



Discovering a Predictive Mechanism to Identify Risk and Harm in Extra-Familial Child Exploitation: Time to Reconsider the Multi-agency Child Exploitation (MACE) Response?

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Abstract

This paper examines the multi-agency identification of risk and harm in extra-familial child exploitation (CE). It explores several data prediction methods to effectively target and prevent harm. It provides a taxonomy analysis of repeat victimisation and cumulative victim harm. It also examines the relationship between age and harm and, finally, the conditional probability of repeat victimisation in exploited children.

Research Question Are the most harmed exploited children referred to Multi-Agency Child Exploitation (MACE) Panels, and what other methods exist to identify and prevent high harm in child exploitation?

Methods This is a descriptive quantitative statistical analysis using a whole population of children in a Northern English county, aged between 10 and 17 who were recorded in police data as either victims, offenders or MACE referrals between January 2017 and June 2018, encompassing 12,457 children. It utilises an 18-month study window, an 18-month follow-up and 18-month prior time censored period using data between 2015 and 2019 inclusive. This data identifies CE victims using CE flagging and additionally, offence classification with familial abuse and familial exploitation cases removed. It identifies repeat victims and those children referred to MACE for tailored multi-agency intervention. Application of Sherman et al.'s (Policing (Oxford) 10:171–183, 2016) Cambridge Crime Harm Index (CCHI) provided an analysis of harm in victimisation and offending.

Findings Exploited repeat victims (90.7%) were not referred to MACE, and there was no significant difference in the harm they sustained in the 18 months following a repeat victimisation compared to exploited children subject to MACE. The most harmed CE victim (Victim-CCHI 15,330) in the 18-month study window was not referred to MACE, nor was the highest frequency CE victim within 18 months

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(31 victimisations). Exploited victims, victim offenders and MACE children are re-victimised at a significantly higher rate than other children.

Exploited victims (73.4%) will not suffer a repeat victimisation of any kind. Forty-two percent of exploited repeat victims will have a third victimisation given a second, and this will attract additional mean victim harm of 464 (for comparison, penetrative sexual activity with a girl under 16 by an Offender 18 or over has a CCHI harm score of 365).

Conclusion Whilst MACE provides a forum to share multi-agency information, it only does so for 9.3% of exploited repeat victims. This has implications for the role and focus of MACE. Whilst several quantitative methods were explored to predict harm in CE, this research favours the use of conditional probability and harm association. By using this method, 90.7% of missed repeat victims become visible to professionals. This is essential in providing the opportunity to minimise the risk of further victimisation and increased harm that 42% of this group will have within an 18-month period. This research provides a predictive and evidence-based framework to identify exploited children at risk of further harm and victimisation.

Keywords Child exploitation · Risk · Harm · Predictive · MACE

Introduction

Recognition of Child Sexual Exploitation (CSE) as a distinct form of child sexual abuse (CSA) gathered traction in the last decade. Greater Manchester Police's investigation into CSE in Rochdale (Griffiths, 2013), Oxfordshire Police's investigation into CSE in Oxford (Bedford, 2015) and the South Yorkshire Police investigation into Rotherham CSE (Jay, 2014) raised the public and political profile of this abuse. Independent inquiries (Jay, 2014), examination by the Home Affairs Select Committee (Parliament UK, 2013), serious case reviews (Griffiths, 2013) and scrutiny from Her Majesty's Inspectorate of Constabulary (HMIC, 2013) highlighted multi-agency failings which left children unprotected and offenders able to perpetrate further harm. The government responded by designating CSA and CSE as policing priorities (CSE, Police and Prevention, 2020).

