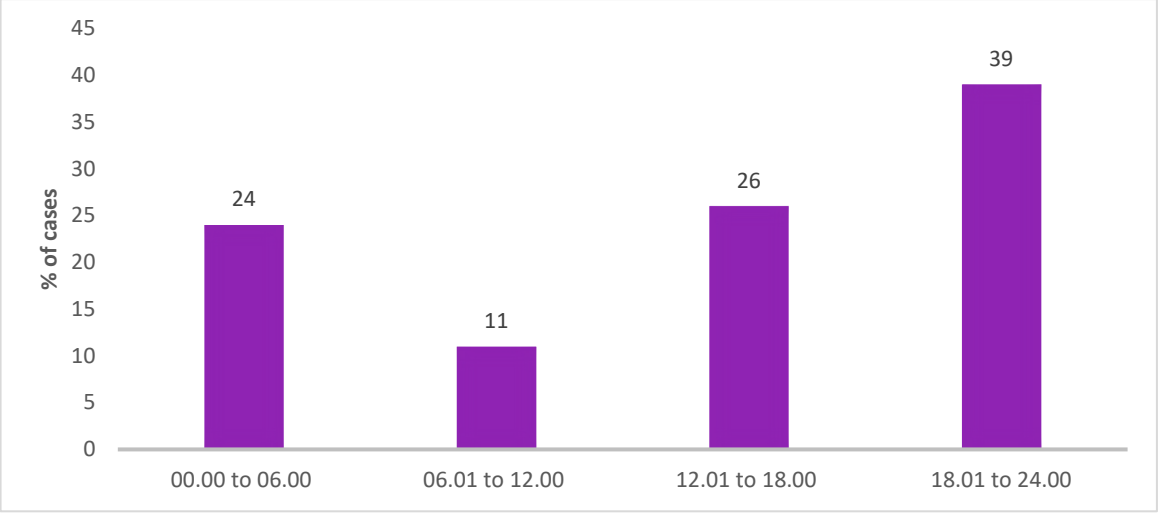
Figure 9: Seasonality and corrosive substance attacks



Base: case file data: n=637 cases where the month of the crime is known.

If we turn to the times when attacks occurred, nearly 40% occur between the hours of 18.01 to 24.00 hours, with the smallest proportion (one in ten) between 6.01 and 12 noon (see Figure 10). The patterns observed here show some similarities to violence generally where most incidents occur between the hours of 18.01 to 24.00 (ONS, 2019). However, in our analysis, a slightly higher proportion of corrosive substance crimes occurred between the hours of 00.00 and 06.00 than observed in the overall figures for violence generally (where around 12% of all incidents occur between these hours) (ONS, 2019).[17] These patterns might, at least partially, be explained by the routine activity patterns of offenders and victims involved in crimes where corrosives are used. Previous research in relation to routine activities and involvement in violence has suggested that younger men without family obligations are most likely to be in public spaces at such times and also possibly under the influence of alcohol/drugs (Felson, 1997). Considering the times that violent crimes involving corrosives occur and the characterisers of suspects/victims, this might be a plausible explanation for some of the temporal patterns observed.

Figure 10: Times when corrosive substance attacks occur



Base: case file data: n=614 cases where time of the offence known.

[17] Based upon ONS data for 2017 to 2018.

4. Offender motivations for carrying and using corrosives

In this section we consider two central questions:

- why corrosive substances are carried by potential offenders
- why they then use the corrosives

Please note some quotes contain strong language.

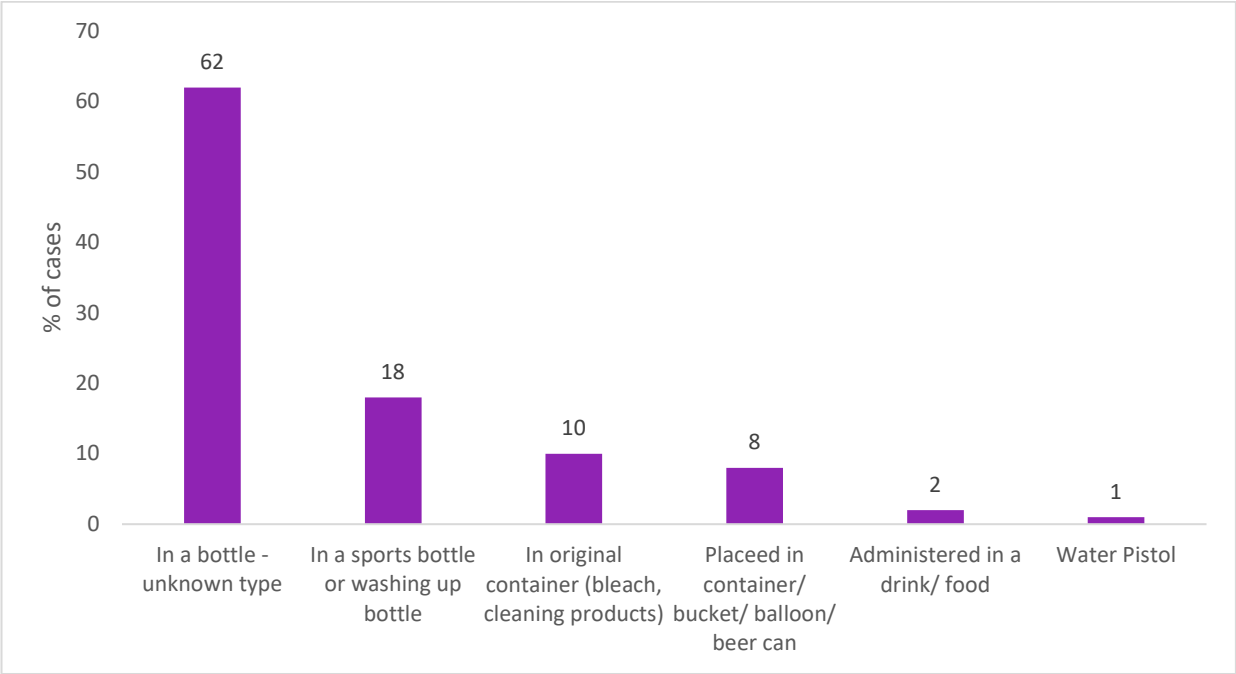
4.1. The motivation to carry corrosive substances and how these were carried

For a corrosive substance crime to be committed, two main factors have to be present. First, a victim and offender have to converge in time and space. Second, a corrosive substance has to be readily available to use in the crime event. As identified above, there are a range of crime types in which corrosives may be used. However, of key interest was why corrosives were readily available for use when potentially violent situations arise. From the case file data, where possible, we recorded why a corrosive substance was at the scene of the attack. This was based on coding data from the case notes to ascertain whether the main suspect in the case carried routinely or whether the corrosive was being carried for a planned attack. In 357 cases it was possible to ascertain why corrosives were present at the scene (this data was not available in 291 cases). From the data it was evident that corrosives were present due to there being:

- some offenders who carried corrosives routinely as a threat or for protection (57%; 204)
- some offenders who carried for a planned specific attack (43%; 153).

It was also evident from the case file data and the offender interviews that there were some offenders who used a corrosive in a crime event, but did not ever carry the corrosive. In such cases, corrosives were provided by others at the point of attack or corrosives were situationally available in the setting – such as bleach in the home. Figure 11 presents the findings from the case file analysis on how the corrosive substances were carried. This is based on 450 cases where the information was available. As illustrated in Figure 11, the most popular method of carrying a corrosive was in a bottle. However, caution is expressed here in terms of how the data should be interpreted. Although it was known that substances were carried in a bottle, in 43% of cases it was not clear in what type of bottle the corrosives were being carried. In addition to this, there were limitations with the case file data in that no information was available on how substances were carried in 198 cases. These cases have been excluded when working out overall percentages.

Figure 11: How corrosive substances were carried



Base: Case file data: n=450 cases where information available on types of vessel used to carry corrosives. Low category counts (less than 5), generating a percentage of under 0.5, have not been included in this chart. Please see the Excel spreadsheet for the categories omitted from this chart. The total may not add to 100% here due to rounding of numbers.

Several themes emerged from the offender interviews in relation to why and how they carried corrosive substances. Previous studies have identified a number of factors that relate to offender choices to carry weapons (e.g. Brennan, 2017), including:

- **availability –** the ease at which weapons can be obtained
- **cost/economics –** the cost of weapons
- **risks of carrying –** what happens if caught in possession; the legal costs of carrying a weapon

In interview, several participants were able to explain how corrosives came to be in their possession on the day of the attack and why they were carrying. For the majority (14), the corrosive used was either readily available through friends / criminal associates or was situationally available in the home (two). Only five offenders in interview said that they directly purchased the substance from a store or online. Several interviewees expressed reasons why corrosives were considered to be attractive weapons to possess in very rational terms. These primarily related to the following factors.

1. Ease of availability

Most corrosives were considered easy to obtain. Indeed, many forms of corrosives that were used (such as low concentrate ammonia) were available online or from high street retailers. The following respondent spoke about the ease of sourcing corrosives compared to guns:

"If you really wanted to get a gun, you just have to make a couple of phone calls, someone will put you in touch with someone, and yeah, you could probably get a gun within a day if you really wanted to… [B]ut corrosives, even easier, online, nice and easy to use." [INT 19]

Another mentioned that even substances that were highly concentrated (such as sulphuric acid), and perceived to be difficult to obtain through normal retail outlets, could be sourced easily through contacts.

"My boy used to get it for me. I've known him since we went to school together, when we was kids and that, but he used to work on a building site. I don't even remember what he did on the building site, but I remember he was telling me… I was like "What, can you get this stuff?", [and] he was like "Yeah, I'll get that for you". So I told him, I said "Listen, get it, I'll pay you for it, I'll pay you however much you get paid for it. If you get five bottles' worth at £10, I'll pay you for it, like I'll pay you 20 innit man, I'll give you more." [INT 21]

Others spoke about how corrosives were readily available through criminal associates or passed around their group.

"We got it from an associate I'd say. People have always got stuff you need… [T]here are plenty of people carrying what you need all the time." [INT 2]

One interviewee, who was involved in an acid attack after three people tried to steal his drugs stash, commented on how he knew people who manufactured their own forms of corrosives. He spoke about how some criminal groups were finding ways of turning dilute sulphuric acid into higher concentrated forms of acid.

2. Perceived 'low-risk' of possessing corrosives

Little concern was expressed by interviewees in terms of being caught by the police for possession. For example, several mentioned they felt it was preferable to carry a corrosive than to be caught in possession of a knife. In the expert interviews, one police officer (Expert Interview N) mentioned it could be difficult for the police to take action against people caught in possession of corrosives, as the onus is on the police to prove intent to use the weapon, which makes it in many ways a *"perfect weapon"* to carry. However, a distinction was observed in the offender interviews between perceptions of the likely punishment for 'possession' and perceptions of the likely punishment for 'actual use' of the weapon. While few offenders had expressed any concern over possession at all (corrosives were generally seen as preferable to knives in this sense), there was a lack of knowledge over likely punishments for actual use of corrosives and, on occasion, surprise at the sentences given for use of corrosives.

***"**I'd been caught for possession of knives, offensive weapon[s], knives… See I thought corrosives would have been less of a problem if [I] got caught with it than a knife, if you know what I'm saying. But now, since, I don't know, since it's been on the news and stuff, it's gone a lot higher [the sentences]. So I was unfortunate."* [INT 18]

3. Ease of disguising possession

Several interviewees spoke about how easy it is to disguise the possession of a corrosive in a way that seamlessly fits with the everyday routine activities of offenders and people in the world around them. Several interviewees pointed to the fact that with a gun or knife it is obviously very clear what the weapon is, and efforts have to be made to (a) conceal the weapon and (b) only produce the weapon at specific moments when it is required, to make a threat or immediately preceding a crime event. As one respondent said, *"I carried a knife – stuck down my trouser leg – now it is pretty clear what that is"* (INT 11). However, interviewees said that corrosives could be carried or concealed in ways that would not

arouse suspicion. Water bottles and sports drink bottles were the preferred carrying vessels as they blended in and could be readily available for use. For example, one interviewee described how carrying ammonia was easily disguised in a London park in the summer months.

"On a hot day, like maybe summer or spring, that's when I believe the corrosives would come out more, because you tend to see more people walking up and down more. Summer is more active whereas winter is less active… In the summer you could get away with that if it's hot." [INT 19]

In some cases, it was observed that ammonia-based cleaning products often remained in their original packaging. In interview, one respondent mentioned how he used this substance in a commercial robbery in the original packaging as it was already *"fit for purpose"* (INT 15). However, others spoke about how substances would be placed in alternative vessels in order to disguise them. Of the 25 interviewees, seven said they carried corrosives in a water bottle, six in a sports drink bottle, and one in a cola bottle. Indeed, the following two interviewees described how ammonia and sulphuric acid could be carried in vessels that would never arouse any suspicion.

"…the bottle I had, it wasn't see-through, it had a little bit of orange juice in so if they looked at it, it would look like [name of sports drink], if they see it and looked at it, they would just think it's [name of sports drink]." [INT 2]

"Sulphuric acid…it was a white plain bottle, nobody would have known what it was until it [the substance] came out [of the bottle]." [INT 23]

Another interviewee described how his group of drug dealers would disguise corrosives in case their drug house got raided by the police.

"I'd get it and just take it back, bottle it up into, like, water bottles and stuff innit, so it didn't look like, so it weren't like, you know, ammonia bottles, you know what I'm saying… Police come in and they busted the fridge open and they see six water bottles [nothing would happen]… But the police walk in, bust the fridge and see six ammonia bottles, they're gonna say, 'What you got this for?'" [INT 20]

4. Low financial costs

Although the financial cost of weapons was not a pressing concern for most interviewees, several did mention that the low costs of corrosives made them attractive. As one respondent mentioned, *"the ease at which it's available and low cost"* [INT 23] made corrosives an appealing weapon. Other interviewees also mentioned that, whereas weapons, such as guns, carried a price and would change hands for money, corrosives were often freely passed around between friends / offender groups.

Although many of the reasons expressed by individuals for possessing corrosives were rational in that they related to availability and decisions over costs and possession, there were a wider set of reasons that also shed light on why offenders were in possession of corrosives. Often these related to offenders' perceptions of risk in their locality and the need to self-protect – factors which have commonly been cited in previous research (Brennan, 2017; Harding, 1993). These are considered below.

1. Offender perceptions of weapons generally

Many interviewees described a perceptual hierarchy of weapons. Guns sat at the top of this hierarchy. There was a suggestion that if you carried or used a gun then you were considered to be *"in a different league"* [INT 11] both in terms of the likely extent of your criminal activities (which was normally drugs transportation and retailing), and in terms of the extent of violence you were prepared to use to ensure these activities continued unabated.

Knives came next in the hierarchy. Many of the interviewees (18) admitted to being regular knife carriers at the time of the offence or had been at some point previously. In interview, several spoke of the routine nature of knife carrying for many young people in their neighbourhoods, and they described a range of types of bladed weapons that were carried (from small kitchen knives to large samurai swords). Many recognised knives both as a necessity and as routine in their everyday worlds, but also acknowledged them as being extremely dangerous (both in terms of potential damage and in relation to the risks of getting caught in possession). However, there were nuances around corrosives that made them a more difficult weapon to place easily in such a hierarchy. Several interviewees stated with disdain how it was wrong for anybody to go out and wilfully throw highly concentrated sulphuric acid at another person. Even the sulphuric acid users in the sample expressed some regret at the harms they had caused to their victims. Indeed, corrosives were considered to be a weapon that was used to cause *"maximum harms and damage"* [INT 23]. However, many of the interviewees considered some types of corrosives, such as diluted acid and ammonia, as being less serious weapons than guns or knives. For example, several interviewees spoke of using corrosives that were *"diluted"* to reduce the likely harms [INT 11], carrying and using only *"small amounts"* [INT 14], or they justified the use of corrosives through the lack of harm to victims. As one interviewee said about his use of ammonia in a street fight:

"It wasn't like, you know, when you see in the news and see, like, women that get their face[s] burnt and then acid marks it, like, permanently. It wasn't nothing like that." [INT 18]

Generally, the offenders that were interviewed showed awareness of what the corrosives they carried and used could do. There were, however, examples where interviewees claimed they were unaware of what substance they were using, as one respondent said, *"It was just passed to me, something in a bottle, I didn't really know what it was..."* (INT 5), though this was an exception to the rule. Worryingly, there was a sense that many viewed corrosives as not being a 'proper' physical weapon (in the sense that a gun or a knife is), and instead saw their supposed ability to control the harm it caused as justifying its use.

