Acid Attacks in North East England: A Victim-Centred Perspective

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FOREWORD

When someone is attacked with a corrosive substance, their life changes. In an instant, a deliberate act of violence causes physical harm, but the impact runs far deeper. Victims must navigate not only the long road of medical treatment but also the psychological, social, and emotional aftermath of a life irrevocably altered.

The trauma continues long after the initial attack. Survivors often describe feelings of fear, isolation, and shame. Many face significant barriers to accessing appropriate care, understanding, and justice. The loss of confidence, identity, and trust in others can be profound – and the scars that result are not always visible.

Support matters. Access to specialist medical care, mental health services, and social support is vital. Compassionate treatment can be transformative – not only in restoring physical health, but in helping survivors rebuild their lives. However, where support is lacking or mishandled, the trauma is compounded, leaving survivors feeling abandoned and retraumatised.

The interviews conducted through this research show the wide range of experiences that survivors face – from exemplary care that fosters healing, to neglect that intensifies psychological distress. They also reveal the resilience of individuals who continue to fight for recovery, justice, and understanding. This report brings their voices to the forefront, and in doing so, calls for a more informed, empathetic, and trauma-aware response to this form of violence.

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EXECUTIVE SUMMARY

Chemical burns from acid or alkali substances can cause severe eye injuries, often leading to permanent visual impairment or blindness, accompanied by chronic discomfort or pain. This study specifically examines ocular corrosive substance attacks (OCSA) (attacks in which the primary or most serious harm is to the eyes) and considers their medical, psychological, and social consequences. These attacks are a growing concern in North East England, with Northumbria Police reporting the highest number of so-called 'acid attacks' in the UK. While systems exist to address physical injuries, there is limited understanding of the broader consequences of acid attacks on victims. Consequently, the care people are offered often fails to accommodate the lived experiences, challenges, and desires of victims, leaving them unsupported.

This research took a victim-centred perspective of OCSAs. By conducting 13 qualitative interviews with victims to understand their broader lifestyles and experiences before and after the attack. The study therefore gained an in-depth understanding of the phenomenon culturally, socially, spatially, as well as health outcomes, including mental health..

This report highlights the prevalence, impact, and socio-economic factors associated with these OCSAs. Victims we spoke to suffered severe physical injuries, including eye and facial burns, and profound psychological trauma, such as post-traumatic stress disorder (PTSD) and social withdrawal. The attacks disrupted victims' lives, affecting their ability to work and maintain social relationships. Many attacks went unreported due to fear of retaliation or distrust in the police and wider justice system. Even when reported, few cases led to prosecution, reinforcing a sense of impunity among perpetrators.

Medical treatments for OCSA victims are advancing. However, victims continue to face challenges in accessing and continuing care due to wider instability. These assaults should be read as part of a broader, normalised repertoire of localised violence in disadvantaged neighbourhoods. Tthey signal and enforce territorial boundaries and become an everyday risk rather than anomalous brutality. In other words, violence appears to have become a way to assert status and manage insecurity in deprived communities.

The report recommends stricter regulations on access to corrosive substances, enhanced support for victims including mental health and social services, enhanced follow-up from police, tailored support from local authorities, and for law enforcement and justice systems to take OCSA more seriously to prevent impunity and repeat offences. These findings underscore the urgent need for comprehensive action to address both the immediate and underlying issues related to OCSA.

ACKNOWLEDGEMENTS

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CONTENTS

1. INTRODUCTION

Chemical burns to the eye can cause potentially serious blinding eye injuries. This report focuses specifically on corrosive-substance attacks in which the eyes are the principal site of injury, drawing on specialist ophthalmology data and victim interviews. Without appropriate treatment, this often results in permanent unilateral or bilateral visual impairment or blindness, often with associated chronic discomfort or pain (Ghosh et al., 2019; Salvador-Culla et al., 2023; Westekemper et al., 2017).

The incidence of these chemical burn attacks are not routinely collected nationally (Haines, 2012) – however, the Acid Survivors Trust reports the UK as having one of the highest rates (Lewis et al., 2020). However, hospital data offers a unique opportunity to understand such attacks by using data about those that are routinely referred for specialist treatment. Thus, records held within the Ophthalmology Department at the Royal Victoria Infirmary (RVI), Newcastle upon Tyne (recognised as a national referral centre) indicate that chemical attacks are a growing concern in North East England, with Northumbria Police and the RVI Eye Department together seeing the highest number of acid attacks outside of London (Acid Survivors Trust International, 2025; Hopkins et al., 2021b). Within this report, we use the term 'acid attack' as the wider phenomena of "the use of acid or another caustic or corrosive substance or vitriol by one person against another with the intent to injure or disfigure" (Kazerooni et al., 2020: 1188) discussed in research (Hopkins, 2021; Song et al., 2020) and the media (Nagarajan et al., 2020), and the term 'ocular corrosive substance attacks' (OCSA) to discuss the focus of our research which specifically imapcts the eyes.

Many victims are young white males, with the majority of these chemical attacks occurring at home, in the community where they live and in association with other criminal assaults and activities (Neville et al., 2023a). These 'attacks' have a different profile to those popularised in the media (Nagarajan et al., 2020) and in areas that have received more attention from researchers. Typically, in North East England, as in the rest of the UK, alkali substances, usually ammonia, is used in attacks instead of acid (Hopkins, 2021). Acids (sulfuric, nitric, hydrofluoric, hydrochloric, acetic acid, formic, phosphoric, phenols, and chloroacetic acid) cause damage by denaturing and precipitating proteins in the surface tissues (cornea and conjunctiva) of the eye they contact. The coagulated proteins act as a barrier to prevent further penetration). Unlike acids, alkali agents (ammonia) are lipophilic and therefore penetrate tissues more rapidly. They saponify the fatty acids of cell membranes, penetrate the corneal stroma by destroying proteoglycan ground substance and collagen bundles. The damaged tissues then secrete proteolytic enzymes, which lead to further damage[1].

[1] Strong alkalis such as ammonia act like a powerful soap. They break down the natural fats in the eye's surface cells and eat into the cornea. The injured tissue then releases enzymes that keep breaking down nearby cells leading to worsening damage to the eye.

While there are systems to address physical injuries, there is little understanding of the wider consequences of OCSAs on victims. Care pathways, therefore, do not accommodate the lived experiences, challenges, and desires of victims often leaving them unsupported.

To address this gap, this research sought to understand the experiences of patients with chemical eye injuries and their interactions with care, and wider lives, with the aim of identifying opportunities to improve the care that is offered to future victims. The research explored a victim-centred perspective of these attacks. To do this it worked with victims of OCSAs to understand their broader lifestyles and experiences (pre- and post-attack) – the study explores the phenomenon in depth – culturally, socially, spatially and in terms of health outcomes, and in particularly, impacts on mental health.

The early indications are that victims and offenders are sometimes one and the same, but little is known about how to deal with the consequences of attacks for either group. In 2001, it was found that burn "victims are essentially left to their own devices to come to terms with a devastating event and injury" (British Burn Association, 2001: 38).

This report concentrates on the findings of the project. A more conceptual research paper, reporting on the condensed project findings, but a wider conceptualisation of this work, can be read here: Ridley, L., Figueiredo, F., Burrows, R., Scott, S., and Wilson, A. (2026). 'It is what it is ...': men's experiences of ocular chemical substance attacks in North-East England. *Justice, Power and Resistance* (published online ahead of print 2026), available from: Bristol University Press.

2. BACKGROUND

Having established the scope and significance of OCSAs in North East England, it is crucial to understand the medical and social context that shapes both the immediate impact of these attacks and the long-term consequences for victims. The following section examines the clinical reality of OCSA injuries, the demographic patterns that have emerged, and the broader societal factors that contribute to their increasing prevalence.

Corrosive substance attacks to the eye constitute a true ophthalmic emergency. The type of chemical agent involved, and duration of exposure will determine the severity of the damage, which can range from a mild disruption of the ocular surface to extensive damage of the deeper structures of the eye. Where acid is used 52 per cent of cases result in a serious injury, and 21 per cent when ammonia is used (Hopkins et al., 2021b). Severe cases frequently require emergency hospital admission for intensive topical, systemic and surgical treatment, and carry a poor long-term prognosis.