The statutory definition of CSE is contained within 'Working Together to Safeguard Children':

Child sexual exploitation is a form of child sexual abuse. It occurs where an individual or group takes advantage of an imbalance of power to coerce, manipulate or deceive a child or young person under the age of 18 into sexual activity (a) in exchange for something the victim needs or wants, and/or (b) for the financial advantage or increased status of the perpetrator or facilitator. The victim may have been sexually exploited even if the sexual activity appears consensual. Child sexual exploitation does not always involve physical contact; it can also occur through the use of technology. (HM Government, 2018:107)

Whilst not explicit in the definition, CSE is largely regarded in policing as separate from familial CSA and orchestrated through acquaintanceship rather than familial relationships. Therefore, this research excludes familial CSA.

Another abuse type which has recently gained recognition is Child Criminal Exploitation (CCE). CCE is a feature of 'county lines' where gangs and criminal networks export drugs into other areas of the UK using dedicated phone lines (Home Office, 2020). Children are employed by gangs to facilitate the distribution and storage of the drugs. CCE is defined within the Serious Violence Strategy:

Child Criminal Exploitation occurs where an individual or group takes advantage of an imbalance of power to coerce, control, manipulate or deceive a child or young person under the age of 18 into any criminal activity (a) in exchange for something the victim needs or wants, and/or (b) for the financial or other advantage of the perpetrator or facilitator and/or (c) through violence or the threat of violence. The victim may have been criminally exploited even if the activity appears consensual. Child Criminal Exploitation does not always involve physical contact; it can also occur through the use of technology. (Home Office, 2018:48).

The effects of Rotherham, Rochdale and Oxford led to many forces prioritising CE and investing resources into multi-agency teams. In 2009, guidance was issued to Local Safeguarding Children Boards (LSCB) advising effective forums for information sharing were required in CE (HM Government, 2009). Consequently, LSCB's provided direction to statutory partners, and many responded by creating multi-agency CE panels. The title of these groups include MACE, MASE (Multi-Agency Sexual Exploitation), CMET (Children Missing, Exploited Trafficked) and MET (Missing, Exploited, Trafficked). Children at high risk of exploitation are currently identified through safeguarding referrals, and professional judgement is applied to risk assessments to determine which children are referred to MACE.

MACE operates monthly with mandatory attendance by Police, Children's Social Care, Health and Education. Other agencies involved with the child should also attend, such as Housing, Mental Health and substance misuse. These panels are considered best practice; however, there is no national guidance on what cases should be referred or what the specific purpose is. Consequently, most LSCBs devised their own terms of reference and agendas. The purpose, agenda, referral criteria and mechanism to enter MACE are varied. Indeed, within the Northern County during the time parameters of this study, there was no universal standard risk assessment tool. Entry to MACE was based on the professional judgement of Police and Children's Social Care from indicators that CE was occurring such as children being reported as missing, from intelligence and vulnerable child reports or from recorded victimisations. The Northern County in this study is serviced by three different Children's Social Care Authorities which may have been a factor in the lack of standardisation in MACE entry. One of the Authorities did provide guidance stating referrals must stem from repeated CE concerns. Multiple risk assessments are used across England and Wales to screen MACE referrals;

however, as Brown et al. (2016) highlight, risk assessments in CSA are not founded on a strong evidence-base. In their analysis of risk assessments, Brown et al. (2016) found risk indicators differed across the different risk assessment tools, and some risk indicators were instead indicators of CE. Additionally, different thresholds and subjective application of risk assessment made the tools inherently problematic. Beckett et al. (2014) similarly identified concerns that different risk assessment tools produced different thresholds for intervention; they reduced professional judgement and led to different interpretations of risk across agencies. From their analysis of CE serious case reviews, Mason-Jones and Loggie (2019) highlight a lack of understanding of risk factors as a common theme, and state remedy must be made to allow early intervention and prevention. Given the inherent problems with CE risk assessments, it is important to evidentially analyse MACE to ascertain whether the most harmed exploited children are referred to MACE.

Research Question

The research question is: Are the most harmed exploited children referred to Multi-Agency Child Exploitation (MACE) Panels and what other methods exist to identify and prevent high harm in child exploitation?