2. The need for self-protection

There was a view expressed in both offender and expert interviews that in some locations there had become a 'normalisation of weapons carrying'. This of course raises a question about why weapons carrying, and specifically carrying corrosives, had started to become routine for some in these locations. A re-occurring theme from the offender interviews was paranoia and the need to self-protect. Several interviewees had previously been stabbed and routinely carried a knife as a consequence. However, this does not explain why corrosives would be carried. The reason for this was summed up by one respondent who was serving eight years for an ammonia attack.

"Mate, I'm a very paranoid person, because I've been stabbed three times innit. Sometimes I go to sleep and I have bad dreams, you know what I'm saying? So it's like even me just strolling outside… I've got to have some sort of protection with me." [INT 18]

Several interviewees spoke of a world in which they lived where street crime and drug dealing had fostered a sense of constant fear and paranoia. Indeed, trust seemed to be a rare commodity and the slightest issue could be seen as disrespectful and a matter to be solved through violence. Several interviewees also spoke about how they viewed the levels of violence in their communities as increasing. One interviewee (who had been convicted on several occasions for possession of a knife) discussed how dangerous the streets had become by stating:

"Kids today, if you look at them they'll fucking stab you, that's where these scars came from." (INT 2).

This clearly generated a sense that weapons were required at all times to ensure one's safety. The routine nature of carrying ammonia for some people was summed up by one interviewee stating:

"I know a certain couple of people who carry it every day, it's like: phone; house keys; ammonia." (INT 12).

3. To enhance criminal and street reputation / self-presentation

Reputation has previous been cited as a common reason for weapons carrying (Levi & Maguire, 2002; Harcourt, 2006). While many of the interviewees carried weapons for self-protection, several others mentioned how the normalisation of weapons carrying had meant that it was now necessary to do so for the sake of *"reputation"* (INT 15) and to be seen as *"credible"* (INT 19). Thus, weapons carrying had taken on further meaning than just being about protection. As one respondent said, *"[if] one carries then you've all got to carry, otherwise you ain't got no cred"* (INT 2). For many, weapons carrying helped to build or reinforce a reputation and ensure that you *"weren't to be messed with"* (INT 15). However, there were questions around the relationship between corrosive and knife carrying. For most of the interviewees, knife carrying was part of their lifestyle. While corrosives were carried by many in a 'functional capacity' to help enforce criminal acts, there was a feeling from some older offenders that some young people who have used acid are *"very dangerous, in a different league to knife crime"* (INT 23). One interviewee described how many young street gang members had been trying to build reputations and to present themselves as the toughest in their neighbourhoods:

"They're a different fucking generation now. I was making money. Now they are all on this postcodes thing and they don't mind dying on the streets. They ain't got fuck all to lose, but they think they got it all to prove." [INT 2]

Indeed, reputations could be cemented by being seen to go further than others in terms of the harm you were prepared to carry out and the contexts in which you would inflict the damage. One respondent described how one of his gang carried out an attack in full view in a nightclub to display how far he was willing to go:

"He's just gone in the club, full view: [makes squirting noise]. Never seen a kid scream so much in my life." [INT 21]

Another interviewee described a *"weapons arms race"* (INT 11) where some of the most serious offenders always want to have the deadliest weapons to hand, meaning that everybody then feels the need to arm themselves. In this context it was mentioned how some weapons carriers will stick to what they know and will not deviate from carrying knives and low concentrate corrosives. However, others will always want to *"take it to the next level"* (INT 20) by using more dangerous forms of weapons. Thus, in gang situations, an acid attack leaves a lasting scar and can be used to spread fear amongst rivals. Two expert interviewees give their opinions on this by suggesting, *"this can be useful when spreading into new areas, such as through county lines expansion"* (Expert Interview Y), and that the intention is *"not necessarily to kill, but to disfigure or maim, alongside creating respect"* (Expert Interview C).

4. Acid attack 'amplification' through the media

Several interviewees spoke of the impact that both the traditional and social media communication channels were potentially having on influencing the possession of corrosives. Several offenders discussed how the widespread coverage of many attacks in the media could lead to *"copycat attacks"* (INT 11), and *"promote the idea that lots of people are carrying"* (INT 2) and hence, the notion that risk is high. One respondent spoke about getting ideas from news reports about which substances might be of use for protection. Another spoke about how his knowledge of attacks in South Asia informed his decision to use acid in an attack (however, no other interviewees mentioned being directly inspired to copy attacks seen in the media). Some thought there was a concerning process at play, where media exposure suggested corrosives had become a 'fashionable' weapon to carry, which then necessitated the need for people to carry for purposes of self-protection. As one respondent said:

"The more they put this stuff in the media, people that are easily influenced, the same naïve people that don't realise how dangerous it is, how bad it's going to be and the fact that you're going to end up in prison for a long time if you do this and potentially you could kill someone - you're just advertising it, you're advertising it to people like it's the next big thing… You're advertising it, you're promoting it, you're putting it out there to people who think 'this is a good option, it's easy, I can walk into any shop and get hold of this stuff'." [INT 13]

This was further iterated by one of the expert interviewees who spoke about concerns over the potential glorification of acid attacks through social media:

"This whole social media thing is making things worse – people think it's funny to post these attacks, and the aftermath of them, on social media – either under gang instruction, or to glorify it." (Expert Interview P)

The evidence suggested there were a number of potential reasons why offenders might be in possession of a corrosive substance. The offender interviews also pointed to a range of different types of possession groups. These groups were not mutually exclusive (in that one offender might move across groups), though can be broadly classified as follows.

1. Regular 'criminal' carriers

This group would regularly carry a corrosive for purposes of self-protection. The members of this group would also regularly carry knives or would switch between carrying knives and corrosives. For example, one offender described how he started to favour ammonia

carrying over knives due to fears of getting caught in possession (INT 18). These offenders would commonly be involved in low-level street crime (such as robbery) and buying /selling drugs. Weapons carrying was a regular feature of their lives for the purpose of self-protection and fears of being attacked by others – often criminal rivals.

2. Carriers for specific planned violent crime events

This group would also commonly be involved in a range of crime types, though they were more selective over when corrosives were carried. Several interviewees suggested they only carried corrosives for specific jobs such as a robbery or for a planned assault. For example, one offender described how he was a regular knife carrier, but for the offence involving corrosives that he was interviewed about, the substance was brought out for this 'special occasion' to punish the victim (INT 2). Another described how he used guns and knives, but ammonia was used on one occasion to torture somebody who tried to steal drugs and cash from the group (INT 6). Another offender described how he had not previously been involved in crime but was involved in a one-off revenge assault over a family matter where sulphuric acid had been used (INT 23). There is evidence that when offenders act alone and are not involved in other forms of criminality, they may research and try to buy corrosives online. This was evidenced in a recent high-profile case where the offender researched the potential effects of a corrosive substance and then purchased it online to use it in an attack.[18] Where assailants are involved in other forms of criminal activities, they appear to be more likely to source corrosives via friends or other criminal contacts.

3. Carriers for non-violent criminal tasks

Lone criminals and those in crime groups also used corrosives for a range of non-violent but crime-related tasks. For example, a number of drug users routinely carried ammonia in order to turn cocaine into crack-cocaine. Another offender described how ammonia was used to clean residue off guns. Thus, for some, corrosives were part of the general criminal paraphernalia. Therefore, corrosives were carried for reasons not related to violence, but they could easily be used in violent attacks. For example, one drug user described how the ammonia he was carrying for the purposes of drug use was readily to hand and squirted into the eyes of a driver after an argument. All of the interviewees who claimed to carry for non-violent purposes, actually held corrosives for dual purposes: (a) predominantly for non-violent use; but (b) they were to hand for violent use if necessary.

4. 'Heat of the moment' carriers

A further group emerged who claimed not to be carriers of corrosives at all, but corrosives came into their possession during a specific crime event. These offenders described how, during the precursors to a violent event or during the event itself, a substance was passed to them from a group member that they then used. One interviewee described how, as a violent encounter developed, *"something was passed to me…"* and *"I just threw it"* (INT 5). Another described how during a fight, *"someone passed me a bottle and I flung the bottle, and obviously it had ammonia in it"* (INT 20). In these cases, the throwers are part of friendship/criminal group who carry corrosives and are ready to use them if required.

[18] For example in the case of Berlinah Wallace who is believed to have researched the effects of sulphuric acid online before using the substance in an attack; see https://www.theguardian.com/uk-news/2018/may/23/berlinah-wallace-jailed-years-sadistic-acid-attack-mark-van-dongen.

5. **Situational/domestic carriers for unplanned attacks**

   A final group emerged who possessed corrosives for domestic use, and then decided to use them in incidents that related to the breakdown of a relationship. Our data show that these incidents would commonly take place around the home. Offenders were more likely to be female, situationally available corrosives were used (such as bleach and cleaning products) and attacks were often unplanned. In such cases, during an argument or violent confrontation, offenders would spontaneously grab fluids that were easily available. For example, one interviewee spoke of how she used a cleaning product that was 'to hand' during an altercation with her husband's lover at her home (INT 22).

4.2. The attack itself: the motivation to use a corrosive substance

In this section we consider the motivations for using and the intended purpose of using. First, we begin by outlining data from the case file analysis that reveals the situations/principal source of conflict in crimes where corrosives were used and then why corrosives were used in those situations.

Figure 12 outlines the main motivations for using a corrosive that were identified in the case file data. The motivations were based upon assessments made from case file notes and descriptions of the case. Based upon information from 450 cases,[19] the most common motivation was in relation to enforcement[20] of a criminal act (30%). This primarily related to commercial and street robberies where offenders used a corrosive to 'take out' any form of resistance from their victims. Indeed, some offenders were operating a 'strike first' form of MO here, where they would approach victims (either in a commercial setting or on the street) and immediately use the corrosive before the victim had been given any option to comply. Others seemed to use the corrosives as a threat to ensure that victims complied and only if victims were non-compliant was a corrosive used. Enforcement of crime also involved other types of incidents where offenders were trying to leave a crime event and were being pursued, such as in a burglary or attempting to make off without payment after using taxi services.

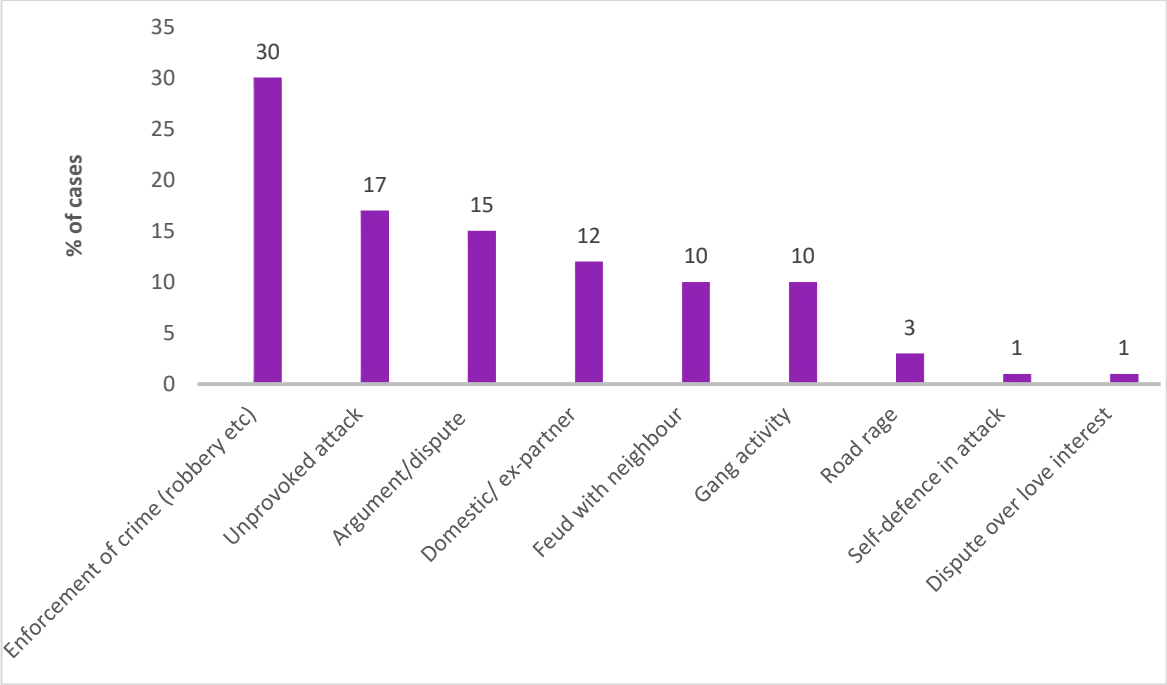
Just under one in five attacks (17%) appeared to be 'unprovoked' or have no precursors at all. Indeed, crime records often suggested that attacks were 'random' events and even that offenders had picked 'random' victims and used corrosives for amusement. Care should be taken in how this is interpreted, as the crime reports were mainly based upon victim interpretation of events or the version of events they would like the police to know about. In several cases, there was a suggestion that attacks that were described as 'unprovoked' might have had precursors/antecedents that were not known to the police. It is interesting to note that in nearly 10% of cases, corrosives were used due to 'gang activity' – these were commonly thought to be disputes over issues of respect and drug debts. It is plausible that several of the cases that were said to be 'unprovoked', or those where there was no information at all on motivations, were related to street gang activity where victims were unable or unwilling to provide any information to the police.

Many of the other reasons/motivations for attacks outlined in Figure 12 demonstrate the broad range of circumstances in which corrosives had been used. In 15% of attacks there was a clear precursor in that there had been an argument between the victim and offender directly

[19] For the remaining cases it was not possible to draw any accurate conclusions as to the motivation for the attack.
[20] In this sense 'enforcement' means that a weapon was used to help secure intended end goals for the offender, such as taking items in a robbery.

before the corrosive was used. In such cases, these arguments were generated by conflict over refunds in shops, pub/nightclub incidents and arguments between friends that had escalated out of control. In a further 10%, ongoing feuds with neighbours resulted in attempts to settle conflict with the use of a corrosive. Unsurprisingly, just over 1 in 10 attacks involved partners or ex-partners; a range of substances were used, though predominantly readily available household cleaners. Such domestic attacks appear to be part of an ongoing chain of events between partners where one argument out of several resulted in one partner picking up a household corrosive in the spur of the moment.

Figure 12: Motivations for attacks / why corrosives used (based upon police analyst assessments from case file data)



Base: Case file data: n=450 cases where motivation for the attack was known. Low category counts (less than 5), generating a percentage of under 0.5, have not been included in this chart. Please see the Excel spreadsheet for the categories omitted from this chart. The total may not add to 100% here due to rounding of numbers.