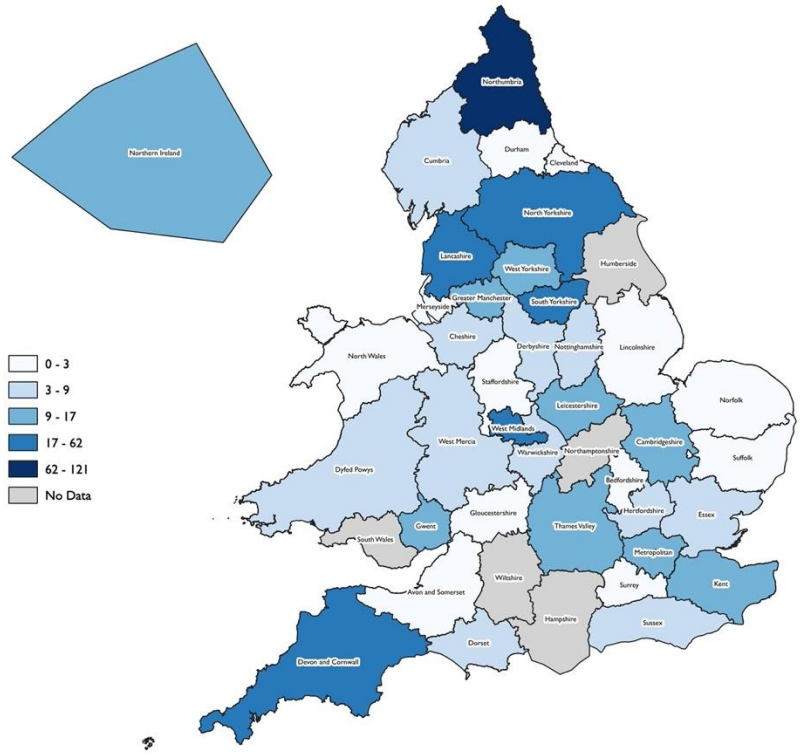

Figure 1: Number of Attacks in 2023 by Police Force

The phenomenon of corrosive substance attacks (CSA) has garnered significant attention in recent years due to its alarming rise and devastating impact on victims (Nagarajan et al., 2020). The prevalence of CSA has seen a marked increase globally (Kazerooni et al., 2020; Song et al., 2020), with the UK, particularly North East England, recording some of the highest rates of such offences (Acid Survivors Trust International, 2025). According to a recent report police-recorded assaults involving chemicals have more than doubled in England over 5 years (183 in 2012, 238 in 2013, 285 in

2014, 460 in 2015 and 504 in 2016). In 2023, 1,244 corrosive substance offences were recorded by the police in the UK: a 75 per cent increase from 710 in 2022. Between 2024 and 2025, 121 of England's 498 offences were recorded by Northumbria Police (Acid Survivors Trust International, 2025). These figures are shown in Figure 1. It is expected that these figures only scratch the surface of these attacks – previous studies have shown reticence to seek medical attention for fear of provoking another attack (Tan et al., 2015a), or to report violent attacks to the police, with up to 90 per cent going unreported (Sutherland et al., 2021).

Demographic profiles of victims and offenders reveal common characteristics that help in understanding the dynamics of CSA. There is, however, significant variance between these data sources due to both the shortcoming and different forms of reporting available. Victims are predominantly young (Nagarajan et al., 2020), white, male ("72% of the victims of corrosive-based crimes and 88% of the offenders" (Neville et al., 2023b: 215)), and from deprived backgrounds , often involved in drugs, street rivalries, or personal feuds (Hopkins, 2021; Neville et al., 2023b; Tan et al., 2015b). Offenders, similarly, are mostly male and frequently engaged in gang-related activities (however this is comparatively low in North East England). The highest-risk group for both victims and offenders aged 20-29, highlighting the vulnerability of young individuals in these communities (Nagarajan et al., 2020: 953).

Recent research by clinical colleagues in the RVI (Salvador-Culla et al., 2023) found that the average age of patients admitted with injuries from OCSA was 34.5 years, with most (81 per cent) being male. Over half (59.5 per cent) had injuries in both eyes. Alkalis – especially ammonia – were the most common agents (81 per cent), with acids accounting for just 8 per cent. Nearly 41 per cent of cases resulted from assaults, while the remainder were linked to workplace or domestic accidents. A significant proportion of patients were unemployed (30 per cent) or working in manual labour (49 per cent), reflecting broader socioeconomic vulnerabilities. Hospital admissions averaged five days, and mean follow-up lasted approximately six months. The average cost per admission was £2,478. Notably, all cases of severe limbal stem cell deficiency (a serious eye condition in which the stem cells in the surface of the eye are depleted), leading to long-term vision impairment, occurred following assaults.

The substances used in OCSA are varied, with ammonia, household products, and acids being the most common (Hopkins, 2021). Ammonia, in particular (for example, sodium hydroxide), is favoured due to its easy and wide availability and severe impact, causing deep tissue damage and long-lasting injuries. The ease of access to these substances contributes significantly to their use in attacks, making regulation a critical and unmet area for intervention (Tan et al., 2015b). Beyond simple availability, perpetrators favour agents that are easy to procure and conceal, that incapacitate rapidly, while often

being perceived as carrying a lower risk of being caught and charged with carrying it (Neville et al., 2023b). This helps explain ammonia's local prominence in place of knives or blunt instruments.

The focus of this work is the extensive damage that the chemical agent inflicts to the eye that significantly impairs vision, the injuries substantially limit the ability of these patients to perform their jobs and other duties, and ultimately has a significant impact on their quality of life, with long lasting psychosocial impressions on victims and close friends and family (Winter, 2021).

The impact on victims of OCSA is profound, encompassing severe physical injuries and deep psychological trauma. Physical injuries can include blindness, often requiring advanced medical treatments such as amniotic membrane grafts and stem cell transplantation (Ghosh et al., 2019; Salvador-Culla et al., 2023).

The psychological effects are equally devastating, with research documenting "post-traumatic stress disorder, poor body image, alcoholism, depression, poor life satisfaction, sleep disturbance, stigmatization and social exclusion" (Lewis et al., 2020: 215) – impacts that extend beyond the victim to affect their families. These psychological consequences have been linked to "substance misuse, anxiety and mood disorders, post-traumatic stress disorder, impaired quality of life and more suicide attempts" (Lewis et al., 2020: 215). The long-term consequences for victims' social and economic well-being are substantial, affecting their ability to work, maintain relationships, and reintegrate into society.

Challenges in reporting and prosecuting OCSA are significant barriers to addressing the issue effectively (Kazerooni et al., 2020). Many attacks go unreported due to fear of retaliation or distrust in the police and justice system. Even when reported, the prosecution of offenders is fraught with difficulties, including the loss of evidence and low conviction rates. Routine data is difficult to find: police and hospitals differ in how and whether they collect them, how they are classified, and whether they are double counted (for example, once by law enforcement, and later by the hospital treating them).

Kazerooni et al. (2020) call for an increased focus on developing a comprehensive global legislative framework. They argue that current approaches are fragmented and inconsistent, leaving major gaps in prevention, justice, and survivor support. The authors identify five key legislative priorities: adopting a public health approach of education and empowerment; establishing clear legal definitions which recognises the unique aim of disfiguring with CSA; implementing strict regulation of acid sales and access where carrying strong chemicals is treated as a weapon; ensuring effective justice mechanisms and enforcement that overcomes the deficit in charging many of these attacks due to them being underreported or uninvestigated; and providing long-term medical, psychological, and

legal support for survivors (the focus of our research). While they praise the UK government for much of its progress, such as on the 'Report, Remove, Rinse' campaign, and stronger legislation, they urge governments and international organisations to integrate these priorities into national legislation to reduce impunity and promote survivor-centred justice.

Medical treatment innovations for OCSA victims have advanced significantly, offering hope for recovery and rehabilitation (Salvador-Culla et al., 2023; Westekemper et al., 2017). Surgical procedures such as amniotic membrane grafts and stem cell transplantation have shown promise in restoring sight and repairing severe injuries. However, victims often face challenges in accessing and continuing care due to wider instability, including homelessness, addiction, economic problems and untreated mental illness.

These attacks happen within a broader landscape of economic decline and social fragmentation in the North East of England. Historically rooted in industries such as shipbuilding and coal mining, the region has experienced long-term deindustrialisation, leading to chronic joblessness, financial strain, and a collapse of traditional employment structures (Warren, 2020). In neighbourhoods marked by stigma and weakened formal authority, attacks that target the face and eyes operate as public displays of dominance incapacitating at distance while signalling reputational control across local micro-spaces (Wacquant, 2007).