With UK police forces prioritising high harm and vulnerability, it is important to evidentially assess whether practices for identifying high harm are valid, whether scarce specialist resources are used effectively and whether current working practices reduce harm. How Police and partner agencies identify and respond to CE can have a lasting impact on victims. This research addresses these key questions into this high priority and high harm area of victimisation.

Data

A whole population study approach was chosen for this descriptive study. This identified 12,416 children aged 10–17 from victim and offender records in a Northern English county between January 2017 and June 2018. Of these, $n=9089$ were solely victims, $n=2481$ were solely offenders, and $n=846$ had records showing them as both victims and offenders (victim-offender overlap group). Of these, 133 children were referred to MACE. A total of $n=174$ children were referred to MACE in this period. This included 133 from the aforementioned group and 41 children without a victim or offender record (it is possible that these children had a victim or offender record in another county or simply deemed ‘at risk’ of CE by professionals through other information available), making the total study population size 12,457.

For this population cohort of children, the data collection was then expanded to include victim and offender records between 2015 and 2019 to provide an 18-month prior and after, time censored, period.

In the ensuing analyses, the whole population cohort was disaggregated to compare differences in repeat victimisation in CE and MACE subjects compared to other

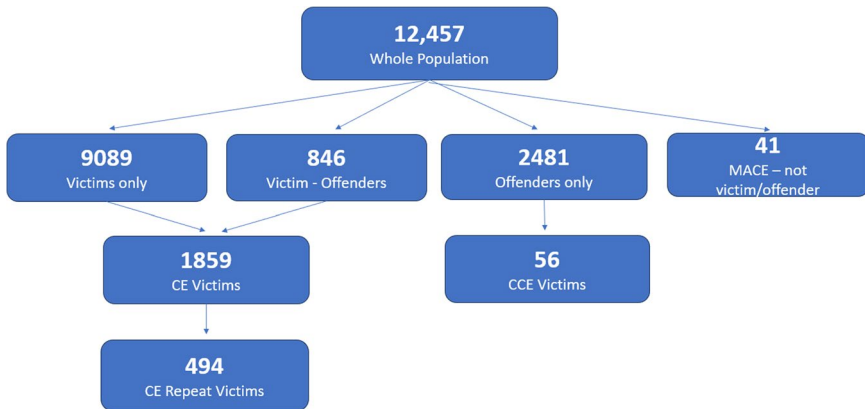


Fig. 1 Disaggregation of whole population into relevant cohorts

victims and offenders in the population. The population disaggregation is illustrated in Fig. 1.

Identification of CE Victims

This cohort of children ($n=1859$) were selected from CE flagged crimes, and crime reports determined through 23 selected Home Office offence crime classification codes associated with CE. Any crime where the offender was related to the child was removed to create a cohort of extrafamilial CE victims. Due to the complex nature of CE, offences committed by peers were included.

Identification of CE Repeat Victims

This category of children ($n=494$) was identified as experiencing a CE victimisation and any other victimisation within the 18-month window of this study.

Identification of CCE Victims

The debate on whether CCE victims are victims, offenders or both is not assisted by their presence in crime records where they mainly feature as offenders for drug trafficking and supply. The CCE victims ($n=56$) have therefore been selected from children aged 10–17 listed as offenders for drug trafficking and money laundering crimes.

Crime Harm

In recent years, there has been a shift towards harm-focused policing (Ratcliffe, 2019) where the harm to both individuals and society is considered alongside the incidence and prevalence of crime. This is replicated in the National Vulnerability

Action Plan where reduction of harm is a key component (NPCC, 2018). Sherman et al. (2016) articulate that not all harm is created equally, so whilst crime count is a useful predictor of repeat victimisation, it does not provide a detailed understanding of the level of harm experienced. This research adopts application of the Sherman et al. (2016) Cambridge Crime Harm Index (CCHI) to measure crime harm. Using CCHI application, each crime is examined to determine the sentencing starting point measured in days of imprisonment a person over the age of 18 committing this offence for the first time would receive. This provides an objective 'harm' value of that crime. This was used to identify how much harm victims sustained and how much harm offenders perpetrated.