Interviews with offenders were able to cast more light as to why corrosives were used in crime events. Previous research in relation to weapons use generally points to the fact that weapons are used to achieve a number of goals in crime events as a way of assisting offenders (Brennan, 2017; Kleck & McElrath, 1991). In particular, weapons can help offenders overpower victims and reduce uncertainty in crime events (Kleck & McElrath, 1991). As is illustrated below, many of these reasons were evident in relation to corrosives, though some care does have to be taken in relation to how the data from this study should be interpreted. All of the cases analysed, both police case files and offender interviews, were of cases where corrosives had been used. These illustrate *why* corrosives were used, but they tell us little about the utility of corrosives as a weapon of threat. Indeed, some evidence suggested that the presence of weapons (especially guns) could inhibit the likelihood of actual violence occurring. In such circumstances the actual threat of using such a lethal weapon means both offenders were reluctant to use and potential victims acted in a way to avoid becoming victims (*ibid.*). At present, our data tells us little about the 'threat potential' of corrosives.

Evidence from the offender interviews do, however, point to four principal reasons why offenders used corrosives in crime events.

1. **To achieve a specific instrumental criminal outcome**

Across several cases outlined by offenders, the corrosive was used to achieve a specific instrumental criminal outcome: to gain cash, property or drugs (n=8). For example, in robbery cases, corrosives were used to quickly overpower any potential resistance from victims and to ensure the desired items or cash could be stolen. Indeed, several interviewees in interview spoke about the utility of corrosives to successfully *"take out resistance"* (INT 11). One respondent described how in robberies he would use a corrosive as soon as he could in order *"to reduce the likelihood of victims fighting back"* (INT 15). Previous research has suggested that weapons are often used in robberies as a threat to ensure compliance (Brennan, 2017). However, in many cases described by the interviewees in this study, a corrosive was used as a 'first strike weapon' to neutralise any resistance immediately, rather than a weapon of threat. In such cases the victim was not given a choice as to whether or not to comply with the demands of the offender before the corrosive was used. It was suggested by offenders who used this tactic that this could help reduce nervousness before the robbery and worries over escape from crime scenes (as potential resistance from victims had been neutralised).

2. **To punish / exact revenge**

In interview, offenders mentioned several incidents they had been involved in where a corrosive was used to punish victims or to exact revenge for some sort of wrong doing (n=9). However, again care should be taken with the interpretation as very little was said by interviewees about having a desire to cause serious or permanent damage to victims. Within the interview sample, there were 15 cases where victims were seriously injured, though often interviewees claimed they had not intended to do serious damage or they were not aware of the potential of the substance they were using to cause such damage. That said, there were cases where there was a desire to punish through using corrosives. Indeed, in one case sulphuric acid was intentionally used to cause lasting damage in an incident over family honour in which *"the substance was poured straight from the bottle over his [the victim's] face"* [INT 23]. In this case, the victim sustained life changing injuries. In another case ammonia was used to torture a victim over the theft of drug money.

"My older was there innit, and my older poured, like, fucking ammonia on his hands, but dripped it innit. He dripped it and it burned and he screamed. He said "Where's my money, innit?", and the kid's all screaming and that. He poured it again and said "Where's my fucking money?", boom, poured it, and I seen the kid break in a couple of seconds, like the kid broke, like he… If he'd have said to him 'Can I kill your mum?' the kid probably would have turned round and said 'yes'. He broke. He mentally broke." [INT 21].

3. **Fear of attack / self-defence / to close a fight**

Others have pointed to the fact that in the heat of the moment and the *"stress of the situation"* (INT 19) they were fearful of being attacked themselves (n=8 cases). In such situations they struck the first blow to protect themselves or used a corrosive to bring a fight to a close. Several interviewees described altercations they became involved in as being more than 'street brawls' where a few punches are thrown and then all participants walk away. In these situations, several felt their lives could have been at risk. For example, one respondent described how a seemingly minor altercation on the street led him to be fearful for his life:

"I'm going to die or is he going to die? Which way is it going to be? Is it going to be me squirting him in the face and running away, or how is it going to be?" [INT 12]

Others described how fear and the desire to defend themselves drove them to use a corrosive. The following two excerpts describe how interviewees reacted to the situations they found themselves in.

"…one of the other males who was part of that group has pulled a big knife out and … I just got a flashback, yeah, because I, well, I was in a bar in, I think it was in 2012, and I got random, I got stabbed in my neck here… When I just see the knife and I, and it got passed to me, my natural, my instinct was I just threw it [the acid]." [INT 5].

"He was going to pull a knife [motions what the victim did by reaching down to his pocket], so I pulled out the bottle and sprayed it in his face. He screamed out – he was like 'fucking hell, fucking hell'…screaming… We turned and ran." [INT 11]

4. Peer group expectations

In addition to the reasons mentioned above, several interviewees also discussed how they (at least partially) used a corrosive due to peer group expectations or to fulfil behavioural expectations. In six interviews, offenders stated they did not necessarily plan beforehand that they were going to use a corrosive. However, as the violent incident developed, others passed corrosives to them that they were encouraged to use. Indeed, it had been suggested by some offenders that they were in situations with a peer group where they felt it was too late to back down and there was an expectation about what they were going to do. One offender who used sulphuric acid during a brawl, described how he felt under pressure to throw the substance given to him by others around him:

"The only thing I could have done was run really, but I couldn't… Obviously now looking back, I wish I did obviously run, 100% and obviously I've caused life changing injuries." [INT 5]

While these motivations behind using corrosives are unsurprising, they tell us little about why corrosives were used as opposed to other types of weapons. Therefore, questions remain about the specific utility of corrosives that allow for the successful completion of crime events and why corrosives might be preferable to other weapons such as guns and knives. Further evidence from the interviews with offenders was able to point to a number of factors around the utility of corrosives that made them appealing as a weapon. Eight principal factors emerged.

1. Physical harm control

The popular perception of corrosives, such as sulphuric acid, is that they are used to maximise physical harm to victims. Indeed, several high-profile cases in recent years, point to this where corrosives were clearly used to maximise damage. Some offenders interviewed as part of this study who used strong acids, mentioned the physical trauma that could be inflicted as a motivation. However, a number of interviewees also suggested that one attraction of corrosives was the level of control users had over the extent of the physical harm they wanted to cause to victims. Several interviewees spoke about having better control of the violent crime outcomes when using corrosives as compared to a gun or a knife, where outcomes could be more unpredictable. Indeed, the control over harm was mentioned in several interviews:

"I've seen people squirted and they've hit the floor screaming, so I know the effect of what it can't do and can do. Sometimes it's been watered down, some people water it down, so

then if they do squirt people, it's not going to be enough to blind them but it's going to be enough for them to go like that [fall down]." [INT 12]

"In a fight a knife is not controlled, you tussle and get wound up and lose control - if you then stab you can do damage you don't want to do. Ammonia is better than a knife. I don't want to kill somebody… I diluted it so it would just do a minor injury." [IN 11]

Therefore, there was a view that with a weapon such as a gun, if you shoot somebody you are uncertain what part of the body you might hit and what the physical harms will be. The same applies to a knife. One respondent commented that he preferred corrosives as a weapon to use as he could limit the damage more easily than with a knife:

"I am a big man, with a big knife [he motions the size of the sword he carried]. I stab somebody I kill them – you get what I'm sayin'?" [INT 11].

2. Adaptability

There was a sense from the interviews that corrosives were seen as adaptable and versatile as they could be – *"a weapon for any crime"* (INT 23). Indeed, corrosives were seen as being adaptable in that they could be used in a range of contexts and for a number of purposes. Interviewees cited several examples of corrosive use which pointed to their adaptability (which is also enhanced by the power of users to control the amount of physical harm the weapon can inflict). Corrosives can be used *"to end a fight"* (INT 12), *"do a robbery"* (INT 11) or *"torture victims"* (INT 21).

3. Element of surprise

There can be an element of surprise with corrosives that is not evident with other weapons. For example, corrosives can easily be concealed/disguised in sports drinks or water bottles, which can create a sense of confusion or surprise for victims. Several interviewees mentioned that if you pull a gun or knife out, it is visually clear what the weapon is. However, this is not the case with corrosives. As one respondent succinctly stated:

"With stuff like ammonia you don't know what it is until it's in your face… Specially if it's in a [name of sports drink] bottle… People might have a clue, but they ain't sure…" [INT 11]

4. Weapon readiness/speed

Several interviewees expressed a view that corrosives can be *"more ready to use"* (INT 1) and *"easy to hand"* (INT 4) than other weapons. For example, some offenders mentioned the ease with which corrosives can 'blend in' as the carrying vessel is normally a drinks bottle, as well as being the vessel from which it will be thrown. Therefore, this made it a particularly appealing street weapon. Some interviewees spoke about the difficulties in quickly getting knives out from where they had been concealed, which in *"high pressure situations is not what you need"* (INT 11). Corrosives are easier to have to hand as they can be openly carried without suspicion and be ready for use. Thus, they can be thrown quickly, which can equate to valuable time in crime events. The excerpt below describes how quickly a corrosive was used in an acid attack*"*

"…he had it wrapped in a carrier bag in his hand, some kid tried to run, I've seen some kid try to come at him. He stepped back and he just dashed it at him. It was the quickest thing.

He just dashed it in his face, because it was the quickest thing he could do to him, to fuck his eyes." [INT 21]

5. Instant visual incapacitation of victims

Some interviewees also mentioned a specific utility that is not evident with knives or guns, in that corrosives were extremely effective at visually incapacitating a victim instantly, allowing a further crime (usually robbery) to be carried out. Offenders spoke about how corrosives not only removed the potential for victims to resist robberies, but also removed the potential for victims to identify them as perpetrators. One interviewee described how corrosives could be used effectively in a robbery to limit the chances of an eye witness coming forward.

"...spray and no one can see… How can you then report it to the police? You ain't seen me. You can't see nothing. What, you heard my voice? Try and prove it was me, innit. You can't see me. Like your eyes are burning, you're screaming, you don't know what to do." [INT 21]

6. Putting physical distance between an offender and victim

For many offenders being able to keep a physical distance from victims was advantageous. Squirting corrosives from vessels such as sports drink or water bottles allowed for a distance of around 4 to 5 meters to be obtained. This allowed the weapon to perform a little more like a gun (though it cannot reach the distances of a gun) while at the same time avoiding the risks (in terms of consequences of being caught in possession) associated with a gun. By not having to get too close to victims, offenders could limit the risk of getting 'grasped' or attacked themselves. This was particularly attractive when confronted with a potential assailant armed with a knife attack and could lead to offenders beginning to feel *"untouchable"* (INT 2). As one respondent said about ammonia:

"You can stand your ground, not get too close and still hit somebody hard with it. You're away before they even get near you." [INT 11].

Thus, the physical space not only enabled offenders to get away quickly, but many interviewees spoke about how possession of corrosives acted to *"even up the odds"* (INT 12) in physical confrontation, as even the most physically strong assailants can be overcome. As one respondent said:

"….you end up arguing with them, five men who train at the gym every day and who've had a drink, coming towards someone who doesn't go in the gym, who's a drug user, who's underweight, well what's the chances of that? None. Very slim. What's the chances if you've got ammonia? Very high. So that's what most people think, like, and that's their thought cycle." [INT 12]

Previous research has identified the 'equalization of power' effect that weapons can have on physical confrontation (Brennan, 2017, p.434). However, keeping a physical distance was considered positive by offenders for two other reasons. Firstly, distance was perceived as reducing the likelihood of leaving forensic evidence on the victim (or traces of blood as is often the case in stabbings). Secondly, several interviewees suggested that the physical distance helped them to retain an emotional detachment from what had been done. Unlike the visceral nature of stabbing a victim, using a corrosive minimises any

close contact. It was suggested by one expert that *"throwing liquid in someone's face is a crime you can't really feel, there's less impact on yourself"* (Expert Interview J).

7. **Silent to use**

   One respondent mentioned that corrosives were a useful weapon as, beyond being able to keep a distance from the victim, when the weapon is used it is silent (unlike a gun). This not only adds to the sense of confusion for the victim about what has happened, but can also reduce the potential for attracting the attention of witnesses to the assault. This was described by one respondent as follows,

   "I can't be really walking round town with a gun, because there's loads of police, so if I do get stop [and] searched, like, [I would be in trouble], plus I can't really shoot a gun off in the middle of town, because if you shoot… Like, you can stab someone…or use corrosive, like, on the sly, you can do it quietly, innit. You can walk up and… [throw corrosives], but if you bang a gun off, everyone knows, innit. Like, everyone knows you've done it." [INT 21]

8. **Ends crime events quickly / reduces uncertainty**

   Possibly the key appeal of corrosives is the perception that they can end crime events quickly and also reduce the level of uncertainty when violent clashes occur. Previous research has also highlighted a key reason for using weapons in crime generally is to reduce the level of uncertainty for offenders (Brennan, 2017; Cook, 1991). This is obviously appealing to offenders as few would choose to be involved in protracted crime events.

The data presented above begins to identify a number of the motivational factors behind corrosive substance attacks. However, both the case file analysis and the interviews with offenders highlight the complexity of corrosive crimes. Many can involve other weapons and other forms of violence. For example, of the 648 crime events recorded in the case file exercise, 54% included 'other' forms of violence: kicking, punching, hitting with a blunt weapon or stabbing. This suggests that while corrosives are an attractive weapon for many offenders, they are often used in crime events in conjunction with other weapons and forms of violence.

4.3. The aftermath of corrosive substance crimes

In this section we turn to the aftermath of corrosive substance crimes. Here we focus on how offenders left the scene of the offence and the proportion of offenders that were actually charged for an offence relating to the corrosive substance crime.

In interview, offenders were asked what they did immediately after the attack. The majority left the scene as quickly as possible after the incident, which was especially common where corrosives were used in robbery and street attacks. Offenders were most likely to stay at the scene in domestic violence cases (as they would often be residing at the location where the attack took place). In other types of cases, in the days after the attack it was common for offenders to lie low and to try and avoid attention. One interviewee admitted that he was *"on the run"* [INT 5] in the days after the attack, though claimed he needed time to come to terms with the gravity of the situation he was facing. Others, even when knowing that they were suspects (as often there was CCTV footage), did not give themselves in to the police.

Analysis of the case file data showed that around one in six suspects were eventually charged for an offence relating to the corrosive substance crime. Table 11 presents the charge rates for

suspects involved in corrosive substance crime by area. Comparison is made to the published charge/summons rates for violence with injury in order to ascertain if charge rates for violent crimes involving corrosives differ to violence with injury generally. In total, 15% (182) of the 1,187 crimes included in the case file dataset resulted in a charge to a suspect. There was some variability across forces, with the highest charge rate being in the West Midlands (37%) as compared to 7% in Essex. Owing to the low number of cases across a number of areas, the following findings should be considered as indicative only, though the charge rates observed for corrosive crime compared well to published charge/summons rates for violence with injury, with only two force areas (Essex and MPS) recording lower charge rates for corrosive crime than for violence with injury generally.

Table 11: Proportion of cases where suspects were charged

Force area	Number of cases in the case file analysis	% and number of suspects charged according to case file analysis	Charge/summons rates (violence with injury) for year end 31 March 2018[21]
MPS	832	13% (112)[22]	17%
Northumbria	129	26% (33)	15%
Essex	76	7% (5)	15%
Kent	43	12% (5)	12%
GMP	28	18% (5)	12%
West Midlands	35	37% (13)	16%
Hampshire	32	22% (7)	13%
Suffolk	12	17% (2)	14%
Total	**1,187**	**15% (182)**	**15%**

Base: Case file data: n=1,187 cases.

[21] Violence with injury charge/summons rates data source: https://www.gov.uk/government/statistics/police-recorded-crime-open-data-tables.

[22] As MPS data collection were inflated by the number of cases with suspects (see chapter 1) this may have inflated the proportion of cases with charges.