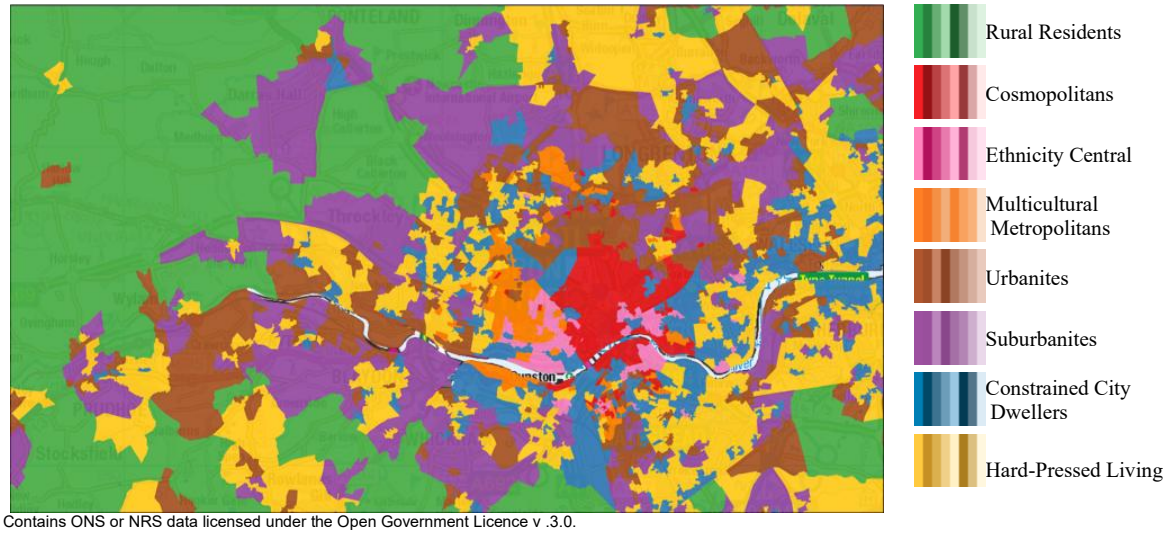

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Figure 2: Newcastle's Area Classifications

There is shorter life expectancy and higher rates of long-term illness in the North East compared to the South East – 77.2 for males and 78.0 for females in the North East; compared to 80.1 and 80.7 respectively for the South East (ONS, 2024). The North East represents a concentration of what Wacquant (2007) calls "advanced marginality" - areas where public health outcomes and life

expectancy are measurably lower than in wealthier southern areas. Victims often live in areas classified by the Office for National Statistics as ‘Constrained City Dwellers’ and ‘Hard-Pressed Living’ – both typologies linked to low income, insecure housing, and limited access to public services (ONS, 2021), shown in Figure 2. Territorial stigmatisation (Wacquant, 2008) and abandonment shape the vulnerability of specific urban areas. Spatial clustering of OCSAs aligns with processes of territorial stigmatisation and ‘advanced marginality’: in these areas, reputational sorting, weakened services and reputational social control produce micro-geographies where corrosive attacks become a mechanism of local dominance and dispute regulation.

Over the last few years we have regularly collected the data from the eye emergency service at the Newcastle upon Tyne Hospital NHS Foundation Trust of all patients presenting with a history of corrosive substance injuries to the eye, particularly focusing on attacks (Salvador-Culla et al., 2023). Chemical injuries are more common in young men, mostly of working age, unemployed, with alkali (i.e., ammonia) as the main causative agent, with “the main cause of injury being assault (41 per cent), closely followed by accidents at work (32 per cent, not included in this research)” (Salvador-Culla et al., 2023: 9).

Our data indicates that the socio-economic status may play a significant role in the type and severity of the chemical eye injuries, with severe cases after an assault happening more frequently in unemployed patients who reside in areas with lower household incomes. Figure 3 illustrates some early visualisations of the approximate location (for anonymity) of victims of these attacks admitted to the RVI’s Department of Ophthalmology with tight spatial clustering within 10 per cent most deprived areas in England. Unfortunately, despite the best management, severe chemical injuries almost invariably lead to severe or total corneal stem cell deficiency and consequent poor sight/blindness, often associated with permanent discomfort, further compounding the challenges people in deprived areas may face (Ghosh et al., 2019).

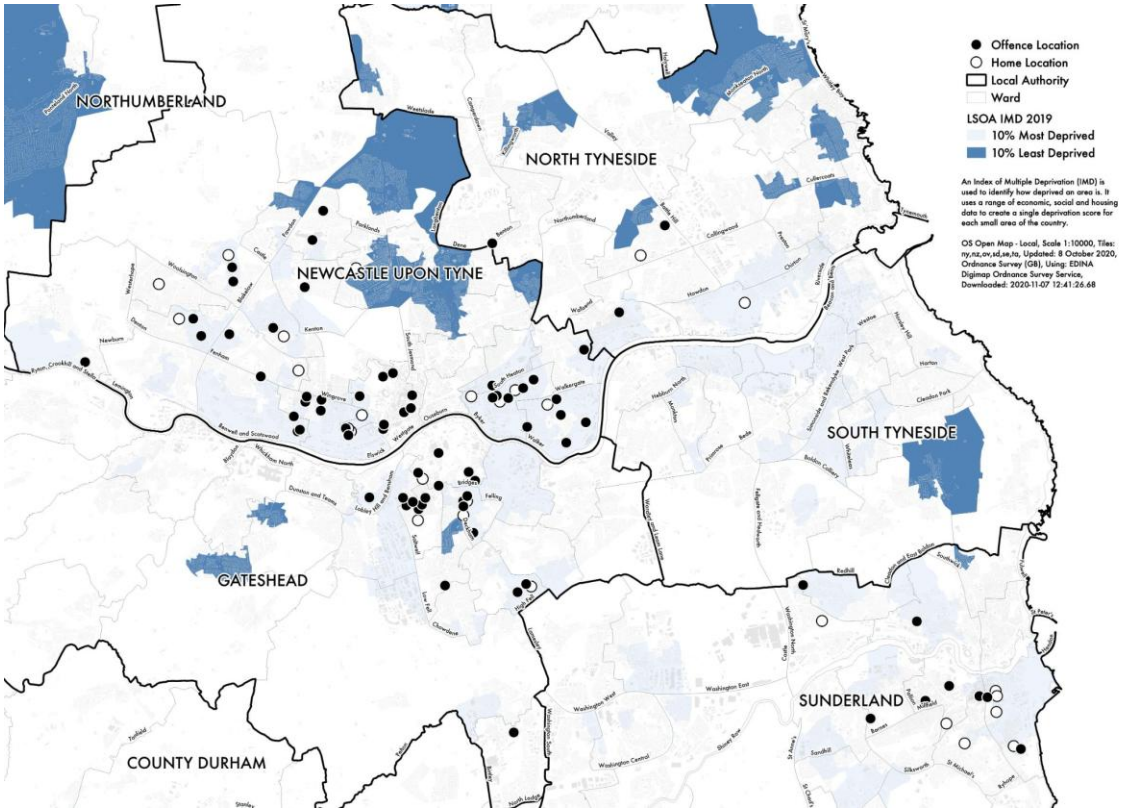

Figure 3: Geographical Distribution of OCSAs in North East England between 2015 and 2018: Attack Location & Victim's Home Location and English indices of multiple deprivation

The evidence presented above demonstrates the complex interplay between medical, social, and economic factors that characterise OCSA in North East England. While existing research has begun to quantify the scale and medical impact of these attacks, there remains a significant gap in understanding the lived experiences of victims and how current care pathways meet (or, in many cases, fail to meet) their needs. To address this gap, we undertook a qualitative study with the aim of understanding the experiences of victims of OCSAs.

3. METHODS

To understand how patients' care needs are accommodated within current formal care practices, it was essential to engage with those who have accessed services provided by the Ophthalmology Department within Newcastle's RVI. Given the nature of this research was exploratory, and the limited prior studies on the topic, a broad approach was necessary.

The research employed an open approach, by aiming to understand participants' experiences. For this, as we will discuss, we chose face to face interviews. These interviews focused on the chemical attack, its circumstances, and its impact on the victims, allowing participants to share what was important to them rather than being determined in advance by the researcher.

3.1. Recruiting Participants

Recruitment drew from clinical records of patients treated for chemical eye injuries that were documented as assault-related. Because recruitment was clinic-based, every participant had sustained an ocular injury significant enough for them to be admitted into hospital and referred for treatment from the Ophthalmology Department; the findings therefore reflect the experiences of eye-injury survivors rather than all OCSA victims. Participation was also offered to those OCSA to the eyes who had attended the ophthalmology clinic in the past five years, and were not recruited during or following a medical emergency.

Potential participants received an information pack outlining the purpose and conduct of the interviews. They had the opportunity to ask questions and reflect on their participation. Participants could be accompanied by a family member or friend during the interview process. Interested individuals were instructed on how to arrange the initial interview.

We faced significant difficulties in having victims attend interviews. This likely led us to capture the experiences of the most stable victims – those maintaining clinical contact and able to navigate appointment systems. Those we couldn't interview may represent the most marginalised victims, suggesting our findings may understate the severity of institutional abandonment and support failures.

3.2. Interview Methodology

Interviews were conducted at the hospital (RVI): a familiar location chosen for ease for patients. Upon arrival, a member of the research team (not responsible for their clinical care) met the participant and escorted them to a comfortable, private room. Following the interview participants were able to claim reimbursement for their travel costs at the hospital's cashier.

The research team collected life histories and biographical data, developing an empathic understanding that allowed victims to share their experiences without undue probing. Interviews were

split into two parts: the first involved pre-established questions to collect basic demographic details; whereas the second was more responsive to topics raised by the interviewee, allowing for a deeper exploration of their experiences. Each interview lasted no more than one hour.

3.3. Analysis

Interviews were audio-recorded and transcribed verbatim. Transcripts were anonymised and de-identified; audio recordings were deleted after transcription. Pseudonyms are used throughout to protect identity. Transcripts were checked against the audio, managed using qualitative software on encrypted institutional drives with role-based access controls, and will be retained for five years in line with hospital data-retention policy.