Methods

Police data was extracted into an Excel spreadsheet, cleaned and anonymised to comply with General Data Protection Regulations. The data was exported to Statistical Package for the Social Sciences (SPSS) to enable statistical analysis to be undertaken in both SPSS and excel. A variety of statistical analytical methods were used to provide results, and each was selected through consideration of what data required comparison, the variables present and the most appropriate method.

Findings

CE Repeat Victims Referred to MACE

Between January 2017 and June 2018, 1859 children were victims of an exploitation offence. And 494 (26.6%) of those children had a further repeat victimisation of any classification (CE repeat victims) within this time. Forty-six (9.3%) of CE repeat victims were referred to MACE leaving 90.7% of CE repeat victims not referred to MACE.

Difference in Harm between CE Repeat Victims and MACE Children

Although there are differences in the harm experienced by the CE repeat victims 18 months following their repeat victimisation, the harm experienced by the MACE children 18 months after their entry to MACE and the children who were both CE repeats and part of MACE, there was no overall difference amongst these groups [$F(2,578) = 1.657, p = 0.192$]. Also, 9.3% of CE repeat victims who were also in the MACE cohort were separated in the calculation to allow an effective comparison of the two variables. This produced 448 sole CE repeat victims, 87 sole MACE children and 46 children who were both. The CE repeat victims had a mean combined CCHI score of 322 compared to 435 for the MACE children. The children who were both CE repeat victims and MACE children had a higher mean combined score of 572; however, this was not statistically significant.

MACE Cohort

Also, 68.3% of the MACE population were recorded as victims, but only 36.2% of the MACE population were the victim of a CE offence. And 23.6% were neither victims nor offenders, and 31% of the MACE children were offenders only.

Repeat Victimization

The extent of repeat victimisation in CE victims, victim offenders and MACE children using police recorded data was significantly different. Chi-square tests and odds ratios showed that CE victims were 1.8 times more likely to experience repeat victimisation (26.6%) than all victims (13.1%) ($X^2(1, n = 12,416) = 345.36, p < 0.001, OR = 1.8; 95\% CI [1.6; 2.1]$). Victim offenders were 2.8 times more likely to be repeat victimised (35.7%) in comparison to all victims (13.1%) ($X^2(1, n = 12,416) = 404.48, p = 0.001, OR = 2.8; 95\% CI [2.4; 3.3]$). MACE children were 7 times more likely to be repeat victimised (51.9%) than all victims (13.1%) ($X^2(3, n = 12,416) = 3421.44, p = 0.001, OR = 7.0; 95\% CI [4.9; 10.1]$).

Victimisation, Age and Harm

Age as an independent variable for victimisation harm was analysed to ascertain if age correlates with harm experienced and whether this was the same or different amongst the disaggregated cohorts.

As Fig. 2 demonstrates, at all ages, CE repeat victims featured in the most harmed cohort of children. Although ages 10, 11 and 13 have more victim harm associated with the CE repeat victim-offender group than the CE repeat victim group, using a *t*-test for independent samples between ages >9 and <14, this difference is not significant ($t(0.571) = 214, p = 0.569$).

Conditional Probability of CE Repeat Victimization

Conditional probability was explored as a viable method of risk identification, i.e., exploration of the percentage probability that another victimisation would occur given a previous victimisation to a CE victim, was undertaken. The maximum number of repeat victimisations in the 18-month research window was 31 with 90% of repeat victims experiencing between 2 and 6 victimisations. Figure 3 illustrates that all CE victims have a 27% chance of experiencing a repeat victimisation, yet the chance of a third victimisation occurring given two previous victimisations is 42%, and the third victimisation adds an additional mean Victim-CCHI of 464. The fourth victimisation adds an additional 1973 of mean Victim-CCHI, and the probability of a fourth victimisation given a third is 49%.