5. Preventative strategies

A key strand of the research was to consider what future preventative approaches might reduce the number of crimes involving corrosives. Information in relation to this was collected by asking both the offenders and experts for their thoughts around prevention. In this section, we consider:

- the preventative approaches that have already been put in place
- the immediate challenges for prevention going forward
- what preventative approaches might be considered going forward
- the long-term challenges for preventing corrosive crime

5.1. Preventative approaches already in place

To date, a significant amount of action has been taken by the Government, police, CPS, courts, retailers and health services to tackle the use of corrosive substances in violent attacks and other criminal acts. The key strands of the Government's action plan to tackle the use of acid and other corrosives in violent attacks announced in July 2017 (Home Office, 2017) included ensuring effective support for victims and survivors, effective policing, ensuring that relevant legislation was understood and consistently applied, and working with retailers to restrict sales of acids and other corrosives. Many of these actions and commitments were then outlined in the Government's Serious Violence Strategy (Home Office, 2018) which was published in April 2018. The commitments that were made in relation to tackling corrosive crimes in the strategy include:

- Ensuring that the police have the capability to undertake street testing for corrosives to enable them to take action against individuals suspected of carrying corrosives in public, with work commissioned through the Defence Science and Technology Laboratory.
- Working with the British Independent Retailers Association to encourage smaller independent retailers to join the voluntary agreement on the responsible sales of corrosive substances, including not selling products containing the most harmful corrosives to those under 18. The voluntary commitments were launched in January 2018 and a number of major retailers have signed up to these. The primary aim of the voluntary agreement is the restriction of sales of products containing the most harmful corrosive substances.[23]
- Adding sulphuric acid to the list of regulated substances subject to the Poisons Act 1972, thereby restricting access and making it subject to more stringent controls. Since 1 July 2018, members of the public wishing to import, acquire, possess or use sulphuric acid above a concentration level of 15% require a Home Office licence. In addition, since 1

[23] These include products that contain sulphuric acid, sodium hydroxide (at 12% concentration and over), hydrochloric acid (at 10% concentration and over), ammonium hydroxide (at 10% concentration and over) and sodium hypochlorite (at 10% concentration and over).

November 2018, it has been a criminal offence for members of the public to possess sulphuric acid above 15% concentration.

- Ensuring that there is appropriate support for victims and survivors of corrosive attacks from the initial medical response and beyond. Furthermore, ensuring that the police and prosecutors are considering the need for special measures and the use of victim personal statements and community impact statements to ensure that the courts are fully aware of the impact of corrosive attacks on individuals and communities. Action has included:
  - Ensuring effective law enforcement with NPCC providing first responder advice for police officers on how to respond and treat a victim at the scene.
  - Specialist investigative guidance has been developed on how to recover and safely handle evidence and also the evidence required to build a case for the prosecution.
  - Development of a tri-service agreement with the police, ambulance service, and fire and rescue service to coordinate the emergency services response to attacks.
- Reviewing existing legislation on the criminal justice sanctions for the use of corrosives in crime, and the sales of corrosives. Legislation is already in place that allows for severe penalties to be imposed for the use of corrosives in actual attacks.[24] The Prevention of Crime Act 1953 has been used to prosecute individuals in possession of a corrosive substance where it can be proven that they were carrying the substance with the intention of causing harm, as they may be considered to be in possession of an offensive weapon which has a maximum sentence of four years imprisonment. However, gaps in the existing legislation were identified and the powers of the police and the courts have been strengthened by the Offensive Weapons Act 2019, which creates new offences of possessing a corrosive substance in a public place (which removes the need to prove intent to use), and stopping the sale and delivery of corrosive products to under 18s, including:
  - stopping the sale and delivery of corrosive products to under 18s
  - prohibiting the delivery of corrosive products to residential premises
  - making it an offence to possess a corrosive substance in a public place
  - extending stop and search powers for corrosive substances

Further to this, changes have been made to how the sales of poisons are controlled through the Deregulation Act 2015.[25] Prior to these amendments, any business selling hydrochloric acid and other poisons were required to register annually with their local council, ensuring there was a record of companies selling hazardous chemicals. However, this offered no controls as no checks were made by local authorities, the lists were held locally and there was no detail on the substances sold. The Deregulation Act 2015 strengthened controls as it placed a mandatory requirement on retailers and suppliers to report any suspicious transactions involving any of the listed explosive precursors and poisons, and a requirement for members of the public to obtain a license to purchase regulated substances. The Act categorises explosive precursors and poisons into those that are regulated substances (which includes nitric acid

[24] For example, Section 29 of the Violence against the Person Act (1861) makes provision for a life sentence for throwing (or applying) corrosive fluid on a person with intent to burn, maim, disfigure, disable or to do some GBH. Under Section 18 of the same Act, offences of causing GBH with intent also make provision for a maximum life sentence.

[25] See https://www.pharmaceutical-journal.com/learning/learning-article/poisons-and-chemicals-changes-to-the-law-in-the-uk/20068947.article?firstPass=false

and sulphuric acid) and those that are reportable substances (which includes a number of acids and alkalis). The purchase of a regulated substance requires a member of the public to possess a Home Office licence (from May 2015). It is an offence to sell a regulated substance to a member of the public without verifying that they have a valid Home Office licence. It is also an offence for a member of the public to acquire, import, possess or use a regulated substance without a valid Home Office licence. In relation to reportable substances, businesses are required to report suspicious transactions, significant losses and thefts to the national contact point. It is also a criminal offence for businesses to fail to report any suspicious transactions, significant losses or thefts.

5.2. The immediate challenges for the prevention of corrosive substance crime

While significant efforts are being made to both increase the effort required for offenders to obtain corrosives and to the risk of carrying them, the fieldwork identified a number of key challenges for prevention, as well as suggesting a number of potential future preventative approaches that might be developed. These are outlined below.

The expert interviews, in particular, highlighted a number of challenges moving forward in relation to the prevention of corrosive substance crime.

1. **Knowing the extent of the problem**

   Several respondents raised the issue of accurately recording the number of corrosive substance crimes. From a police perspective, there was the suggestion that in some areas (such as MPS) there has been a considerable increase in the number of corrosive crimes recorded over the last six years. However, questions have been raised about recording practices at force level. A concern was expressed that many offences do not come to the attention of the police. One interviewee noted that there are likely to be people presenting to hospital for treatment who do not report to the police (Expert Interview O). When cases do come to the attention of the police they are often recorded in such a way that it becomes difficult to identify which crimes involve corrosives. As one interviewee said, *"The picture when I looked at the data and the scale of the problem was not entirely accurate"* (Expert Interview M).

2. **Understanding the nature of corrosive crime**

   Respondents also detailed how acid attacks in the UK differed to those in other countries, where, for example, the victims tend to be girls and women (ASTI, 2015). One respondent said that crime trends were often *"cyclical"* and that such trends may not necessarily be understood as *"sometimes we don't properly understand or grasp the cultures that produce these fashions"* (Expert Interview C). Therefore, attention has to be paid to understanding the cultures that can generate such crimes and how these trends change over time.

3. **Testing/identifying a corrosive**

   Interviews with police officers, in particular, revealed the problems faced when trying to identify when people might be carrying corrosives in a water or sports drink bottle. Indeed, it was noted that often using stop and search powers in such cases was problematic, and also there were particular issues with being able to accurately identify when a liquid in a bottle was a corrosive, given it was often a clear liquid.

4. **High attrition rates**

   Several respondents mentioned issues in bringing offenders to justice. It was observed that there may be an under-reporting of attacks because of complex relationships between victims and perpetrators. Often cases involve parties who are both on the margins of criminality and would wish to remain unknown to the police. It was also suggested that corrosive substance crimes often occur in locations where communities may be suspicious of police, and witnesses are (for a variety of reasons) reluctant to come forward.

5. **Ease of purchase**

   The ease with which one can legitimately buy and carry corrosives was identified in the offender interviews and was also a key concern expressed by several expert respondents. In particular, concerns were expressed by two experts in relation to the Deregulation Act of 2015. This made amendments to the Poisons Act (1972), which included the abolition of the Poisons Board – the statutory body whose function was to advise the Home Secretary on matters relating to poisons – and the removal of the requirement for sellers of explosives and poisons to register with local councils. As outlined above, this has been replaced with a national licensing system to control the sales of explosive precursors and poisons to members of the public for regulated substances, and a requirement for retailers and wholesalers to report any suspicious transactions, significant losses and thefts. However, concerns were raised by experts about whether retailers and wholesalers would diligently check if customers had licences, whether suspicious transactions would be reported, and how this system is to be monitored and evaluated.

6. **Proof of intent to injure**

   Particular concerns were raised by experts about legislation in relation to carrying corrosive substances. At present, people carrying corrosives may get arrested on suspicion of criminal intent, but then it has to be proven that there was *intent to injure* somebody in order to prosecute. It was suggested that young people are being arrested for possession, but not charged because of the need to prove that the young person was carrying the corrosive substance with the intent to cause injury. However, it was acknowledged that this position was going to change when the new possession offence, which has been introduced in the Offensive Weapons Act 2019, is commenced.

7. **Offender perceptions of the likelihood of criminal justice sanctions**

   A number of perpetrators interviewed for this project had previously been arrested for possession of corrosive substances. On several occasions no further action was taken against them. This reinforced the message that possession of corrosives would not result in a criminal justice intervention.

8. **Knowing what works**

   It was also mentioned by some respondents that, although taking action against corrosive substance crime is to be welcomed, various strategies need to be carefully monitored and evaluated in order to understand their impact.

5.3. Future action / potential preventative approaches

The respondents outlined a range of potential preventative responses to corrosive substance crime. This section sets out an overview of the responses suggested in relation to:

- improving knowledge and intelligence about corrosive substance crime
- increasing the effort required to obtain/purchase corrosives
- increasing the risks of carrying corrosives
- heightening awareness of victim/offender impact
- changing the design of bottles to deter people from using them to carry corrosives
- tackling onset and risk factors of offenders
- prison interventions

It is recognised that any main future action / preventative approaches would have to be carefully scoped out before they could be taken forward.

5.3.1 Improving knowledge and intelligence about corrosive substance crime

In line with the finding that our understanding of corrosive substance crime is not as well developed as it might be, a number of suggestions were made by expert interviewees.

- **There should be mandatory reporting to the police of corrosive attacks**

  It was acknowledged by experts that there are various reasons why victims may not want to report acid attacks to the police. However, it was suggested that when victims present to hospital with injuries consistent with the type of damage caused by a corrosive substance, they should be encouraged to report. Some experts even suggested that when presenting to hospital with such injuries, reporting should be mandatory. Mandatory reporting would aid a better understanding around the numbers of corrosive substance crime. It would also mean the police could try and get intelligence from the victims even if they did not want to give statements – it could enable links to be made back to one perpetrator or group that the police could then look to investigate.

  Further to this, it should be noted that, the Home Office together with the NPCC lead has put in place provision for the collection of data on the number of actual and attempted corrosive attacks as part of the Annual Data Requirement on police forces from April 2019 onwards. This is to an agreed NPCC definition to aid consistent and accurate reporting.[26] Data will be published in the future as part of ONS's crime statistics releases.

- **Consideration should be given to developing joined up police and NHS datasets**

  As outlined above, in order to help monitor numbers nationally (and improve upon the voluntary data collection exercise), police forces now have to routinely collect corrosive substance crime data. However, to develop a more holistic picture of the numbers of corrosive substance crimes, the possibility of developing joined up police/NHS admissions datasets should be explored locally. Such datasets might include details of the times and locations of crimes, any details about substances used, the extent of injury sustained, victim demographic details and any available data about the offender(s). These datasets would provide a more comprehensive picture of corrosive substance

[26] The NPCC definition of corrosive substance crime is: all notifiable violence against the person and robbery involving the throwing, spraying or pouring of acid or a similarly corrosive substance onto the body of another with the intention to disfigure, torture, kill or otherwise incapacitate for criminal purposes. Acid or corrosive substances are defined as those that cause visible destruction and/or permanent change in human skin tissue at the site of contact.

crime, improving police recording on corrosive substance crimes and the potential for detailed analysis.

- **The need for better police and community worker engagement to improve knowledge and intelligence**

  Some respondents suggested that knowledge gaps might be filled with better partnership working across agencies and through developing better community knowledge. Youth offender and community-based workers, particularly in urban areas of deprivation, are practitioners who are close to what is happening at the local level. Indeed, knowledge of how and why corrosives are being carried, particularly amongst the under 18s, is often located within these frontline projects and practitioners. As one respondent noted, in the past, police have had good outcomes from working with communities on certain issues, as communities will know who their gangs are. Getting the kind of information that allows police to intervene and develop intelligence to *"prevent [attacks] before they happen"* (Expert Interview Y) is required. Another respondent remarked that police, healthcare professionals, community services etc. are all working separately on this issue, *"but it is not a separate problem"* (Expert Interview O) – instead it requires a more integrated approach.

5.3.2 Increasing the effort to obtain/purchase corrosives

It is acknowledged that much work is currently ongoing around increasing the effort required for potential offenders to obtain corrosives. However, several offenders in interviews mentioned the ease with which they obtained corrosives. One interviewee simply said:

"Stop selling ammonia and acid, and stop making it so easy to get your hands on [it], because I could walk along a street and I could get it within the space of just asking two people." [INT 21]

While there was some support for making it harder to obtain corrosives, with one interviewee stating *"I don't think you should be able to go up to a counter and pick up anything that's corrosive"* [INT 3], several other interviewees were quick to point out that if someone was determined to obtain corrosives (or others types of weapons), *"there will always be ways"* [INT 8] and *"people will always find ways round it, always find ways of accessing it"* [INT 4]. Restrictions are not always effective, as one respondent explained in relation to age restrictions on buying corrosives:

"But that's, like, if someone wants cigarettes and they're 14/15, they'll just get someone else to buy them for them, do you know what I mean?" [INT 5]

However, one respondent made the point that while the most determined would always obtain the weapons they desired, restrictions can make it more difficult for corrosives to get into the wrong hands and could make it more unlikely for some to carry corrosives.

"If I want it that much, I could get it, yeah. But taking it off the shelves and putting it behind the counter, that could be a good thing." [INT 12]

A number of experts also clearly felt that the current set of voluntary commitments on the responsible sale of corrosive products for retailers was a step in the right direction, and that the following actions might be taken to restrict sales of corrosives:

- To restrict online and over the counter sales where possible.

- Work in conjunction with Trading Standards to look at prosecution for illegal supply of corrosives.
- To educate retailers on the terms of sales, and ensuring they give training for retail staff on sales counters on regulations and potential signs to look out for in relation to people who sales should not be made to.

One respondent, who had been involved in a serious acid attack, was adamant about the need to have a licensing scheme (similar to the Explosives and Precursors and Poisons Licensing provisions introduced in 2015) for acid purchases:

"They need to impose law, if you want my opinion, to impose law to make it really, really strict to buy acid, you have to have a licence, you can only get it in a certain way, in order to acquire it you have to go out of your way, so if someone was going to acquire it for malicious purposes, just by them going out their way to acquire this, that on its own has to show intent." [INT 23]

5.3.3 Increasing the risks of carrying corrosives

Several respondents were clear that when corrosives did fall into the wrong hands, legal sanctions should be in place to increase the 'risks of carrying' for offenders. Suggestions revolved around possession offences, preparing to use corrosives in a criminal act, and generating publicity and knowledge about the sentences handed down following conviction for using a corrosive.

- **The implementation of possession offences**

  While the new provisions of the Offensive Weapons Bill (now the Offensive Weapons Act 2019) were welcomed by experts, it was noted that the police currently do not have the 'forensic-specific facility' that enables the identification of substances. It was suggested that until you know what substance is being held by a person, it is very difficult to know whether somebody is in possession of a corrosive and whether an offence has been intended. Therefore, it was suggested that more police resources are required to do 'on the spot testing' and also a greater use of stop and search might be required in some contexts.