Data were analysed inductively using thematic analysis following Braun and Clarke (2006), and interpreted as accounts of action (Gilbert & Abell, 1982). The research team jointly developed an initial coding frame, worked iteratively to refine codes, and agreed themes through regular cross-team discussions. NVivo and SPSS were used to support coding, organisation and descriptive summaries.

Thematic saturation was judged to have been approached when no new descriptive codes or interpretive themes emerged across the final two interviews. Project files were stored securely.

3.4. Ethical Considerations

Ethical issues were central to the design of this research. The study dealt with highly sensitive topics, including corrosive assaults, chemical burns and their long-term consequences. We recognised from the outset that participation could involve revisiting traumatic events, disclosing personal circumstances, and reflecting on chronic health conditions. Each of these carried the potential to cause distress, whether through the act of recalling violent incidents, discussing ongoing impairment, or speaking about experiences linked to illegality and stigma.

To minimise these risks, we worked closely with clinicians to identify appropriate participants. Inclusion criteria required that individuals were able to provide informed consent and that clinical teams judged their involvement to be safe. Conversely, patients considered at risk of harm to themselves or others were not invited to take part. Recruitment and engagement practices were therefore deliberately cautious, balancing the value of participation with the duty to protect participants' wellbeing.

During the study, we took several practical steps to safeguard participants. Informed consent was treated as an ongoing process: participants were given clear information about the purpose of the study, the topics we intended to explore, and their right to withdraw or decline to answer questions at any time. Information sheets and consent forms were provided in advance, and time was given for

questions before, during, and after interviews. Sensitive issues such as trauma, personal histories, or illegal activities were only pursued if participants indicated they were comfortable discussing them.

Finally, interviews were conducted in safe and trusted clinical spaces within the RVI, with arrangements made to ensure comfort and privacy. These measures, combined with careful attention to language and pacing, sought to reduce the likelihood of re-traumatisation while still enabling participants to share experiences in their own words. Limitations include recruiting participants through the clinic (which likely under-represents non-treatment-seeking survivors), male-only participation, occasional lack of independent substance confirmation, potential recall bias, and incomplete verification of justice outcomes. These constraints shape the scope of the claims made in the findings.

Ethical approval was granted on 22 March 2023 by the NHS Health Research Authority's Research Ethics Committee.

4. CASE STUDIES

Most of the victims we interviewed were white, male, under 40 and from deprived backgrounds.

Analysis of the interview data revealed three distinct categories of OCSA victims, differentiated by pre-attack socio-economic circumstances and relationship with formal systems. We therefore organise respondents into three analytic groups: (1) Economically & Socially Engaged, Minimal Criminality (n = 3), whose relatively secure lives were abruptly destabilised by OCSA; (2) Precarious & At-Risk (n = 4), which includes two brothers interviewed separately and describes men with partial stability but heightened exposure to financial strain, social isolation or proximity to violence; and (3) Marginalised & Criminally Entangled (n = 4), which includes a dyadic interview of two brothers and describes men for whom attacks reinforced pre-existing cycles of exclusion and criminalisation.

Economically & Socially Engaged, Minimal Criminality

- **Jack**: A tradesperson with a stable life disrupted by an ammonia attack during a dispute. Despite full cooperation, police failed to act, and the case was dropped. Jack's vision was permanently affected, and he faced ongoing threats from the attacker.

- **Marko**: A tradesperson attacked with a mix of battery acid and super glue while protecting his son. He suffered severe eye burns and permanent vision impairment. Despite initial police response, the case faltered, and the attacker was briefly held.

- **Paul**: A recent graduate attacked while helping a friend. He suffered severe corneal damage and ongoing psychological trauma. The police investigation failed due to errors, and no arrest was made.

Precarious, and at-Risk

- **Graham**: A builder attacked with ammonia on his birthday. He suffered long-term eye issues and psychological distress, including a suicide attempt. The police failed to file charges despite evidence.

- **Mike**: Graham's brother, attacked with a chemical mixture. He experienced anxiety and sleeplessness, and the police response was inadequate. He eventually took a safer job to avoid public exposure.

- **Jim**: A charity worker attacked with ammonia during a dispute. He experienced temporary vision issues but received no follow-up care. He did not report the incident due to distrust in the police.

- **Phil**: A maintenance worker attacked with ammonia during an argument. He suffered permanent eye damage and severe headaches. Despite identifying the suspect, the case was dropped.

Marginalised & Criminally Entangled

- **Daryl**: A man with a history of instability and trauma, attacked with ammonia at a funeral. He suffered severe eye injuries and psychological scars, becoming reclusive and paranoid. He received no psychological care post-attack.

- **Gavin**: A man from a background of generational poverty, attacked with ammonia on Christmas Day. He suffered blindness in one eye and severe mental health issues. The police took no action despite knowing the attacker's identity.

- **Bob and Billy**: Brothers from a chaotic upbringing, both attacked with ammonia. They faced ongoing health issues and frustration with the police response. Bob chose not to retaliate, recognising the futility of further conflict.

5. FINDINGS

In this section we reflect on the findings of our interviews. We describe the multiple and wide-ranging impacts OCSAs have on victims – both physical and psychological – and the impact this has on their trust, understanding and experiences of organisations and institutions related to supporting victims.

The interviews conducted for this research revealed the multifaceted nature of OCSA impact, extending far beyond the immediate physical injury to encompass psychological trauma, social disruption, and encounters with institutions that often failed to provide adequate support. This section presents our findings thematically, tracing the journey from the attack to the aftermath. We begin with the nature of the attacks themselves before examining their immediate and long-term impacts, the medical response, and the broader institutional and social context that shapes recovery. Throughout, we maintain focus on how these various dimensions of experience intersect to create the challenges faced by OCSA victims in North East England.

5.1. Nature of the Attacks

Before going on to describe the impacts of the attacks, it is worth briefly describing the nature of the attacks on the victims that we interviewed. Participants sometimes described as being caught in the middle of something, where the use of corrosive substances was an escalation of a tense situation. At other times the attack on victims appeared more targeted, often linked to criminality and drug use.

Participants describe substances, sometimes mixed with other household liquids, and often carried in readily available containers (such as Lucozade bottles). The power of the corrosive liquids was widely reflected on, with one participant stating *"somebody sprays on their face. That's it"* (P012) or *"If you a fight and somebody squirts ammonia, even on your chest, it's going to instantly stop you"* (P011). This is perceived as an 'easy' way to incapacitate someone instantly.

The perpetrators are often known to the victims, and there was a sense that *"people like that obviously are under threat all the time. They a risky game on, so they've got to have some sort of protection"* (P007).

Understanding the nature and context of these attacks provides essential background for understanding their impact on victims. As our interviews revealed, the seemingly instantaneous nature of the attacks is in stark contrast to lasting consequences that follow.

5.2. Impact on Victims

First, we reflect on the impact of OCSAs on victims. These are physical, with frequent reports of eye pain and discomfort, cases of partial or temporary blindness, and the physical procedures and treatments victims have to undergo. However, a more widespread and significant impact appears to be

the psychological impact. Places that previously felt safe – people's homes, streets, neighbourhoods, local pubs – become replaced by feelings of being constantly vulnerability and the need for constant preparedness. Fears are triggered by seeing other people, the location of the attack, or even squeezy bottles. In this section participants reflect on several varied forms of impacts stemming from their OCSA. These included both physical injuries (both shorter and longer-term), and psychological trauma. We discuss the two in-turn.

Physical Injuries

The majority of our victims discussed severe and often life-altering severe physical injuries, including blindness and severe facial burns (the latter only because of acid, rather than ammonia), because of their OCSA. Victims typically suffer from extensive burns, which impacted their eyes. All of our interviewees suffered from eye injuries (as a result of our approach to recruitment), with several cases of a significant loss or reduction in the function of one or both of their eyes: often resulting in partial blindness. The corrosive substances used in these attacks, such as ammonia and acids, penetrate deep into tissues, causing extensive damage that is difficult to treat and often requires multiple surgeries.

Beyond the immediate physical damage, victims face long-term health, particularly eye complications. These can include chronic pain, infections, and the need for ongoing medical treatments such as amniotic membrane grafts and stem cell reconstructive surgeries. The healing process is often prolonged and painful, with many victims experiencing limited vision and function in the affected eyes.

One participant reported *"grade four chemical burns, which he says was pretty severe"* (P006). Immediate impacts included temporary or complete loss of vision. Longer-term symptoms reported by participants included blurry or hazy vision, loss of sensation, chronic dryness and recurrent styes. These were described as persistent and often profoundly limiting. Reports of *'blurry vision'* (P010), *'thick hazy'* vision (P013), *'loss of sensation'* (P002) or *"dry eyes all the time and rubbing them all the time" (P015),* and problems such as styes *"constantly since then"* (P015). One person still had *"stitches in from your first lot surgery"* (P002) eighteen months later. The healing process is often slow, with one eye being *"exactly the same as when I had the bandage taken off 18 months ago"* (P002). The functional impact can be significant; one participant described not being able to *'read the bus'* (P009) which caused them to miss an appointment.