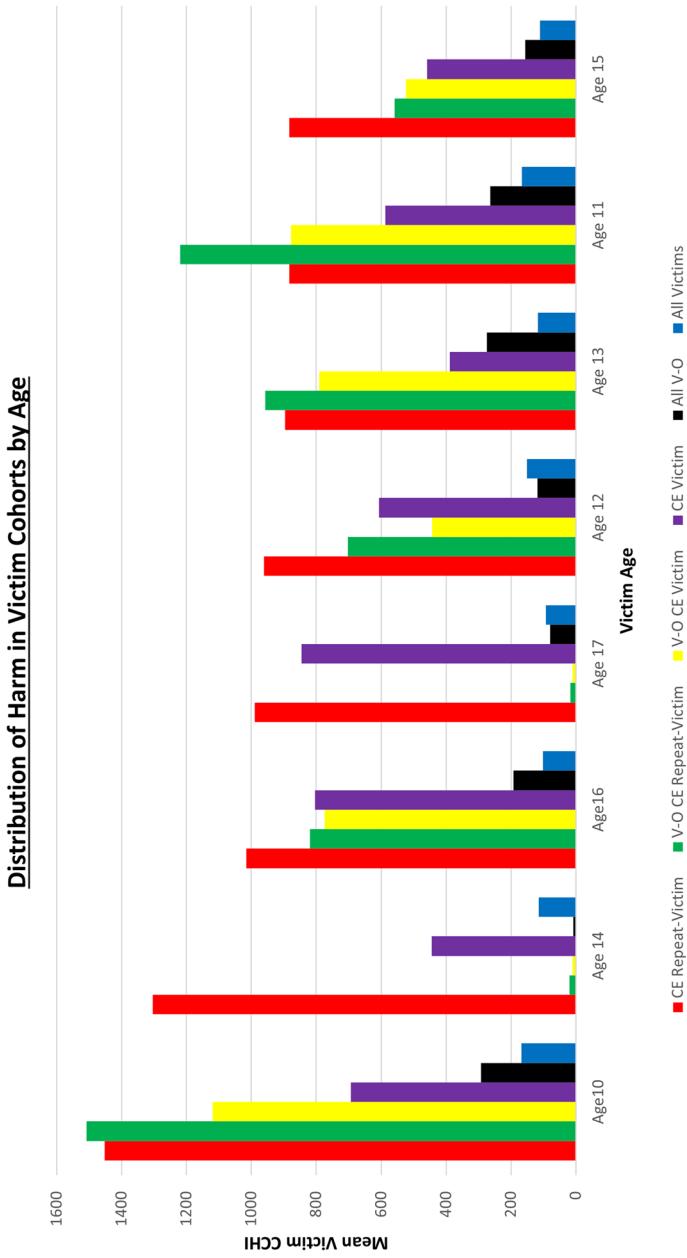


Fig. 2 Distribution of mean victim harm in cohorts by age

Conditional Probability of a Repeat Victimization given a previous with associated Mean Victim Harm