- **Offences relating to preparing for a corrosive attack**

  The evidence from the case file exercise, and offender and expert interviews all illustrated that corrosives were regularly placed into sports drink or 'squirty' bottles in preparation for a criminal act or attack. Therefore, it was suggested by an expert (and several offenders) that there should be a piece of legislation that covers the movement of a corrosive from the original bottle into a 'squirty' bottle, classing it as being a specific offence. As one offender said in relation to the law around possessing a corrosive with the intent to commit a crime:

  "In the [original] bottle, it's not an offence but once you put it into a sports drink bottle or any other bottle, it's going to be." [INT 12]

  Thus, an offence of 'preparing for a corrosive attack', of being involved in the 'preparation' or 'carrying of a noxious liquid in a vessel not suitable or designed for its use', could potentially be useful.

- **Generating publicity and knowledge around harsher sentences**

  Over the last 12 months, much work has been done to ensure that the existing penalties for possession and use of corrosives is understood and applied by judges in court. Interviews with offenders (n=16) suggested that few were aware of what the likely sentences were for the possession of or using a corrosive substance at the time of their offence. Many spoke widely about the use of criminal justice sanctions as a preventative measure and, in particular, the likely impact of harsher prison sentences for possession and use of corrosives in crime. Several interviewees expressed surprise at the length of the sentence they received for crimes where corrosives were used and in some cases there was a feeling that, with all of the media focus on corrosive crimes, they were being *"made an example of"* [INT 18]. This might suggest a need for better publicity/education in relation to potential sentences, as this might act as a deterrent – something that several experts suggested. However, this view was met with a mixed reaction from offenders. Some expressed the view that while harsher sentences for the use of corrosives seemed sensible in theory, it might make little difference to the *actual* use of corrosives in crime events. Indeed, several offenders said that when they were in a situation where they had to choose whether to use the corrosive or not, *"nothing would have stopped the crime happening"* [INT 14] or *"I was protecting myself"* (INT 25), and as another stated:

  "When I squirted him, nothing of the sort [about a possible prison term] was going through my head, at that time it was for me to get away, I wouldn't have cared if there was 100 years jail." [INT 12]

  Several offenders felt that while the threat of punishment for the crime of using corrosives would make little difference, as offenders gave scant thought to criminal justice outcomes during a crime event, tougher laws around possession of corrosives could have an impact. Some offenders remarked that harsh sentences for possession could make people think twice about carrying corrosives, which would mean corrosives were not readily available to be used when violent incidents occur. Linked to this, it was suggested that publicising what had happened to offenders who had used corrosives in a crime could be a deterrent to those thinking about routinely carrying corrosives. One offender, who was serving a long sentence, remarked on how getting the message over about tough sentences could impact on decisions to carry corrosives:

  "It's really obviously… well, they have to just look at what's happened to people that have been sentenced for it, like myself and whoever else has been sentenced for it, obviously they're big sentences, do you know what I mean?" [INT 4]

  However, one offender who was arrested after his victim went to the police, did make it clear that, for some, harsher sentences might simply lead to them changing the MO of the assault to reduce the risk of detection.

  "If I'd knew I'd [have] gone in jail I would have just done it differently. I would have done it in a way that I knew I wasn't going to, like [get caught], do you know what I'm saying? Like, we would have just gone somewhere and shot him." [INT 21]

Heighten awareness of victim/offender impact

The evidence from the offender and expert interviews suggested that it had become fashionable to carry corrosives in some geographical locations, and that potential offenders

were not always aware of the consequences of using corrosives (both in terms of physical consequences for victims and legal consequences for themselves). Therefore, there would be utility in educating potential and actual carriers through three main routes.

1. School education

Some offenders thought that getting the message out to schoolchildren might be beneficial in terms of reducing possession. Indeed, several spoke about *"teaching about it in schools"* [INT 14] or *"talking to them [schoolchildren] about the injuries that it can inflict on people"* [INT 1]. One offender, thought that education at a young age would be most beneficial:[27]

"Show them what it does to people. Show them the images of people's face[s]. They'd probably be better off showing people while they're young, because if I had been younger, me mates had been younger and seen what it's done to people, you never know, people might not carry it." [INT 20]

Many experts had ideas around how such education might be delivered. Some referred to Personal, Social, Health and Economic education (PSHE) that has been part of the National Curriculum for schools in the UK since 2000, and includes citizenship, relationship education, and developing skills of empathy and managing risk situations. Therefore, it was suggested by some that knowledge about the dangers of corrosive crime could be embedded into PSHE. Indeed, early intervention and engagement was widely suggested as being what is required to tackle and challenge behaviours/attitudes, and also to support schools to positively engage with pupils to address issues of violence. Therefore, designing national public awareness campaigns in schools and implementing more local bespoke programmes aimed at young people in 'problem locations' might enable them to talk about the issue before it became a part of their culture.

The evidence from this study showed that both victims and perpetrators are most likely to be male and younger (especially in London). Therefore, replication of the successful 'what works' deterrence programmes with young people in relation to knife crime (such as the education aspects of the work completed by the Violence Reduction Unit on knife crime in Glasgow since 2005) could work in getting the message about corrosive crime out to the more 'at risk' sectors of society.

2. Public education

It was suggested by some experts that school-based education might not reach all of the most 'at risk' populations. Therefore, wider public education on the dangers of corrosive substances and what to do after an attack would be beneficial. These might be focused on possible social media and poster campaigns in affected communities, and victim-focused videos to reach the wider population. It was suggested that such a campaign would need to 'create the human story' and create a stigma around the use of corrosives by including vivid accounts from victims and the impact on their lives.

3. Packaging of corrosives that are available to the public

It was suggested that making the dangers of exposure much clearer on the packaging of corrosive substances – showing the potential damage that can be done to human beings –

[27] It is acknowledged that some evaluations of school educations programmes – especially in relation to drugs use – have had mixed results (Hanson, nd).

would be beneficial. Some mentioned that corrosive bottles could have visually impactful warnings on them, similar to the contemporary health warnings on cigarette packages, so that potential users could *"see the aftermath of using these weapons"* (INT 14). This would obviously be dependent on potential offenders accessing corrosives in their original packaging, rather than after they have been placed into drinks or squirty bottles.

Changing the design of bottles to prevent them from being used in corrosive crimes

Evidence from the case file exercise and interviews with both experts and offenders, suggested that corrosives were regularly carried in sports drinks bottles. One offender mentioned in interview that he was surprised that in this day and age there was not some way that a bottle originally designed for a soft drink could be made to change colour or even melt if a highly concentrated corrosive was placed inside it [INT 23]. Therefore, he argued that consideration might be given to working with manufacturers to change the design of the bottles so they would not hold corrosives without melting, or so that if filled with a corrosive, the surface of the bottle changes colour.

5.3.4 Tackling onset and risk factors of offenders

It has been widely recognised that violence is commonly linked to a range of individual, relationship, community and societal factors (Grimshaw & Ford, 2018). Analysis of the geographical concentration of corrosive substance attacks suggested there was a relationship between deprivation and this form of violence. A number of expert interviewees were quick to point out that corrosive substance violence is most commonplace where there was poor parenting, and a lack of opportunity and positive role models. Related to this, there was a view that there could then be a desensitisation around violence which increased the chance of individuals committing it themselves. Further to this, two offenders also mentioned how the reduction of youth facilities/activities in their locales had helped to entice a number of young people onto the street and into environments where the risks of becoming involved in crime were amplified. As one respondent stated:

"As I say, when I used to go to youth club there used to be so much activities. We would go away for a week to, like, the Isle of Wight or something like that. It was just there was a lot of things to do, whereas now there ain't nothing to do anymore… I just think it boils down to money at the end of the day." [INT 19]

Therefore, there would be utility in targeting a range of community factors and onset/risk factors for young 'at risk' people in the locations with high concentrations of corrosive crime.

Interventions in prisons

There was a view that offenders, convicted of corrosive substance attacks, could still pose a risk of similar attacks in prison, and this is something that HMPPS should be aware of. One offender commented that, once in prison, the problem of corrosive crime, and the potential for corrosives to be used in attacks in prison settings, was never discussed. It was also suggested that in order to prevent re-offending, support was required to help offenders resettle away from former bad influences on release. Indeed, a number of offenders in interview alluded to the fact that they wanted to resettle away from former negative criminal influences when they left prison but did not see how this would be achievable. As such, those convicted of corrosive substance crimes may need carefully designed interventions to reduce the risk of them using corrosives, both in the prison environment and on release. It was also suggested these interventions should be run by people who understand the issues and motivations behind

corrosive attacks. One expert respondent stated that while there used to be good intervention work in prisons, there were now concerns that appropriate interventions might not be readily available.

5.4. Long-term challenges for the prevention of corrosive substance crime

This report has clearly identified that there are a number of reasons why offenders might possess corrosives and then use them in crime events. It was also evident that there are likely to be social and structural issues in the communities where corrosive crime manifests itself, which helps to foster this type of crime. The majority of the offenders who were interviewed for this study were young men who often spoke candidly about their lives in the world outside of prison. These lives were often characterised by family breakdown, drug-related crime, exposure to street violence, paranoia, early educational exit or failure, and low expectations of the people around them and for their futures (whether that be inside or outside of prison). Indeed, most offenders interviewed painted a picture of a world that they saw as beyond repair, and this clouded their view as to how (a) the future might play out and (b) the potential success of future crime preventative efforts. Several spoke negatively about the current levels of street violence:

"You can't do nothin' about this, it's getting worse and worse. Look at that kid who got shot – 15 – in East London. Back in the day they would have just pulled up and beat him up, now why do they have to shoot them?" [INT 2]

"It's fucking dangerous out there man, maybe not for you [nods towards interviewer], but for people like me, it is…it is fucking mad… You ain't goin' stop this, it's a generation thing and it's gettin' worse." [INT 11]

These types of views obviously then impacted on interviewees' views as to whether they thought that intervention could have any realistic impact on the possession and use of corrosives. This was possibly best summed up in the following quotations:

"It is easy to get hold of acid. [But] the kids you need to target ain't going to listen, they are in a different world." [INT 2]

"The best way to stop all the guns, violence, and acid attacks, is stop drugs, but it's never going to happen." [INT 21]

Overall, it was evident that there was a range of positive preventative and early intervention activity that had been and is being implemented through the Government's Serious Violence Strategy (Home Office, 2018). The offender and expert interviews also identified a number of potential interventions that could be developed, as well as concerns around some changes that had been made to registration of sellers and the licensing of corrosives substance buyers. It appeared that our experts widely supported the enforcement of restrictions on sales of harmful substances and increasing the risk of possession of corrosives. There was also support for developing easier methods to test substances on the street, and potentially working with manufacturers to re-design the 'squirty' bottle so harmful substances cannot be moved into them. However, our group of offenders have also illustrated that, for many, the risk of serious violence was a part of their everyday routine activities. Therefore, carrying weapons was part of that routine for many. While the licensing of corrosive buyers and placing restrictions on sales might help to restrict direct sales to some offenders, many have

suggested there are always ways and means to access corrosives for those who want to use them. It was also apparent that there were other longer-term efforts that might be required to change the growing acceptance of weapons carrying cultures that exist. Educational efforts to promote awareness of the physical impact of corrosive crime on victims, their families and communities – if correctly targeted – might help to deter some from possession of corrosives. However, future preventative efforts also need to be mindful of the structural problems (as indicated by a possible association between corrosive crime and indices of multiple deprivation) observed in communities where corrosive crime appeared to most frequently manifest. Corrosive-based crime does not happen in a vacuum, and there are close relationships to knife crime. Therefore, any preventative activity would need to be carefully monitored and its impact on all forms of weapons-related crime closely observed.

6. Research summary and concluding remarks

The principal aim of this research was to better understand the motivations of suspects/ offenders who carry/use acid and other corrosive substances. While some previous studies have identified the context in which corrosives are used and the extent of the harm caused to victims, no previous research has directly asked offenders why they chose to *carry* acid (or other corrosive substances), and why they then *used* such substances in crime events. This research aimed to fill this evidence gap and also represents the first attempt to do so in relation to crimes involving corrosives in England and Wales.

In order to answer the research questions, the project was completed in three phases. First, to gain a better understanding of the characteristics of offences where a corrosive substance was used, data from 648 cases across eight police force areas were analysed. This data provided information on the types of corrosives used in crime events, demographic details of victims and suspects, temporal and spatial aspects of cases and the extent of injuries sustained in crimes. The police data also provided details of sentenced offenders who were then selected for the second phase of the research – interviews with 25 prisoners that aimed to understand offender motivations for carrying and using corrosive substances. The final phase of the research involved interviews or an online survey with 29 experts that aimed to capture their views on potential preventative strategies that might be developed to reduce the likelihood of carrying/using corrosive substances in offences.

There were a number of limitations with the research which should be borne in mind. The eight police forces were approached because they appeared to have a high number of offences involving a corrosive substance. We were also keen to draw upon cases from a mixture of metropolitan, urban and rural forces. The eight forces included in the study are not necessarily representative of all police forces areas or of all corrosive offences in England and Wales. Capturing data on corrosive crimes was difficult as few police areas had a specific code or flag to identify which offences involved a corrosive substance. Some police forces had a separate database to hold this information; at other forces, researchers needed to search a free text field to identify cases, which is likely to have led to some cases being missed. In addition, we found inconsistencies in how police forces recorded a corrosive substance. In some cases there were very clear descriptions of the types of substances used and the pH concentration of the substance, in other cases little more was available beyond the fact that a noxious substance was used. Further to this, it is likely that a combination of our method to predominantly target police forces with the most cases, our techniques for finding cases as well as for finding serving prisoners to interview will have resulted in a focus at the more serious end of the spectrum with regard to offences involving a corrosive. Therefore, it is possible that our data are not representative of all types of cases where corrosives are used. In addition, the small number of self-selecting offenders who agreed to be interviewed as part of the research will not be representative of all offenders who have used corrosives in crime.

The case file analysis exposed a number of issues with the data, particularly in terms of knowing the size and nature of the 'problem' of offences involving a corrosive substance. As previously mentioned, there is currently no offence type which includes the use of corrosives, and this may have led to an under-counting in the number of these types of offences. However, as part of the annual data requirement, from April 2019 police forces are required to report and provide data on attempted and actual corrosive attacks. This should lead to better understanding of the numbers of attacks in the future. Further, in the case file analysis, we found a large proportion of cases had missing data particularly with regard to victim/suspect relationships, ethnicity, extent of injuries and type of corrosive used, all of which impeded a full understanding of the nature of corrosive crimes.

Notwithstanding these limitations, there were a number of useful findings to enrich the evidence base on offences where a corrosive was used. The case file analysis identified key characteristics of corrosive crimes. For example, in the variation in the use of certain types of corrosives for specific crimes, the use of ammonia in robberies and the use of household products for offences of domestic violence. Furthermore, the case file analysis found that, similarly to other data sources (such as the NPCC data collection), the vast majority of corrosive attacks did not result in a serious injury to the victim – 65% of cases resulted in a moderate or minor injury (defined as assault with injury, resulting in irritation, soreness or reddening of eyes and/or skin), although 27% of cases did result in a serious injury (defined as GBH or wounding with burns and/or loss of sight). The case file analysis also illustrated that victims and suspects were most likely to be male (72% and 88% respectively) between the ages of 16 to 24. It also identified that younger suspects were most likely to use substances such as acid and ammonia and that there was an association between the victim/suspect relationship and the type substance used. For example, in crime events involving family members, household products such as bleach were most likely to be used; in those involving criminal rivals, corrosives such as acid and ammonia were more commonly used.