A participant, who accompanied a OCSA victim, while reflecting on their family member's injuries, gives a particularly vivid reflection, stating *"He's got blurry vision and that in his eyes, he's had lots of trouble with his eye. His eye was that thin and nearly popped because of the acid and because of he's kept all his stuff"* (P013). Another, reflecting on their own injuries and the impact the OCSA has had on their life, stated *"I was finding that I was having big problems with depth perception,*

dizziness, headaches. It was awful. […] But the headaches is horrific sometimes I still get 'em sometimes and it just constantly feels dry and it's just uncomfortable" (P006).

There were frequent complaints of blurry vision, watery eyes, unexpected shooting pains, headaches caused by the trauma to their eyes. While there was significant discussion of people's physical injuries these are well documented (Hopkins et al., 2021a). The psychological trauma of the attack, was prominent in the interviews, and less widely reported on (Mittal et al., 2021), particularly in the UK. We discuss this next.

Psychological Trauma

While the physical injuries are severe and well-documented, our interviews revealed that the psychological trauma represents an equally devastating but less understood dimension of OCSA impact. Victims experience anxiety, hyper-vigilance, the symptoms of PTSD, 'anxiety', 'paranoia', and social withdrawal. The psychological impact is profound, with many victims struggling to reintegrate into society and facing long-term trauma. This, coupled with the poor availability of mental health support, compounded the psychological impact, of these physical injuries. Many victims struggle with anxiety, faced fear of social stigma, reduced self-esteem and poor mental health, but also financial problems, which can further aggravate their psychological problems, but also complicate their recovery and reintegration into society.

Participants described ongoing psychological distress rooted in a heightened state of alertness, in a and hypervigilance in preparing for a potential next attack. Everyday life became a source of fear: the previously safe-feeling urban environment was replaced by feelings of constant anxiety: *"I've just got a feeling it's going to be repercussion at some point"* (P006). This, for example, manifested in participants making efforts to avoid people, with one noting: *"I used to get really bad anxiety when people were walking towards me after that for a while. So I'd always swap sides of the roads or I'd be looking over my shoulder all the time and things like that"* (P008). The injury impacts self-image and confidence; a former police officer spoke about losing the *'element of invincibility'* (P002) they needed for their job and struggling with the feeling of becoming 'the victim' for the first time.

The suddenness of the attack and its randomness left many in a prolonged condition of fear and anxiety. Reflecting on the surprise, speed and immediacy of the attack meant participants were not prepared: *"If somebody was going to show you what they had, you would automatically have a reflex to cover your face when you're just not expecting it at all"*. This, in turn, led to participants often being hyper-prepared for further attacks. This hypervigilance was particularly associated with public spaces, unfamiliar individuals, and everyday items that resembled those used in the attack, with a fear of objects such as 'Fruit Shoot' and 'Lucozade' bottles with the 'squeezy tops' because of their ability to become weapons and shoot high velocity liquids out of them if squeezed.

Following the attack, participants described the urban landscape not as a neutral backdrop but as one of risk: with the urban environment, where the attack took place and more widely, in itself became a source of distress. Familiar places were reinterpreted through the lens of trauma, and the physical challenges of navigating the city after injury (e.g., impaired sight) compounded feelings of disorientation and unease. Participants reported how hostile the urban environment becomes following an attack: the constant fear of being attacked again, together with the challenges in navigating it post attack (for example, seeing and identifying bus numbers; reading letter for appointments, etc.). These insights reflect a spatial dimension of trauma that intersects with physical disability and perceived safety.

These perceptions also extended to people's homes, with a feeling of the need to be constantly vigilant, and an altered perception of what was previously safe: *"I've never ever locked my front door, never felt a need to. I've always felt safe and it's more for me, family's safety"* (P006); *"if you get hurt, you hear a noise, I'm jumping up in the middle of the night checking windows and going downstairs and stuff and then going back to bed"* (P013); *"I've never had experience anything like that. I was like, sometimes I'd get up and jump out of bed and see if there was anybody there. I'd freak myself"* (P015).

Beyond personal trauma, participants reported significant disruption to their family routines, leisure activities, and relationships, noting long-term impact on family and social life. Protective behaviours reduced physical capability: *"Always worried about my kids. Every time they go out I'm worried about them when they're late. I'm worried about them. That thing's checking the doors locked." (P006).* Fears of environmental exposure (e.g., in swimming pools) led to changes in what they previously enjoyed: *"The boys are like, you can't play footballers anymore. We used to play a bit of five a side. Since the assault when we go on holiday, not had to go in a swimming pool. So, in terms of affecting your family life, it was quite significant"* (P001) and people avoiding being *"around lots of people"* (P010). These accounts highlight how psychological trauma impact not just the victim, but also broader and broader social life and households.

Several participants described inadequate, minimal or delayed access to mental health services following the attack, with gaps in mental health support. This lack of timely support contributed to the deepening of trauma, with participants expressing a need for simple, empathetic people to listen to them and to check in: *"I definitely think afterwards somebody should be checked on it. Or even just to call off somebody to go and say, how are you doing? How's your mental health and stuff like that. Are you nervous about anything?"* (P013). These psychological effects compound the challenges that patients have in receiving care for their physical injuries. Despite medical advancements, many

victims miss follow-ups, neglect treatment, or drop out of care due to wider instability, including homelessness, addiction, and untreated mental illness.

Another participant, talked about the provision of mental health support, noting *"They put us in touch with somebody, which it took them seven months to get somebody in touch me, which was a bit of a joke"* (P006). There seemed to be an absence of structured mental wellbeing aftercare in post-incident recovery, with varied understanding of the care available, the take-up of such opportunities, and their associated feelings towards them. There are no systematic healthcare pathways or referrals from ophthalmology to mental health services.

The participants, mostly male, described struggling to articulate their distress, shaped by societal expectations around masculinity, stigma, people surprising their emotions: with several participants saying *"it is what it is"*. This led to emotional suppression, the distancing themselves from other people, and internalised suffering: *"it is hard on men because men don't like to talk as much as what women do […] When it first happened I was like, oh, I'm alright, right? But I'm fine and stuff like that. But deep down I was terrified of people coming to the door and I had all this stuff going on my head and stuff like that."* (P013). Indeed, for many of them, the interview was the first time they had discussed the attack.

These narratives are heavily gendered, where participants often felt the need to 'man up' when facing poor mental health, rather than seeking or taking-up support (both support for their mental health, and in many cases beyond the participants of this research, healthcare for their injuries). Ocular injury can operate as public humiliation: visible impairment undermines local reputational capital and status, particularly in masculinised settings where stoicism is prized. This humiliation discourages disclosure and help-seeking, intensifies isolation and helps explain why many male survivors adopt a fatalistic 'it is what it is' stance despite significant psychological suffering. This aligns with what we tend to see reflected in broader researcher in relation to men, mental and physical health and a reticence to seek help, and often led to the underreporting of attacks to the police, where many attacks go unreported due to fear of retaliation or distrust in the police and justice system. Victims often believe that reporting the crime will not lead to any meaningful action: *"It's what it is isn't it? […] You have to be a man, getting on with it"* (P007) and *"I just coped with it"* (P010).

This disruption, particularly to their mental health, led to social and economic consequences, where the attack disrupt victims' lives, affecting their ability to work and maintain social relationships, and in two cases, either contemplation or attempts of suicide, further compounding existing issues of financial strain and social isolation. The trauma of the attack led some to unhealthy coping mechanisms, such as *'taking drugs, drinking'* (P010) or the use of *'street Valium'* to self-medicate.

The interviews showed constant psychological trauma marked by persistent fear, hypervigilance, and disrupted daily life. Many reported a heightened sensitivity to perceived threats, often triggered by everyday objects or encounters. The urban environment, once familiar, became a source of anxiety and disorientation. The trauma also extended into family and social lives. Access to mental health support was often non-existent, delayed or insufficient. For some, particularly men, stigma around vulnerability contributed difficulties engaging with care.

The severe physical injuries and profound psychological trauma described above highlight the critical importance of comprehensive medical care for OCSA victims. All participants in our study had engaged with the specialist ophthalmology services at the RVI, providing insights into how medical innovations are experienced by those who need them most. However, as we will explore, the journey through medical treatment is complex and present barriers that prevent many victims from accessing or continuing care.

5.3. Abandonment and Injustice

Linked to the physical and psychological trauma associated with their attack, many of the participants reported a profound sense of abandonment and injustice following the attack which contributed to their poor mental health. Many participants perceived a lack of adequate police response and failures in evidence collection or preservation. This perceived impunity intensified feelings of helplessness, fear and betrayal among survivors.

One participant, for example, stated *"Police don't help in any case because I have reported incidents since that and they're not bothered, […] I couldn't give them any more evidence at the end of the day. And this nothing got done*" (P010).