Most importantly, the study identified reasons why offenders carried corrosives and then used them in offences. The distinction between carrying and using was made in the research because not all carriers will eventually use a weapon in crime and there are likely to be different reasons for (a) carrying and (b) then using. Indeed, the findings from interviews supported some of the existing literature and evidence base on the motivations for carrying weapons. For example, the interviews with offenders concurred with the existing literature on the key reasons for carrying particular sorts of weapons such as the ease of availability, the perceived low-risk of prosecution when carrying, the need to self-protect and to enhance criminal/street reputation (Brennan, 2017). However, it was observed that corrosives offered advantages over knives and guns in terms of the ease with which possession could be disguised (through carrying in a water sports drink bottle) that had not been identified in previous research.

The study also identified different types of 'carriers' with five clear and different types of possession groups emerging:

- **Regular carriers** who carried for self-protection and were often also regular knife carriers.
- There were those who carried only to engage in **specific violent crimes** and selected corrosives due to the harm they could cause and to exact revenge or punishment.
- Some offenders carried corrosives for the purpose of **non-violent criminal tasks** (such as ammonia for drug use) and also used the corrosives they carried as a weapon if and when required.

- **Heat of the moment carriers**, who claimed to be with a group where a member was carrying a corrosive that was passed to them as a violent crime unfolded.
- **Situational carriers**, who used a corrosive that was situationally available, such as a household corrosive in a domestic setting.

Care should be taken when unpicking the motivations for using a corrosive in a specific crime event. There may be reasons for committing a crime and also reasons for using a particular type of weapon in order to achieve a certain outcome in a crime event. This study identified that offenders used corrosives in order to help them achieve a range of outcomes in crime events; to achieve an instrumental outcome (such as to obtain cash in a robbery); to punish the victim where disputes had occurred; for reasons of self-defence; or because they came under peer group pressure to use a corrosive. However, the offender interviews also demonstrated that corrosives had a specific utility they valued that possibly was not evident with other weapons (such as guns and knives). For example, several offenders referred to the level of control that corrosives gave them over the physical damage that could be caused to victims. Indeed, corrosives were thought to be highly adaptable; could always be readily available for use (when kept in a drinks bottle); neutralised differences in physical strength between victims and offenders; were silent to use (unlike guns); and allowed for physical distance to be maintained between the victim and offender (unlike knives).

These findings support theories that suggest weapons carrying and use are rational choices (Brennan, 2017). However, it needs to be borne in mind that the previous literature suggests these choices are also shaped by the extent weapon users tend to have a violent disposition (Michie & Cooke, 2006) or are driven by the availability and exposure to weapons in a community (Harding, 1993; Brennan, 2017; 2019). The case file analysis pointed to the fact that corrosive crime tends to be located in deprived communities where violent crime was also likely to be prevalent. A recurring theme from the offender interviews, which appears to support the existing literature, was that interviewees reported a ‘lived experience’ where there was an accepted culture of weapons carrying and violence within local communities. Thus, while carrying and using corrosives might be partially explained by rational choice, the form of rationality that develops appears to be largely driven by differential association – the interaction and learning from those around the offenders.

The research points to a complex picture in which corrosive substance crime occurs in a range of contexts and where decisions to carry and use are multifaceted. However, there are a number of potential preventative strategies that could be utilised to reduce the number of offences involving a corrosive. Many of these can be framed within the broad framework of approaches outlined in the Serious Violence Strategy (Home Office, 2018) relating to early intervention/prevention, community/partnerships and law enforcement / criminal justice. The suggested strategies predominately focus around:

- increasing the effort for offenders to obtain/purchase corrosives through interventions such as restrictions at the point of sale (similar to those developed in the voluntary agreement on responsible sales with retailers and the sales of corrosives under the Offensive Weapons Act 2019)
- increasing the risk of carrying corrosives by giving police testing kits to accurately test substances while on the street
- education on the dangers of corrosives and the likely penalties for those who do use and tackling onset and risk factors for offenders

However, ultimately, the interviews with offenders painted a picture of a cohort of young people suffering from stress and trauma trapped in a violent world having been let down by education and feeling that they lack opportunities. While this observation is not intended to offer excuses for weapons carrying and use, any future intervention needs to be developed with the knowledge that many weapons carriers are from challenging backgrounds and there might need to be an acceptance that changing the weapons-carrying culture is likely to be a long-term process.

Many aspects of this research were exploratory and there is no doubt that several areas could be improved upon in future studies. There are also several areas identified in this study where research might focus going forward:

- A more accurate picture of the true scale of corrosive substance crime should be developed by joining up police and NHS data. Such data would offer more information on the numbers and characteristics of cases that do not come to the attention of the police.
- Routine analysis of the characteristics and contexts of corrosive substance crime should be completed using police case file data from across a larger number of police force areas than included in this study. The ability to do this should be helped by the requirements to record corrosive crime as set out in the annual data collection, and this would allow for routine monitoring of case numbers and their characteristics.
- Research should be conducted on the motivations for carrying and using corrosives with a larger sample group of offenders and younger offenders. All the offenders interviewed in this study were over the age of 18 and within the adult custodial estate. Therefore, a question remains as to whether the motivations for under 18s differ to the group in this study. It was also evident that gang affiliation/rivalry only accounted for around 10% of the corrosive substance crimes in this study and we would potentially expect this to increase for younger offenders.
- This study focused on exploring offenders' motivations for carrying and using corrosives as a weapon. However, further research might generally want to explore offender reasoning for carrying other types of weapons, such as knives and guns, which is highly relevant to the present day context in England and Wales, but where scant research has been conducted.
- This study identifies that the carrying and use of corrosives appears to be concentrated within a small number of locations. Indeed, the offender interviews showed that reputation and respect seemed to feature as a key motivation for carrying corrosives. Therefore, future studies might usefully further explore how and why weapons-carrying cultures emerge within some communities and how they are influenced by factors such as respect and reputation.
- While this research has provided more understanding on why corrosives were used in crime events, further research might be conducted with groups who carry corrosives purely as a threat but never use corrosives as a weapon. Research on carrying purely as a threat, could help provide new insights into how interventions could be delivered to break the cycle of weapons carrying.

Finally, it is evident that a growing number of interventions are being developed nationally to prevent the possession and use of weapons generally. It is important that such interventions are not only carefully planned, but that future evaluation research is conducted to ensure that sound understanding is developed in relation to what works in reducing possession and weapons-based crime.

7. References

ActionAid (2011) *Acid attacks: A survivor's story*. Available from: https://www.actionaid.org.uk/blog/voices/2017/10/02/survivors-stories-life-after-being-attacked-with-acid [Accessed 23/01/2020]

ActionAid (2017) *My scar in no way is my stigma: Acid attacks against women and girls; motives, means and survivors reclaiming power*. Available from: https://www.actionaid.org.uk/sites/default/files/publications/acid_attacks_form_of_vawg_against_women_and_girls.pdf [Accessed 23/01/2020]

Acid Survivors Foundation (ASF) (2018) 26/01/2020]Acid Survivors' Foundation Uganda (2011) *Acid violence in Uganda: A situational analysis*. Available at: http://www.acidviolence.org/assets/uganda_asfu_situational_analysis_report_final_nov2011_1.pdf [Accessed 26/01/2020]

Acid Survivors Trust International (ASTI) (2015) *Justice? What Justice? Tackling acid violence and ensuring justice for survivors.* Available from: https://www.trust.org/contentAsset/raw-data/4d72e4f4-4ea7-445d-b636-d8023944a859/file [Accessed 23/01/2020]

Acid Survivors Trust International (ASTI) (2017) *A Worldwide Problem*. Available at:http://www.acidviolence.org/a-worldwide-problem.html [Accessed 26/01/2020]Asaria, J., Kobusingye, O.C., Khingi, B.A., Balikuddembe, R., Gomez, M. & Beveridge, M. (2004) 'Acid burns from personal assault in Uganda', *Burns,* vol. 30, pp. 78-81.

Baumer, E. & Wright, R. (1996) 'Crime Seasonality and Serious Scholarship: A Comment on Farrell and Pease', *British Journal of Criminology,* vol. 36(4), pp. 579-581.

Baumer, E., Horney, J., Felson, R. & Lauritsen, J.L. (2003) 'Neighbourhood disadvantage and the nature of violence', *Criminology*, vol. 41, pp. 39-71.

Beauregard, E. & Leclerc, B (2007) 'An Application of the Rational Choice Approach to the Offending process of Sex Offenders: A Closer Look at Decision Making'. *Sexual Abuse,* vol. 19, pp. 115-133.

Branday, J., Arscott, G.D.L., Smoot, E.C., Williams, G.D. & Fletcher, P.R. (1996) 'Chemical burns as assault injuries in Jamaica.' *Burns,* vol. 22(2), pp. 154-155.

Braun, V. & Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology,* vol. 3, pp. 77-101.

Brennan, I. (2011) 'In Vino Silentium? Individual, Situational and Alcohol-Related Factors in Reporting Violence to the Police', *Violence and Victims,* vol. 26, pp. 191-207.

Brennan, I. (2017) 'High Steaks: The Role of Weapons in Offender Decision Making', in *The Oxford Handbook of Offender Decision Making*. Oxford, Oxford University Press, pp. 421-444.

Brennan, I. (2019) 'Weapon-carrying and the Reduction of Violent Harm', *The British Journal of Criminology,* vol. 59(3), pp. 571-594.

Chowdhury, E.H. (2005) 'Feminist negotiations: Contesting narratives of the campaign against acid violence in Bangladesh', *Meridians,* vol. 6(1), pp. 163-192.

Chowdhury, E.H. (2011) *Transnationalism Reversed: Women organizing against gendered violence in Bangladesh.* New York: State University of New York Press.

Coid, J., Ullrich, S., Keers, R., Bebbington, P., DeStavola, B., Killis, C., Yang, M., Reiss, D., Jenkins, R. & Donnelly, P. (2013) 'Gang Membership, Violence and Psychiatric Morbidity', *American Journal of Psychiatry*, vol. 170, pp. 985-993.

Cook, P. (1991) 'The Technology of Personal Violence', *Crime and Justice,* vol. 14, pp. 1-71.

Dawson, P. and Goodwill, A. (2013) 'A Review of Weapon Choice in Violent and Sexual Crime', *Beijing Law Review,* vol. 4, pp. 20-27.

Demarble, J.B., Fortin, C., D'Antono, B. & Guay, S. (2018) 'Prediction of post-traumatic stress disorder from peritraumatic dissociation and distress among men and women victims of violent crimes', *Journal of Aggression, Maltreatment and Trauma,* vol. 27(9), pp. 923-941.

Felson, R. B. (1997) 'Routine Activities and Involvement in Violence as Actor, Witness, or Target', *Violence and Victims,* vol. 12(3), pp. 209-221.

Gilmour, N. (2014) 'Understanding money laundering – a crime script approach', *The European Review of Organised Crime*, vol. 1(2), pp. 35-56.

Greater London Authority (2018) *Progressing a Public Health Approach to Violence Prevention and Reduction.* Violence Reduction Unit Partnership Reference Group, November 2018.

Grimshaw, R. & Ford, M. (2018) 'Young people, violence and knives – revisiting the evidence and policy discussion'*, UK Justice Policy Review Focus Issue 3*, Centre for Crime and Justice Studies. Available from: https://www.crimeandjustice.org.uk/publications/young-people-violence-and-knives-revisiting-evidence-and-policy-discussions [Accessed 23/01/2020].

Hanson, D. *Drug Abuse Resistance Education: The Effectiveness of DARE*: https://www.alcoholfacts.org/DARE.html [Accessed 29/01/2020]

Haque, A.E. and Ahsan, H. (2014) 'Human Rights violations against women: Acid violence in Bangladesh', *American Journal of Preventive Medicine,* vol. 46(2), pp. 216-217.

Harcourt, B.E. (2006) *Language of the Gun*. Chicago: The University of Chicago Press.

Harding, R. (1993) 'Gun Use in Crime, Rational Choice and Social Learning Theory', in *Routine Activity and Rational Choice* edited by R.V. Clarke and M. Felson, pp. 85-102.

Home Office (2017) *Acid Attack Action Plan*. https://www.gov.uk/government/news/home-secretary-announces-action-plan-to-tackle-acid-attacks [Accessed 23/01/2020]

Home Office (2018) *Serious Violence Strategy.* Available from: https://www.gov.uk/government/publications/serious-violence-strategy [Accessed 23/01/2020]

Kalantry, S. & Kestenbaum, J.G. (2011) 'Combating acid violence in Bangladesh, India, and Cambodia.' Avon Global Center for Women and Justice and Dorothea S. Clarke *Program in Feminist Jurisprudence.* Paper 1. Available at: http://scholarship.law.cornell.edu/avon_clarke/1 [Accessed 23/01/2020]

Kaukinen, C. (2002) 'The help-seeking decisions of violent crime victims: An examination of the direct and conditional effects of gender and the victim-offender relationship', *Journal of Interpersonal Violence,* vol. 17(4), pp. 432-456.

Khan, R. (2017) *Acid attacks have been happening in the UK for 200 years, so why are we only talking about them now?* Available at: https://www.independent.co.uk/voices/acid-attacks-victims-uk-impact-women-disproportionately-muslim-niqab-media-only-just-reporting-a7877531.html [Accessed 26/01/2020]

Kleck, G. & McElrath, K. (1991) 'The Effects of Weaponry on Human Violence', *Social Forces*, vol. 69(3), pp. 669-692.

Kunst, M.J.J., Winkel, F.W. & Bogarts, S. (2011) 'Post-traumatic anger, recalled peritraumatic emotions, and PTSD in victims of violent crime', *Journal of Interpersonal Violence,* vol. 26(17), pp. 3561-3579.

Levi, M. & Maguire, M. (2002) 'Violent Crime', in *The Oxford Handbook of Criminology vol 3*, edited by M. Maguire, R. Morgan & R. Reiner, pp. 795-843. Oxford: Oxford University Press.

Lipscombe, S. & Hutton, G. (2017) *Acid attacks: Briefing Paper Number CBP 8041*. London: House of Commons Library.

Maguire, M. & McVie, S, (2017) 'Crime data and criminal statistics: a critical reflection', in Liebling, S., Maruna, S. & McAra, L. (eds) *The Oxford handbook of Criminology (Sixth Edition).* Oxford: Oxford University Press.

Mann, G. (2017) *Acid Attacks; what has led to the rise and how can they be stopped?* Available at: https://www.bbc.co.uk/news/uk-40559973 [26/01/2020].

Mannon, A., Ghani, S., Clarke, A. & Butler, P.E.M. (2007) 'Cases of chemical assault worldwide: A literature review', *Burns,* vol. 33, pp. 149-154.

Metropolitan Police Service (MPS) (2005) *A Review of Rape Investigations in the MPS*, Deputy Commissioner's Command, Directorate of Strategic Development and Territorial Policing, Project Sapphire. Internal document.

Michie, C. & Cook, D. (2006) 'The Structure of Violent Behaviour: A Hierarchical Model', *Criminal Justice and Behaviour,* vol. 33, pp. 706-37.

Office for National statistics (ONS) (2019) *The nature of violent crime in England and Wales: year ending March 2018*. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/thenatureofviolentcrimeinenglandandwales/yearendingmarch2018#how-is-violent-crime-defined-and-measured [Accessed 23/01/2020]

Phillips, J.B. (2018) ‘Post-incident interpersonal difficulty among adolescent victims of violent crime’, *Journal of Interpersonal Violence.* Available from: https://journals.sagepub.com/doi/abs/10.1177/0886260518788366?journalCode=jiva [Accessed 23/01/2020]

Sacco, V. & Kennedy, L. (2008) *The Criminal Event: An Introduction to Criminology in Canada*. Fourth Edition. Toronto: Thomson Nelson.

Tan, A., Kaur Bharj, A., Nizamoglu, M., Barnes, D. & Dziewulski, P. (2015) ‘Assaults from corrosive substances and medico legal considerations in a large regional burn centre in the United Kingdom: Calls for increased vigilance and enforced legislation’, *Scars, Burns and Healing,* vol. 1, pp. 1-10.

Watson, K. (2017) ‘Love, Vengence and Vitriol: An Edwardian True-crime Drama’. In Kilday, A. & Nash, D. *Law, Crime and Deviance since 1700*. London: Bloomsbury.

Webster, C. & Kingston, S. (2014) *Anti-Poverty Strategies for the UK*: *Poverty and Crime Review*. Joseph Rowntree Foundation, London. Available from: https://eprints.lancs.ac.uk/id/eprint/71188/1/JRF_Final_Poverty_and_Crime_Review_May_2014.pdf [Accessed 23/01/2020]

Annex 1: Case file analysis collection form

The following table outlines the variables collected for the case file analysis (and how they were coded). These data were all extracted from police case files / relevant police databases across the eight police areas included in the study. Not all fields were complete for all cases.

Acid and other corrosive attack: Case tracking proforma	
Variable name	**Input codes**
Our ref. (no names to be used on form)	Number as follows: • Met = M1, M2 etc. • GMP = GMP1, GMP2 etc. • Northumbria = N1, N2 etc. • Suffolk = S1, S2 etc. • Kent = K1, K1 etc. • Essex = E1, E2 etc. • West Midlands = WM1, WM2 etc. • Hampshire = H1, H2 etc.
Force area (i.e. Met)	Add name
Offender(s) details (for HMPPS): Name / date of birth / PNC number or NOMIS number would need to be kept in a separate secure file and saved on to project R drive.	
Background details of case	
Date of attack	Add date as: dd/mm/yyyy
Time of attack	Add 24 hour clock: i.e. 17.53
Location of attack (postcode)	Add full postcode
Location of attack (type of location)	1 = Street/public space 2 = Domestic/victim's home 3 = Domestic/offenders home 4 = Domestic/shared home 5 = shop/commercial premises 6 = Bar/restaurant 7 = Other (please specify)
Type of corrosive substance used in attack	Add in name of corrosive
Victim details	
Number of victims [if more than one, add as required]	Add in number

Acid and other corrosive attack: Case tracking proforma	
Variable name	**Input codes**
Age	Add in age
Gender	1 = Male 2 = Female 3 = Transgender
Ethnic appearance (1-7 EA)	{Check police codes/ but ensure consistency across areas}
Nationality	Free text {prob recode later}
Marital status	1 = Married 2 = Single 3 = Divorced/ separated.
Occupation	Add in name of occupation
Victim relationship to offender	Partner/ex-partner Son/daughter Step son/daughter Brother/sister Step brother/sister Parent Step parent Friend/ social acquaintance Business associate Business rival Criminal associate Criminal rival (i.e. rival gangs) Stranger Other
Offender details (NB much of this will come from the PNC, not the casefiles/CRIS)	
No of offenders [if more than one, add as required]	Add in number
Age	Add in age
Gender	1 = Male 2 = Female 3 = Transgender
Ethnic Appearance (1-7 EA)	{Check police codes/ but ensure consistency across areas}
Nationality	Free text {prob recode later}
Marital Status	1 = Married 2 = Single 3 = Divorced/separated
Occupation	Add in name of occupation
Gang affiliated? (Y/N)	1 = Yes

Acid and other corrosive attack: Case tracking proforma	
Variable name	**Input codes**
	2 = No
Peer/co-offending (not gang)	1 = Yes 2 = No
Previous convictions (number)	Add number
Previous offences (number)	Add number
Date first convicted	Add date as: dd/mm/yyyy
Date last convicted	Add date as: dd/mm/yyyy
Offences summary	Add broad summary of previous offences [free text]
Convictions summary	Add broad summary of previous convictions [free text]
Convictions violence/acid	Were any previous convictions for violent offences or offences involving acid/corrosive substances?
Warnings/cautions/acquittals	Add broad summary [free text]
Mental health issues	1 = Yes [if yes, add brief details] 2 = No 3 = Unknown
Drugs/alcohol issues at time	1 = Yes [if yes, add brief details] 2 = No 3 = Unknown
PNC number	Add number
Prisoner number	Add number
Details of the attack	
Information on antecedents to attack [i.e. what led to the attack/was the attack commissioned?]	Free text
How did offender carry the corrosive substance?	Free text
How was the corrosive substance dispensed?	Free text
Location of injury to victim [where on body, face or eyes]	Free text
Level of injury to victim	Free text
Motivation for attack (code and include brief textual description if helpful)	Relationship breakdown / infidelity Enforcement of criminal act (such as a robbery) Refusal of marriage Rejection of sexual advances

Acid and other corrosive attack: Case tracking proforma	
Variable name	**Input codes**
	Feud with neighbour/others Hate crime – attack over victim identity – such as appearance / sexual orientation / nationality Gang related – known dispute over debts/ drugs turf) Gang related – exact motivation unknown Pub/nightclub fight over girlfriend etc. Irrational act (carried out by insane or disturbed individual) Self-defence Other (please specify as free text)
Was any other violence employed during course of attack? (Y/N, describe)	1 = Yes [if yes, add in details] 2 = No
Was any other crime committed during the course of the offence? (Y/N then list: theft etc.)	1 = Yes [if yes, then list] 2 = No
Brief description on intended use of corrosive substance	Acid or other corrosive carrying intended as a threat only (but ended up being used) An actual attack using corrosives was planned An actual attack using corrosives was planned but ended up as an attempted attack (i.e. didn't hit the victim)
Post attack: charge and sentence detail	
Date of arrest	Add date as: dd/mm/yyyy
Offender(s) charged (Y/N – what with?)	1 = Yes [if yes add in details of charge offence] 2 = No
Offender conviction (Y/N – what with?)	1 = Yes [if yes add in details of conviction offence] 2 = No
If sentenced to custody, where?	Add name of prison
What was the length of the sentence?	Insert length

Annex 2: Interview pack for offender interviews

Privacy Notice

This notice sets out how we are using your personal data and your rights under the General Data Protection Regulation.

What personal data are we collecting and why?

From eight police forces we are collecting data on all corrosive attacks over the last three years.

1. Name
2. Date of Birth
3. PNC/ prison number

Why? These are so we can find an offender and invite them to talk to us about the attack.

We are also collecting:

1. Date of attack
2. Postcode of attack
3. Age
4. Marital status
5. Nationality
6. Occupation
7. Gang affiliation
8. Whether mental health/drugs/ alcohol were a factor in the attack
9. Previous convictions
10. Previous offences

Why? These are so we can try and build up our understanding of who uses corrosives and why corrosive attacks occur. We are trying to see if there are patterns or similarities between attacks.

From you, in this interview, we are collecting:

1. Your name (for consent purposes)
2. We will also ask you about your reasons for using acid or corrosive substances and your thoughts on what would have stopped you from using acid/corrosives.

Who is collecting this data?

Leicester University researchers are collecting personal data from you and from the police forces on behalf of the Home Office for research purposes only, to understand the motivations of individuals who carry and use acid.

Legal basis for processing your personal data

The lawful basis used in this research is that personal data is needed to undertake a task carried out in the public interest to meet a function of the Home Office and this function has a clear basis in law as follows.

Legislation is in place for dealing with corrosive attacks, with offences typically charged under either section 18 (causing grievous bodily harm with intent) or under section 29 (throwing (or applying) a corrosive fluid on a person with intent to burn, maim, disfigure or disable or to do some grievous bodily harm) of the Offences Against the Person Act 1861.

In terms of carrying corrosive substances as a weapon, section 1 of the Prevention of Crime Act 1953 may apply in respect of possessing an offensive weapon in a public place if it can be shown that the person in possession of the substance intended to cause injury.

In addition, to the legislative framework, the Government announced an action plan in July 2017 to tackle the use of acid and other corrosive substances in violent attacks. The Government also published, on 9 April 2018, the new Serious Violence Strategy to act to address serious violence which includes attacks using acid and other corrosive substances.

This research is a key action within the strategy.

Legal basis for the processing of special categories of data

Because sensitive personal data are being processed (ethnicity and offence and criminal convictions) we need to set out an additional condition for how we will process these data. In this case processing is necessary for reasons of substantial public interest which are proportionate to the aims and protect the interests of those being interviewed.

In addition, the processing of personal data relating to offence and criminal convictions is allowed because the processing is being done under the control of the Home Office (official authority).

In addition to the overarching legal basis of public task, these interviews are being undertaken under the legal basis of consent, we are asking your consent to proceed with the interview.

Your rights

You have the right to correct the personal data held by us. You have the right to withdraw your consent to being interviewed. You also have the right to obtain confirmation that your data are being processed, and to access your personal data. Contact details are given below.

How is your data being collected?

The information will be collected by Leicester University researchers from police forces and via an interview with you.

In this interview, you will be asked for your name on the consent form only; the researchers will assign you a number, so your words will not be put next to your name. The researchers will ask questions to understand why you were involved in the corrosive attack.

The researchers will also collect personal data from the police force where you (and other offenders) were arrested. This is to understand the reasons an attack may have happened and to look for patterns in the attacks. They are collecting data on all corrosive attacks over the last three years. The data will either be collected in person by the researchers and transferred

wirelessly to password secured files on the Leicester University server, or the data will be encrypted and emailed by the police forces. Names, date of birth, and PNC/NOMIS numbers will be collected in a separate Excel spreadsheet, as an additional security measure.

How long will be keep your personal data?

The data will be deleted within three months of the report being published. In the event the report is not published by December 2019, the personal data will be deleted by Leicester by June 2020.

Security of your data

We are aware that some of the data collected are particularly sensitive, for example: names; date of birth; your ethnic group; and criminal offences. All the information collected and processed will be treated in accordance with data protection requirements and guidelines. For example, the data are stored on computers requiring a password, the data are encrypted, all names (and other identifiers) are kept in a separate file from the main data.

What do we intend to do with your data?

The researchers will publish a report based on what you and others tell them. No names will be used in the report. The report will be published on gov.uk website.

Your personal data from this project *will not* be shared with anyone else. The Home Office will only receive data which has been summarised, so they will not be able to see your specific response.

Contact details:

You have the right to request access to the personal information Leicester University holds about you. Please contact Dr Matt Hopkins.

If you have any questions or concerns about the collection, use or disclosure of your personal information, please contact Dr Matt Hopkins.

On [number removed for publication] from an office telephone. Or you can contact the Data Protection Officer at the University of Leicester on [name and address removed for publication].

You have the right to request access to the personal information the police force holds on you. The data protection officer at [name] police force can be contacted on: [number removed for publication].

Complaints

If you are unhappy with how any aspect of this privacy notice, or how your personal information is being processed, you have the right to lodge a complaint with the Information Commissioner’s Office (ICO):

Telephone number (call from an office) 0303 123 1113

Information Commissioner's Office
Wycliffe House, Water Lane
Wilmslow
Cheshire
SK9 5AF

Participation Information Sheet

What is the research about?

The research is about getting a better understanding of the motivations of those who carry or use acid or other corrosives in violent attacks and other criminal acts. We are interested in why people are carrying and using corrosive substances as a weapon, why certain types of corrosives are chosen, how they are purchased/ obtained, the methods used in attacks, what happens during an attack and what happens to offenders after an attack. Before you decide whether to take part, please read the following information carefully, and discuss it with me or others if you wish.

Who is it funded by?

The research is being carried out by a team of researchers at the University of Leicester, on behalf of the Home Office. Recommendations from the research will be fed directly into Home Office government policy making and will to help shape prevention and early intervention approaches.

What will I have to do if I decide to take part?

We would like to interview you for about an hour to discuss your thoughts and experiences in relation to the use of corrosive substances in an assault. We would like to give you the opportunity to talk in-depth about the incident you were involved in, what led up to the incident, your motivations for choosing a corrosive substance, how the attack was planned, your relationship (if at all) with the victim, and anything else you think is relevant.

Will my taking part in this study be kept confidential?

Yes. All the information you give us will be kept confidential within the research team, and used for the purposes of this study only. The information will be used in a way that will not allow you to be identified individually and it will not be passed on to any other organisation. The only exception to this is behaviour that is against the prison rules and can be adjudicated against, unreported illegal acts and if we feel your health or safety, or that of others around you, is at immediate risk because of something you have told us. In these cases, we will have to pass that information on to the prison staff. We would like to record the interview using a Dictaphone and will ask you for permission to do this directly before the interview. The recording will not have your name on it and so nobody will be able to identify you from the recording.

What will happen to my words?

When we write up the interviews your name will not be linked to your responses and when we write up the report, or any other communication from the project, we will never mention who you are if we use any quotes from your interview.

What are the benefits and risks?

Answering questions about crimes you have been involved in may be distressing and upsetting. There will be information about support for emotional distress experienced as a result if you wish to take this up after the interview. The benefits may be about talking about your experiences, having your say in how these crimes can be prevented, and anything else you think may be relevant to reducing these crimes.

Can I withdraw from the study at any time?

Taking part in this study is completely voluntary. If you would prefer not to take part, you do not have to give a reason and no pressure will be put on you to try and change your mind. You can change your mind about taking part at any time. If you decide not to take part, or withdraw at any stage, your legal and parole rights will not be affected.

Who has reviewed this study?

The study has been awarded ethical approval from the University of Leicester Ethical Review Committee and has been approved by the Prison and Probation Service National Research Committee.

Thank you for reading this.

Motivations for Acid Attacks

Participation Consent Form

First Name / Pseudonym

_____

Research ID Number _____ (please leave blank)

Please read the following four questions and either tick or leave blank the box at the end of each question.

1. I confirm that I have read and understood the attached information sheet and have had the opportunity to ask questions ☐

OR

1. I confirm that I have had the attached information sheet explained to me and have had the opportunity to ask questions. ☐
2. I agree to the use of anonymous direct quotations from my interview in reporting the results from this study. ☐
3. I understand that I can withdraw from the study at any time without having to give any reasons. ☐
4. I understand that the researchers will need to tell the prison staff if I tell them about any illegal offences that the police don't know about. ☐
5. I hereby give consent to be involved in this research project. I understand that there will be no negative impact if I decide not to participate. ☐

_____ _____

Signature of Participant Date

Interview schedule: Offenders – acid and other corrosive attacks

Note to the researchers: The interview format is semi-structured though, there may be occasions where the participant mentions something of interest that you want to probe on. However, please ensure that the following structure is followed as closely as possible.

1. Offender background

I would like to begin by asking for some details in relation to your background and offending history.

Can you please tell me a little bit about your:

a. Background:

- Where do you live (when not in prison)?
- What is your highest level of educational attainment?
- What job/work do you normally do?
- Do you have a family? Partner? Children?

b. Offending behaviours:

- What is your previous criminal history / criminal career (ones that you have been arrested for)?
- Have you ever been in prison or served a sentence for a crime previously?
- Age when started offending / first conviction.
- Do/did you have any affiliation to wider criminal networks?

2. Precursors to the crime event

I would like to talk to you about the incident that occurred on [check date with case tracking spreadsheet before interview]. This was the incident that occurred in [mention name of place]. I would like to ask you about what happened before the incident, what happening during the incident and then what happened after.

Can you please talk through what was happening in your life in the days prior to the incident in order for us to understand the build up to the incident, i.e. did you have any contact with the victim prior to the incident, what were the circumstances in the days leading up to attack, what was the nature of your relationship with the victim, was someone else involved in the planning?