Another discussed a delay in investigating the attack, leading the deletion of CCTV footage: *"He never got, they don't even know who he was when they did the [attack], so we spoke to the police and things like that. When they did the investigation, they took too long to ask for CCTV and stuff. So they never got that"* (P008). Others felt that OCSA were not dealt with as seriously as other forms of attack: *"They take gun crime really seriously. But the problem is with chemical and things like that is, so on the night when I told them what happened, they went and found, basically they went to try to go find this Lucozade bottle and they told me it was orange juice on the night"* (P008).

A common theme was identified, that participants felt that the police did not engage with their complaints or take sufficient action following their attack. For one participant, this feeling of abandonment was felt when, following being attacked, their shoes were stolen from their bedside in hospital. When this was reported, they noted, they were not believed. Often this feeling of powerless were reported, where few cases lead to prosecution. Reports that evidence has 'disappeared', and

cases are dropped, reinforcing a sense of impunity among perpetrators. Acceptance that this thing happens, and that there are very few repercussions for the perpetrators. These qualitative accounts point to systematic under-reporting: fear of retaliation, low expectations of police action and prior negative encounters deter many survivors from reporting. As a result, administrative records substantially understate the true scale of corrosive assaults and obscure patterns critical for prevention and policing (Hopkins et al., 2021a).

The psychological trauma experienced by the participants was shaped not only by the violence of the attack itself, but by the responses of institutions that they engaged with following the attack. In the interviews, this was particularly the case with their interaction with the justice system, where there was a deep sense of disillusionment, fear, and betrayal linked to their encounters. For many, the absence of meaningful legal accountability for perpetrators – combined with failures in evidence gathering, poor communication, and lack of follow-up – contributed to the trauma of their attack.

Some participants described the emotional toll of watching the person who attacked them walk free, and navigating complex legal procedures. In many cases, fear of retaliation and community silencing further complicated efforts to seek justice, reinforcing feelings of isolation and vulnerability.

Survivors' statements such as *"I've got no faith in the police whatsoever […] "They can't be bothered"* (P007) and *"Police don't help in any case... they're not bothered […] They did come to see him at the hospital... but nothing got done"* (P010) reflect not only frustration, but also a withdrawal of trust. Another stated *"I think it's ridiculous the fact that they can't do more. They put someone who to me is a danger to people: Having 'em put someone back on the streets. If he's walking around with a knife and obviously acid in his pocket, he's willing to hurt somebody and they're allowed to walk the streets"* (P006).

Participants expressed acute distress at the lack of consequences for their attackers. The recurring narrative that perpetrators *"get away with it"* (P007) reflects a distrust towards the police. Seeing attackers remain free, or even encounter them in public, was described as destabilising. One participant noted: *"When you see them wondering about, it's just like they look at you and as if they say, 'I've got away with it.'" (P007).*

Participants highlight the trauma of seeing attackers unpunished, with several reflecting on the impunity of their attackers: *"Well that's what they do. I don't think they get much of a charge these days."* (P015)*; "They know who they are... but it's just what they can prove obviously, isn't it? […] There was no conviction"* (P007).

The experiences shared by participants reveal how the trauma following an acid attack is not confined to the attack itself, but is prolonged and intensified by the moments that come after the attack. Many

described their eroded trust in the police, fear of retaliation, and the sense of impunity for their attacker, the interviews highlight how the absence of accountability impacted their feelings towards the attack.

This section underscores the urgent need to reimagine justice not just as a legal outcome, but as a process that acknowledges and supports survivors in their recovery.

5.4. Medical Treatment and Innovations

All of the interviewees were recruited either following, or undergoing, a medical treatment. While this is not the space to reflect on this innovation in the medical treatments themselves (this is widely covered elsewhere (Westekemper et al., 2017)), it is useful to reflect on the participant's experiences of these treatments, and how they interpret and understand the medical innovations they experienced.

The interviewees generally reflected on a positive experience of their care when in the specialist eye unit. This, however, needs to be understood with the significant challenges that are faced by people accessing such treatments. While we were able to engage with patients who had received this treatment (by the very nature of them being registered at the hospital), there is likely a significant proration of victims of OCSAs that have not received any treatment for their injuries. A key question for this work emerges: how can we support victims to improve their take-up and engagement with the world-leading medical innovations and treatments in the North East (NHS Blood and Transplant, 2025)?

This section reflects on people's understanding of the treatment they received. The hope is that these experience can better shape our responses to victims of OCSAs. There was discussion of how innovations and treatments such as amniotic membrane grafts and stem cell transplantation helped to restore participants' sight and repair severe eye injuries. The participants also described the compassionate care they received within the unit they individually interacted with.

The journey through medical treatment is intensive and demanding. Participants undergo multiple surgeries, including *"stem cell transplants, cornea transplants, lens replacement"* (P002). Managing medication is a constant burden, involving regular eye drops that are needed 'every day' (P010), and sometimes *'ones every hour'* (P010). Participants discussed the onerous commitment to these ongoing treatment, with it being *"a lot of work"* (P008), requiring careful planning, especially for travel.

Participants express frustration with the healthcare system, citing delays in treatment, difficulty getting timely appointments, and a perceived lack of a clear or continuous care plan. Navigating the system is hard; one participant, despite having medical issues, couldn't read letters about appointments because of their vision. Despite these frustrations, participants often spoke highly of the core medical staff.

Participants highlighted how grateful they were for both their treatments and the compassion they received: *"You couldn't ask for anything more what the professor had done for him and the treatment and that, I mean at the end of the day he couldn't see the other month and now he can't read the third line down on the board now"* (P010); *"They were fantastic. The care was unbelievable. Ward 20 [ophthalmology ward], you can't fault anybody. They were so good and they just put you at ease. I think that's the biggest thing."* (P006); *"The hospital's been fantastic. They really have"* (P009); *"Well, like I say, the professor's been brilliant […] You couldn't ask for anything more what the professor had done […] at the end of the day he couldn't see the other month and now he can read the third line down on the board"* (P010).

Their experiences were not always positive, however. There were reflections of distress, and reports of a sense of being abandoned:

> *"I'd been neglected by both emergency services almost because the police had got it completely wrong. And then obviously the hospital got it completely wrong and it was like I can remember ringing and crying and being surprised and being like, it is, they don't want to help me. I feel like I'm like, I'm going to lose my eye. I'm literally going to be bedbound and things like that and no one's helping me. And I can remember just sitting there and just crying to my mom."* (P008)

Participants describe the psychological trauma immediately following their attack, and the impact this had on staff providing care. It was, for example, noted that the rarity, as well as the severity of the attack left them feeling more isolated:

> *"But I hope this helps not only the A&E staff to understand how to deal with these things and also how to support someone. But I hope it also gives an insight of how maybe the person who has happened to her feels at the time. Because like I say, I do feel like no matter what anyone says of: 'Oh, I understand how you feel and stuff', they don't, it is a very niche thing to happen and you don't realize how important your eyes are until [it happens]."* (P008)

Another, reflecting on their experiences of care, reported on their medical procedure not going as planned: *"They've put baby's placenta on my eye, […] but it fell out"* (P016).

5.5. Wider Socio-Economic Factors and Economic Decline

The rise in OCSA cannot be separated from the broader economic decline and socio-economic conditions of particular areas in North East England. Corrosive substance attacks (OCSAs) in North East England should not be viewed as isolated incidents of interpersonal violence. Instead, they are symptomatic of deeper socio-economic, cultural, and spatial transformations. Their increasing

prevalence is closely linked to long-term economic decline, weakened institutions, and the fragmentation of working-class life. The collapse of traditional industries such as coal mining and shipbuilding eroded both economic stability and social cohesion, leaving many communities without the material security or shared identity these industries once provided.

Many participants reported a general sense of being decline in these urban environments, for example avoiding areas that show evidence of anti-social behaviour: *"I won't even go to the park now because the kids [on bikes] have just got wrecked that much"* (P010) or areas where there is a perceived withdrawal of police.

5.6. Stakeholder Meeting

We convened a stakeholder meeting bringing together academics, prison service and regional health providers, and local researchers, to discuss the project's findings and practical responses from services, law enforcement and researchers. The project team presented the evidence and available clinical treatments to prompt discussion.

Attendees agreed that support needs are wide-ranging but that many survivors are difficult to engage: chaotic life circumstances, distrust of authorities, and practical barriers (transport, scheduling) frequently prevent uptake of services, and some providers refuse contact with people judged violent, creating further gaps. Hospital data discussed at the meeting also pointed to rising admissions, underlining a growing clinical burden that sits uneasily alongside difficulties in getting people into care at the point when treatment is most critical.

Policing and prosecution present additional challenges. Investigators report that the sudden, disorienting nature of attacks complicates evidence collection, while victims' fear of retaliation and hidden motivations (for example, drug-related debts) reduce reporting and weaken cases. Prevention work with young people shows promise, but inconsistent attendance and fluctuating funding limit impact. Stakeholders therefore highlighted the necessity of strengthening evidence-preservation, victim support at first contact, and sustained funding for prevention programmes.