In relation to this incident, can you please tell me:

- Why did you choose to use a corrosive substance?
- Had you considered using any other weapon? Why did you change your mind?
- Had you previously known of other offenders using corrosives as a weapon?
- Before the offence had you previously discussed with other offenders the use of corrosives?
- What type of corrosive substance was used in the incident?
- Why was this particular type of corrosive substance chosen?

- Had you ever purchased/used/carried similar corrosive substances before this incident?
- Why was a corrosive substance used instead of other weapons – such as a knife or firearm?
- Have you ever used knives or firearms in other incidents? How many times?
- How did you obtain the corrosive substance – did you purchase it or was it given to you?
- If you purchased it, where/how did you how purchase the substance (at retailer, online, via criminal contact etc.)?
- Was the corrosive substance purchased just for this incident?
- How was the substance carried?
- Did you know how to use the substance in an attack beforehand (for example, how to carry and then how to hit the victim with it)?
- Did you know what the substance would do to the victim (in terms of physical injury)?
- Was the corrosive carried only intended to be used as a threat?
- Were you made to attack the victim by somebody else / were you asked to do it? Why?

3. Transactions / how the crime was committed

Can we now talk specifically about the actual attack itself.

- Did you carry out the attack on your own or with someone else?

If there was more than one offender:

- How many people were involved in the attack?
- Did you plan the attack together?
- Were all offenders carrying a corrosive substance or just you?
- How many offenders actually used a corrosive substance in the incident?
- Were you under influence of drugs/alcohol at time?

For all attacks:

- Who was attacked / why were they attacked?
- What did you think about your victim?
- How did you and the victim meet / come across each other on the day of the incident (was the attack pre-planned / if so, how)?
- How long was the altercation/transaction between you and the victim (was there a build-up / what was said)?
- Was the corrosive thrown, sprayed, squirted, other?
- When was the substance thrown? How was it thrown? How many times was it thrown?
- Did it hit the victim or not (i.e. was it an attempted attack)?

4. Aftermath: what happened after the crime event?

Can we now please talk about what happening directly after the incident (that is what happened after the physical altercation between you and the victim):

- Did you leave the scene immediately after the attack / where did you go?
- How did you leave the scene (by foot, by car, by bike, by moped)?
- What did you do with the corrosive substance (i.e. did you dispose of the substance, if so, how)?
- How were you eventually arrested by the police? How long after the attack was it before you were arrested? If appropriate – was your co-offender(s) also arrested/convicted?
- How did you feel about what happened to your victim immediate after the incident?
- Do you feel any differently about the victim now / have any empathy for the victim?

5. Deterrence and prevention at the time of offending

Obviously, a key aim of this research is to prevent further acid attacks occurring in future. I would like to ask you a few questions relating to prevention.

- Looking back, what would have stopped you from taking part in the attack?
- Before the attack, did you know what the potential legal penalties were for using corrosive substances in an attack?
- Did you consider the threat of legal penalty before the attack; if yes, why did that not stop you?
- Did you consider what the likelihood of 'getting caught' was before the attack; if yes, why did that not stop you?
- Did you consider what the potential impact was going to be on the victim(s); if yes, why did that not stop you?

6. Deterrence and prevention post offending

What advice (post-prosecution), would you give to the Home Office regarding the prevention of corrosive attacks? What strategies do you think could stop future use of corrosive substances in violent attacks? For example:

- How could it be made harder to purchase or obtain corrosive substances for those who want to use them in violent attacks?
- What would have prevented you from using a corrosive substance?
- What forms of education/information might be given to people who are considering using corrosive substances in violent attacks? How might this information be given to them?
- Do you think that tougher sentences for carrying corrosive substances would help to prevent (a) people carrying such substances and (b) future attacks?
- Do you have any other ideas which might help prevent people from continuing to use corrosives as a weapon?

We would like to thank you for taking part in this study. Do you have any further comments / anything more to add?

THE END

Annex 3: Expert interview schedule

Privacy Notice

Leicester University researchers are collecting data from you on behalf of the Home Office for research purposes only.

Legal basis for processing your personal data

The processing of personal data must have a lawful basis. The lawful basis used in this research is that personal data is needed to undertake a task carried out in the public interest to meet a function of the Home Office and this function has a clear basis in law as follows.

Legislation is in place for dealing with corrosive attacks, with offences typically charged under either section 18 (causing grievous bodily harm with intent) or under section 29 (throwing (or applying) a corrosive fluid on a person with intent to burn, maim, disfigure or disable or to do some grievous bodily harm) of the Offences Against the Person Act 1861. In terms of carrying corrosive substances as a weapon, section 1 of the Prevention of Crime Act 1953 may apply in respect of possessing an offensive weapon in a public place if it can be shown that the person in possession of the substance intended to cause injury.

In addition, to the legislative framework, the Government announced an action plan in July 2017 to tackle the use of acid and other corrosive substances in violent attacks. The Government also published, on 9 April 2018, the new Serious Violence Strategy to act to address serious violence which includes attacks using acid and other corrosive substances and the research being undertaken by the University of Leicester is a key action within the strategy.

In addition to the overarching legal basis, these interviews are being undertaken under the legal basis of consent, as we are asking your consent to proceed with the interview.

Your rights

You have the right to ask to have your data deleted or corrected. You have the right to withdraw your consent. You also have the right to obtain confirmation that your data are being processed, and to access your personal data. Contact details are given below.

How is your data being collected and held?

The information will be collected by Leicester University researchers via this online survey with you. You are asked to provide your contact details if you would be willing to allow University researchers to contact you to conduct a more detail interview. Leicester University will be the data controllers for your data. The researchers hold only your name as personal data. Your details will be held on a restricted/ password protected computer drive and all your personal data will be deleted within three months of the report being published. In the event that the report is not published by December 2019, your personal data will be deleted by June 2020.

What do we intend to do with your data?

The researchers will publish a report based on what you and others tell them. No names will be used in the report. The report will be published on the Home Office website.

Your personal data from this project will not be shared with anyone else. The Home Office will only receive data which has been summarised so they will not be able to see your specific response.

Contact details

If you require more information on how your personal information is being processed, please contact Dr Matt Hopkins, who is leading the research, on [number removed for publication] or you can contact the you can contact the Data Protection Officer at the University of Leicester on [name and address removed for publication].

Interview schedule

This interview is being conducted by researchers from the University of Leicester as part of a Home Office commissioned study that aims to understand the motivation for carrying and using acids/corrosives and how these substances are being obtained. As part of the study we are engaging with a number of experts to try and gain their perspectives around:

- the current extent of the use of corrosive substances in violent attacks
- the main causes and motivations for using corrosive substances
- potential preventative strategies

With your permission, the interview will be recorded, though all content will remain strictly confidential and any quoted material use in project reports will remain anonymous.

1. The understanding of the current problems with the use of corrosive substances in attacks

From your perspective:

- Do you think corrosive attacks have increased in the last three years? Why do you say that – what is the evidence for this?
- Why are people/offenders choosing to carry and/or use a corrosive substance?
- What type of corrosive substances are being used? Is there a reason for this?
- Where do you think users buy substances or do you think substances are given to given to them?
- Are you aware how people may carry the corrosive?
- Are you aware how they use the substance in attacks – throw, squirt, spray?
- How do offenders leave the scene – foot, bike, car, moped?
- What is the age and sex of offenders?
- What is the age and sex of victims?

2. What experts see as the main causes and motivations for the use of corrosive substances in attacks

From your perspective:

- What do you see as being the main causes and motivations for carrying and using corrosive substances in attacks? Why has this trend emerged?
- Do you think that offenders might have been using other weapons previously and then changed to corrosives? If so, do you know why they changed? When did they change?
- Do you think that corrosives are normally carried for use in a specific incident or as a precaution/self-defence or to threaten?
- Do you feel that offenders understand the physical and psychological damage that corrosives can do to a victim?
- Do you have a sense that people are being assisted, instructed or inducted into carrying and using corrosive substances? If so, by who?
- Are attacks typically undertaken by one person or by many? Where there are multiple offenders, do you find that everyone carries a corrosive substance, or just one offender?
- Are the attacks normally pre-planned or spur of the moment? If planned, by who?
- What part do you think drugs or alcohol play in the attacks?

3. Ideas on preventative strategies

From your perspective:

- What would work in terms of deterrence and prevention (Revisions to regulation, better enforcement, early intervention, education, public information – e.g. images of the physical damage done to the victim; victims charities engaging with youth services and schools set out the impact of using corrosives on victims and survivors; legal penalties and consequences if carry or use a corrosive substance, how to keep safe)?
- Do offenders know what the legal penalties are for carrying and using corrosive substances? If yes, is this something that they consider? If not, why not?
- What are your thoughts on what additional action can be taken to prevent people from carrying and using corrosives as weapons?

Annex 4: Online Expert Interview

Privacy notice

Leicester University researchers are collecting data from you on behalf of the Home Office for research purposes only.

Legal basis for processing your personal data

The processing of personal data must have a lawful basis. The lawful basis for the whole research project is that personal data is needed to undertake a task carried out in the public interest to meet a function of the Home Office and this function has a clear basis in law as follows.

Legislation is in place for dealing with corrosive attacks, with offences typically charged under either section 18 (causing grievous bodily harm with intent) or under section 29 (throwing (or applying) a corrosive fluid on a person with intent to burn, maim, disfigure or disable or to do some grievous bodily harm) of the **Offences Against the Person Act 1861**. In terms of carrying corrosive substances as a weapon, section 1 of the **Prevention of Crime Act 1953** may apply in respect of possessing an offensive weapon in a public place if it can be shown that the person in possession of the substance intended to cause injury.

In addition, to the legislative framework, the Government announced an action plan in July 2017 to tackle the use of acid and other corrosive substances in violent attacks. The Government also published, on 9 April 2018, the new **Serious Violence Strategy** to address serious violence which includes attacks using acid and other corrosive substances and the research being undertaken by the University of Leicester is a key action within the strategy.

In addition to the overarching legal basis, these interviews are being undertaken under the legal basis of consent, as we are asking your consent to proceed with the interview.

What personal data are we collecting?

We do not hold any personal data on you prior to you completing this survey.

On completion of this survey the personal data we will have collected will be:

- your Job title
- your organisation's name
- your computer's IP address
- name (but see below)
- contact details (but see below)

If you have more to tell us about corrosive attacks and would like us to contact you, we ask that you include your name and contact email – this is entirely voluntary.

Your rights

You have the right to ask to have your data deleted, or corrected. You have the right to withdraw your consent. You also have the right to obtain confirmation that your data are being processed, and to access your personal data. Contact details are given below.

How is your personal data being held?

Leicester University will be the data controllers for your data. Your details will be held on a restricted/ password protected computer drive and all your personal data will be deleted within three months of the report being published.

What do we intend to do with your data?

The researchers will publish a report based on what you and others tell them. No names will be used in the report. The report will be published on GOV.UK.

Your personal data from this project will not be shared with anyone else. The Home Office will only receive data which has been summarised so they will not be able to see your specific response.

Contact details

If you require more information on how your personal information is being processed, please contact Dr Matt Hopkins, who is leading the research, on [number removed for publication] or you can contact the you can contact the Data Protection Officer at the University of Leicester on [name and address removed for publication].

If you are unhappy with how any aspect of this privacy notice, or how your personal information is being processed, you have the right to lodge a complaint with the Information Commissioner's Office (ICO) by calling 0303 123 1113 or via their website.

Motivations for acid and other corrosive attacks: experts online survey

The University of Leicester were recently commissioned by the Home Office to conduct research that aims to gain a better understanding of the motivations of those who carry or use acid/ other corrosives in violent attacks and other criminal acts. The research forms part of part of the Home Office commitment as outlined in the Acid Attacks Action Plan and the Serious Violence Strategy.

As part of the research, we are engaging with a number of experts across the criminal justice, policy and academic sectors in order to help gain a better understanding of the extent of the problem and to help develop strategies for prevention. We have invited you to participate in this online survey as you have frontline experience of contact with young people who may have carried corrosive substances or used such substances in crime events.

The survey should take around 10-15 minutes to complete.

PARTICIPATION: Your participation in this survey is voluntary. You may skip any question you do not wish to answer for any reason.

BENEFITS and RISKS: You will receive no direct benefits from participating in this research study. However, your responses may help us learn more about the use of corrosive substances in violent crime and potential preventative strategies.

CONFIDENTIALITY: No names or identifying information would be included in any publications or presentations based on this study, and your responses to this survey will remain confidential.

CONTACT: If you have further questions or concerns about your rights as a participant in this study, please contact Dr Matt Hopkins.

ELECTRONIC CONSENT: Please select your choice below. You may print a copy of this consent form for your records. Clicking on the *"*Agree*"* button indicates that:

- You have read the above information
- You voluntarily agree to participate
- You are 18 years of age or older

☐ Agree

☐ Disagree

Section one: your background details

What is your job title?

Can you please briefly describe your main roles and responsibilities?

What is the name of your organisation?

Section two: extent of and reasons for the corrosive substance attacks problem

1a. Do you think the number of corrosive attacks have increased in the last three years?

☐ Yes

☐ No

☐ DK

1b. If yes, what are the main factors that have helped to led to the increase? (Please select all that apply):

☐ Social media use by potential perpetrators of attacks

☐ Drug use of perpetrators

☐ Alcohol use of perpetrators

☐ Peer influence

☐ Gang related crime

☐ Greater of knowledge of how to use corrosive substances in crime events

☐ Ease at which substances can be purchased

☐ Others – please explain

2. What do you see as being the main motivations for carrying and using corrosive substances? Please select from the following:

☐ To threaten others

☐ As a precaution/self-defence

☐ To cause life changing injuries to others

☐ Others – please explain

☐ DK

Section three: types of substances and how they are used.

3. What types of corrosive substances are most commonly used? [add free text box]

4a. On the whole, do you think people buy the corrosive substance used or is it given to them?

☐ They tend to buy corrosives

☐ They tend to get given corrosives

☐ It depends - please explain

☐ DK

4b. If the substances are bought, are you aware where are they bought from?

☐ Online

☐ Chain supermarkets/ hardware shops

☐ Independent supermarkets/ hardware shops

☐ Other – please explain

☐ DK

5. How do you think corrosive substances are being carried?

☐ Plastic bottle

☐ In a glass bottle

☐ Other – please explain

☐ DK

Section four: types of users and victims (survivors)

6. What is the typical age of people carrying or using corrosives?

☐ Under 16

☐ 16-21

☐ 22-30

☐ 31-40

☐ Over 40

7. Is it men or women who typically use or carry corrosives?

   ☐ Mainly men

   ☐ Mainly women

   ☐ Both equally

8. What is the typical age of the victims?

   ☐ Under 16

   ☐ 16-21

   ☐ 22-30

   ☐ 31-40

   ☐ Over 40

9. Are the victims typically male or female?

   ☐ Mainly male

   ☐ Mainly female

   ☐ Both equally

10. Do you feel that perpetrators are aware of the potential following impacts of using corrosive substances on their victims? [Yes/No/DK]

    ☐ Physical appearance

    ☐ Psychological and emotional impacts

    ☐ Financial/life chances

Section five: Developing preventative strategies

11a. Which of the following do you think would have an impact on the prevention of future incidents? [Please rate on a scale of 1 to 5 – where 1 = Very likely and 5 = not likely at all].

    ☐ Stricter regulation on the sale of corrosive substances

    ☐ Greater stop and search powers for the police

    ☐ Early intervention/ education for potential offenders

    ☐ Increased legal penalties for anybody carrying a corrosive substance without good reason

    ☐ Increased legal penalties for anybody found guilty of carrying out an attack

    ☐ Heavy fines for retailers who supply regulated substances

11b. Are there any other measures you think would have an impact on the prevention of future incidents [free text]

Many thanks for taking part in the survey. If you have any further comments please insert below.