The meeting also emphasised the hyper-local character of these assaults, certain neighbourhoods, including Newcastle, now show unusually high rates, and the role of easily obtained corrosives (notably ammonia) that overlap with substance-use networks. Practical prevention measures discussed included targeted hotspot interventions, tighter point-of-sale controls and retailer training, and initiatives to rebuild trust between communities and institutions. Participants called for a balanced research agenda that combines statistical monitoring with qualitative work to capture lived experience. Overall, the consensus was that OCSA requires a coordinated, multi-faceted response

linking health, policing, community services and evidence-based prevention, and that collaborative action is urgently needed.

6. CONCLUSIONS: A NEED FOR URGENT ACTION

OCSA survivors in the UK face profound psychological impacts compounded by systemic barriers to care. No easy solutions to these rather complex problems – they are long-term and embedded.

The findings show three intersecting and commonly occurring factors that lead to this form of attacks. The interviews illustrate the isolating nature of this kind of trauma. Survivors often described their experiences as "niche" or fundamentally misunderstood by others, reinforcing the sense that OCSA inflict harm that is not only physical, but deeply psychological and socially alienating.

These attacks take place within conditions that make violence more likely, that embed and normalise these forms of attacks, and where there is little consequence from wider authorities for these episodes repeating themselves (Kazerooni et al., 2020). This form of attack is tightly coupled with the *structural conditions* and the environments within which they take place. In these environments, violence is linked to economic decline, social instability, and institutional erosion. The increased likelihood of this form of attack in these areas, combined with the challenges people face in accessing institutional support, compound the impacts of these attacks and exacerbate the challenges victims face in their ongoing recovery.

Alongside the environments that foster violence, the findings also show the normalisation of these forms of violence. Ammonia and other corrosive substances have become weapons of choice due to their easy and wide availability, low cost, and effectiveness to do harm, combined with a lack of legislation to enable the police officers to effectively enforce an offence of carrying corrosive substances in a public place. This shift reflects broader socio-economic conditions and the normalisation of violence within the communities we engaged with through the interviews.

The stories gathered in the findings show the psychological trauma experienced by survivors of acid attacks, particularly in relation to their treatment and support journeys. The participants spoke of the high-quality care they received in the ophthalmology department. At the same time, they also reveal the emotional fallout from moments of neglect or clinical misjudgement in the emergency service. Where participants felt unheard, misdiagnosed, or poorly supported in the early stages of their treatment, the trauma was compounded by feelings of fear, abandonment, and loss of control.

On top of this, institutional failures were regularly reported to us by our participants. They noted how the justice system often fails to hold attackers accountable, reinforcing a sense of impunity. While we found examples of individual agencies reflecting on their individual approaches to addressing issues our research found, there was a lack (and identified need for) a cohesive, people-centred understanding of how institutions work together to develop a care strategy that meets the needs of this form of victim.

In North East England, OCSA have become a normalised tool of violence, leaving victims scarred, traumatised, and often feeling abandoned. Our analysis of corrosive-substance attacks resulting in serious eye injuries reveals that this is not merely a medical crisis, but a profound failure of social policy, criminal justice, and collective responsibility. The research we conducted begins to highlight some of these issues, but further work is required across the multiple barriers and issues this work raises.

Our research reveals a troubling paradox: while North East England leads the world in treating chemical eye injuries, it also has the UK's highest rate of such attacks. The North East has developed world-leading clinical expertise to treat chemical eye injuries. Yet this clinical excellence sits alongside persistent failures in prevention and social protection.

More conceptually, and as our research paper unpicks in more depth, the routine use of placenta-derived tissues to repair chemically burned eyes highlights the gendered economy of recovery (NHS Blood and Transplant, 2025): reproductive and care labour is materially marshalled to restore men who are predominantly victims of male-to-male violence. This vivid juxtaposition of extraordinary clinical repair alongside routine prevention failure underscores how treatment infrastructures alone cannot substitute for upstream structural and social reform.

The broader pattern where marginalised communities receive sophisticated medical interventions but little protection from the violence that necessitates them. They solve one of the symptoms, not the underlying cause, of these attacks. OCSA are spatially concentrated, both nationally (with significantly higher proportions reported by Northumbria Police (Acid Survivors Trust International, 2025)) and within neighbourhoods, with tight clustering within more deprived neighbourhoods in North East England.

There is a significant body of work charting the physical impact of these attacks (Salvador-Culla et al., 2023; Westekemper et al., 2017), the motivations for the use of corrosive substances, as well as their widespread availability, low-cost, and ability of being easily decanted into everyday containers (Hopkins, 2021; Hopkins et al., 2021b; Moffatt and Rhimes, 2020; Twoon et al., 2016). We also have an emerging understanding of their growing rates in England (at least those that are reported to police) (Acid Survivors Trust International, 2025). This work begins to contribute to our understanding of the consequences of these attacks, particularly when accessing healthcare: these often differ in North East England from wider portrayals in the media (Nagarajan et al., 2020).

While the present research highlights acute failures in UK policing and care, international reviews (Kazerooni et al., 2020) underscore the need for comprehensive, enforceable frameworks combining public health, legal, and survivor support measures.

6.1. Mental Health Consequences

Our finding of severe, long-lasting mental trauma echoes both survivor testimony and professional commentary. OCSA survivors in the UK experience devastating long-term mental health consequences that extend far beyond their physical injuries. These attacks are rarely fatal (Twoon et al., 2016), however, as Piper (2017) puts it "For acid attack survivors, the aftermath is a life sentence" (p.1).

The limited studies suggest OCSA survivors face unique psychological challenges that differ substantially from other trauma types. Unlike other forms of injuries as a result of corrosive substances (such as those in the workplace, or accidental exposure), OCSA involves deliberate targeting of victims, often of the face and eyes, creating distinct psychological impacts which we began to uncover. The proximity of OCSAs to victims' homes and frequently visited places presents challenges of constant reminders, introduces states of vigilance and altered geographies of everyday lives, where constant fear serves to shrink their social world.

Ammonia too, commonly used in North East England, has distinctive medical treatment requirements when compared to other substances (Salvador-Culla et al., 2023; Westekemper et al., 2017).

Access, and willingness to take-up mental health support presents significant barriers to survivors. The lack of OCSA-specific treatment protocols within general burn care approaches further limits appropriate intervention (Lewis et al., 2020).

OCSA survivors face multiple intersecting barriers that significantly impede their recovery. Gender-specific barriers create additional complications. Traditional masculine norms emphasising stoicism and self-reliance conflict directly with help-seeking behaviours essential for trauma recovery. The victims we interviewed face additional talked about their expectations around "toughness" and independence, making them particularly resistant to seeking professional psychological support.

[Steph – do you want to add anything here?]

The survivors discussed mistrust with formal services. Fear of authority figures, concerns about confidentiality and repercussions within tight-knit communities, and limited availability of mental health services which contribute to a lack of engagement with these services. These communities also face practical barriers including transportation costs, scheduling conflicts with employment demands, and complex benefit system navigation that can discourage engagement with mental health services.

6.2. Justice

Within the findings, there were several examples of participants felt that enforcement and justice was not forthcoming after their attack. While the focus of this research was on the experiences of victims,

it is worth briefly reflecting on some of the difficulties law enforcement may have when prosecuting these types of attack. Indeed, as other work has demonstrated, one of the attraction of these forms of weapons (Hopkins, 2021; Kazerooni et al., 2020; Twoon et al., 2016).

Participants, for example, reported of police citing the lack of evidence for a conviction. OCSAs occur without warning, in many cases, in an immediate response to something that happened earlier. This, it was reported, led to difficulties collecting evidence and developing a case to prosecute the perpetrator. The violence, immediacy and disarming nature of these attacks leaves victims in a state where evidence collection or preservation is unlikely to be their first thought. There is a real challenge in understanding the prevalence of these attacks. In many cases, data on these attacks is not routinely collected or classified.

Intersecting with this issue is often the reluctance of victims to engage with the police. Fear of retaliation by the perpetrators in tightly-knit communities, teamed with distrust and trauma, lead to few incidents being reported. Recent reports from the Acid Survivors Trust suggest that only 8 per cent of offences lead to charging or summons (Siddique, 2024; Vaughan, 2024).

7. RECOMMENDATIONS

The evidence presented in this report reveals systematic failures at every level of the response to corrosive substance attacks in North East England. These failures are not inevitable..

7.1. Enhanced Victim Support

- Improve support systems for victims of corrosive substance attacks (CSAs), with a focus on holistic and sustained care. This could, for example, include the embedding of mental health specialists when dealing with ophthalmology emergencies and appointments.
- Ensure access to trauma-informed mental health services and ongoing follow-up, recognising the long-term psychological and physical consequences of these attacks. Proactive outreach to victims could form part of this.

7.2. Trauma-Informed, People-Centred Policing

- Urgently review police practices and accountability in CSA cases, particularly in deprived neighbourhoods where victim trust in law enforcement is low.
- Address failures to act on known threats and repeat offenders. Police must be better equipped and motivated to prevent and prosecute CSA.
- Develop policing practices that are responsive to the emotional trauma associated with CSAs.
- Build trust with communities through empathetic engagement and a visible commitment to protecting victims and prosecuting perpetrators.

7.3. Regulation and Control of Corrosive Substances

- Introduce stricter controls on the sale and distribution of corrosive substances, including tighter regulation of online and retail access.
- Review and strengthen current legal and policy frameworks to reflect the severity and long-term harm caused by CSAs.
- Tackle impunity. Repeated inaction by law enforcement enables reoffending and undermines public trust. Policing should treat CSAs as high-harm, high-priority investigations and invest in specialist training and evidence-preservation protocols. Rebuilding trust will require trauma-informed, victim-centred engagement.
- Recognise that corrosive substances are cheap, easily accessible, and difficult to trace, making them a weapon of choice in informal and violent economies.

7.4. Geographic and Spatial Justice

- Address the spatial concentration of CSAs in areas of severe deprivation, where violence is used to enforce territorial and social boundaries.
- Acknowledge how CSAs reshape urban geographies – turning streets, estates, and public spaces into zones of fear and exclusion.
- Implement neighbourhood-targeted measures (first-aid training in hotspots; retailer point-of-sale checks and tamper-resistant packaging for higher-strength alkalis; and local awareness campaigns) alongside enforcement.
- Implement place-based prevention in identified hotspots: combine retailer point-of-sale controls, local first-aid / rapid irrigation training for community venues, and targeted outreach that rebuilds trust between residents and policing/health services.
- Collaborate with local authorities (e.g. city councils) to raise awareness of the spatial dynamics of violence and to design place-based interventions.
- Further emphasis of British Burn Association's 'Report, Remove, Rinse' campaign in areas with a high prevalence of CSAs
- Develop approaches for the systematic and routine collection of data from attacks that bring together police and NHS databases that might provide a clearer understanding of the extent of these attacks and their impacts

7.5. Social Care and Structural Reform

- Strengthen the role of social care services in identifying and supporting at-risk individuals before violence occurs.
- Recognise and address the root causes of violence, including intergenerational trauma, addiction, and exclusion from education, employment, and healthcare.
- Linking of ophthalmology, A&E and police datasets

7.6. Economic Inequality and Regional Disparities

- Engage with central and local government to address long-term structural inequalities, particularly those affecting the North East of England.
- Push for meaningful action on the "levelling up" agenda, focusing on job creation, investment, and productivity in post-industrial urban areas.
- Challenge the economic marginalisation that drives informal economies and violent dispute resolution.

REFERENCES

Acid Survivors Trust International (2025) *Press Release: FOI Request made to England Constabularies*. July. Available at: https://asti.org.uk/.

British Burn Association (2001) *National Burn Care Review Committee Report*. London, UK. Available at: http://79.170.40.160/britishburnassociation.org/wp-content/uploads/2017/07/NBCR2001.pdf#page=69.57.

Ghosh S, Salvador-Culla B, Kotagiri A, et al. (2019) Acute Chemical Eye Injury and Limbal Stem Cell Deficiency-A Prospective Study in the United Kingdom. *Cornea* 38(1). Cornea.

Haines D (2012) UK Acid Attacks. *Medico-Legal Journal* 80(3): 85–85.

Hopkins M (2021) *Acid Crime: Context, Motivation and Prevention*. Palgrave Studies in Risk, Crime and Society Ser. Cham: Springer International Publishing AG.

Hopkins M, Neville L and Sanders T (2021a) The Contexts and Characteristics of Acid Attacks. In: Hopkins M, Neville L, and Sanders T (eds) *Acid Crime: Context, Motivation and Prevention*. Cham: Springer International Publishing, pp. 49–74. Available at: https://doi.org/10.1007/978-3-030-62296-1_3 (accessed 9 April 2025).

Hopkins M, Neville L and Sanders T (2021b) *The motivations of offenders who carry and use acid and other corrosives in criminal acts*. Research Report 121. University of Leicester. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/958180/motivations-of-offenders-who-use-corrosives-in-criminal-acts-horr121.pdf.

Kazerooni Y, Mishra B, Gibran N, et al. (2020) A systematic review and comprehensive legislative framework to address chemical assault globally. *Health Policy and Planning* 35(9): 1188–1207.

Lewis CJ, Hodgkinson EL and Allison KP (2020) Corrosive attacks in the UK – Psychosocial perspectives and decontamination strategies. *Burns* 46(1): 213–218.

Mittal S, Singh T and Verma SK (2021) Exploring the trauma of acid attack victims: a qualitative enquiry. *Women's Studies International Forum* 88: 102507.

Moffatt S and Rhimes P (2020) Deliberate corrosive substance attacks – A systematic review. *Trauma* 22(3). SAGE Publications: 169–175.

Nagarajan M, Mohamed S, Asmar O, et al. (2020) Data from national media reports of 'Acid attacks' in England: A new piece in the Jigsaw. *Burns* 46(4): 949–958.

Neville L, Hopkins M and Sanders T (2023a) Acid Attacks. In: Ali P and Rogers MM (eds) *Gender-Based Violence: A Comprehensive Guide*. Cham: Springer International Publishing, pp. 211–225. Available at: https://link.springer.com/10.1007/978-3-031-05640-6_16 (accessed 15 April 2025).

Neville L, Hopkins M and Sanders T (2023b) Acid Attacks. In: Ali P and Rogers MM (eds) *Gender-Based Violence: A Comprehensive Guide*. Cham: Springer International Publishing, pp. 211–225. Available at: https://doi.org/10.1007/978-3-031-05640-6_16 (accessed 10 October 2025).

NHS Blood and Transplant (2025) Donated placenta used to help save man's sight after acid attack. Available at: https://www.nhsbt.nhs.uk/news/donated-placenta-used-to-help-save-man-s-sight-after-acid-attack/ (accessed 9 October 2025).

ONS (2021) *Area classifications*. Available at: https://www.ons.gov.uk/methodology/geography/geographicalproducts/areaclassifications (accessed 10 October 2025).

ONS (2024) *Life expectancy for local areas in England, Northern Ireland and Wales - Office for National Statistics*. London, UK. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/lifeexpectancyforlocalareasoftheuk/between2001to2003and2020to2022 (accessed 10 October 2025).

Piper KE (2017) A survivor's perspective of acid attacks in the UK: an open letter from Katie Piper. *Scars, burns & healing* 3: 2059513117723768.

Salvador-Culla B, Hogg J, Okonkwo A, et al. (2023) Severe chemical eye injuries – clinical outcomes and associated socio-economic factors. *Scars, Burns & Healing* 9. SAGE Publications Ltd STM: 20595131231180367.

Siddique H (2024) Acid offences up 75% in UK but only 8% go to court, data suggests. *The Guardian*, 20 June. Available at: https://www.theguardian.com/world/article/2024/jun/20/acid-offences-up-75-in-uk-but-only-8-go-to-court-data-suggests (accessed 10 July 2025).

Song M, Armstrong A and Murray A (2020) Acid attacks: Broadening the multidisciplinary team to improve outcomes. *Burns* 46(3): 514–519.

Sutherland A, Strang L, Stepanek M, et al. (2021) Tracking Violent Crime with Ambulance Data: How Much Crime Goes Uncounted? *Cambridge Journal of Evidence-Based Policing* 5(1): 20–39.

Tan A, Bharj AK, Nizamoglu M, et al. (2015a) 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 & Healing* 1. SAGE Publications Ltd STM: 2059513115612945.

Tan A, Bharj AK, Nizamoglu M, et al. (2015b) 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 & Healing* 1: 2059513115612945.

Twoon M, Tan A and Dziewulski P (2016) Acid attacks: A growing problem in the UK. *Burns: Journal of the International Society for Burn Injuries* 42(5): 1156–1157.

Vaughan H (2024) Acid attacks and corrosive substances crimes up 75%, figures suggest. *Sky News*, 20 June. London, UK. Available at: https://news.sky.com/story/acid-attacks-and-corrosive-substances-crimes-up-75-figures-suggest-13155923 (accessed 10 July 2025).

Wacquant L (2007) *Urban Outcasts: A Comparative Sociology of Advanced Marginality*. Reprinted. Cambridge: Polity Press.

Warren J (2020) "Whatever Did Ever Happen to the Likely Lads"? Social Change, Mobility, Class, and Identity in the UK 1969–2019. *Frontiers in Sociology* 5. Frontiers.

Westekemper H, Figueiredo FC, Siah WF, et al. (2017) Clinical outcomes of amniotic membrane transplantation in the management of acute ocular chemical injury. *British Journal of Ophthalmology* 101(2). BMJ Publishing Group Ltd: 103–107.

Winter G (2021) Corrosive acid attacks. *The Bulletin of the Royal College of Surgeons of England* 103(2): 75–75.