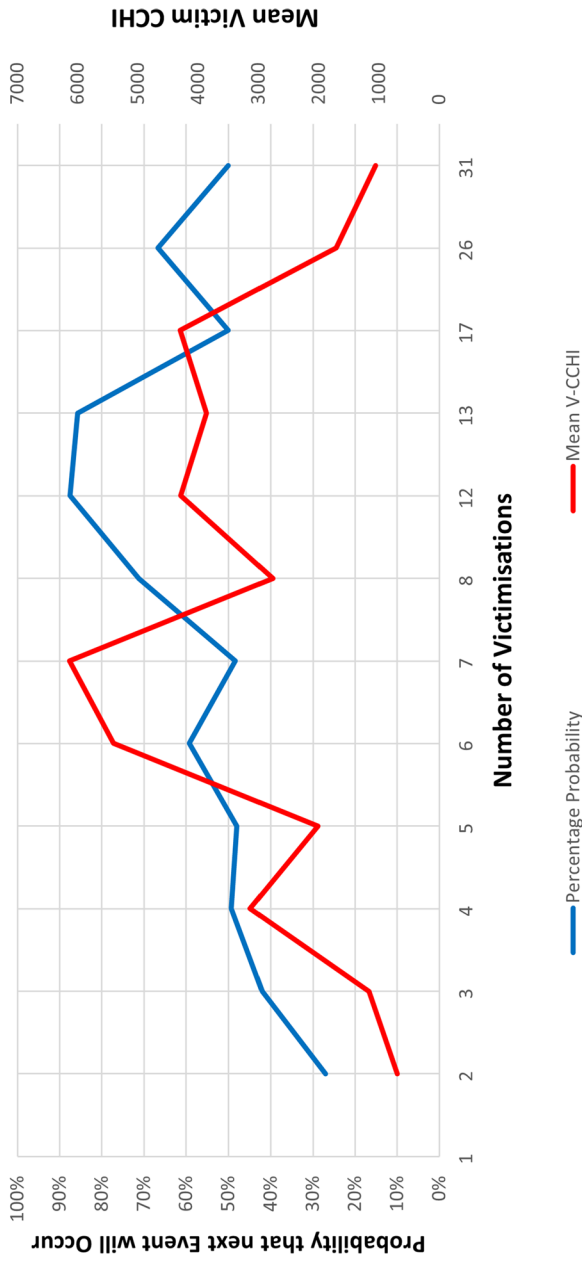


Fig. 3 Conditional probability of further victimisation of any kind given a previous victimisation in CE victims with associated mean combined harm. Note: No victims sustained 10–11, 14–16, 18–25 or 27–30 repeat victimisations. The victim experiencing 9 victimisations was removed as an outlier with a very low Victim-CCHI score of 28

Outliers

From the total population, the most harmed victim within the 18-month study was a 15-year-old female CE victim with a harm score of 15,330. She experienced six separate victimisations. Surprisingly, although MACE is created to help the most vulnerable exploited victims, she was not subject to MACE. From the total population, the highest frequency victim was a 16-year-old male CE victim with 31 victimisations within 18 months and a harm score of 1057.5, who again was not subject to MACE. MACE failed to catch the highest harmed and the highest frequency exploitation victims. Although these children were outliers, they were included in the calculation of averages as it was important to include their experience in this research.

Discussion

Repeat Victimization

Children are the most victimised group in society (Finkelhor, 2015). Finkelhor states that children experience all the crimes adults do and more due to crimes restricted to childhood such as child neglect. There is little research analysing repeat victimisation in children or in CE from recorded crime. This research shows that there is a significant difference in the rates of repeat victimisation in CE victims who are 1.8 times more likely, victim offenders who are 2.8 times more likely and MACE children who are seven times more likely to experience repeat victimisation compared to all victims. Child victim offenders are 2.8 times more likely to be repeat victims; however, there is no significant difference in the harm they experience compared to all victims. The re-victimisation rate of all children (13.1%) in this research is comparable to the repeat victim cohort (12.1%) of all victims in Dorset (Dudfield et al., 2017). It would be interesting to see comparable disaggregation of repeat victims in Dudfield's dataset to ascertain whether CE victims and victim offenders are significantly more likely to experience re-victimisation.

CE repeat victimisation requires consideration in policy formation. This research shows that CE victims and MACE victims are significantly more likely to be re-victimised within 18 months. This risk of harm continues into adulthood with child sexual abuse victims two to three times more likely to experience adult re-victimisation than those who were not abused as a child (Arata, 2006). Arata also found that repeat child victims had more symptoms of posttraumatic stress disorder. Jackson-Hollis et al. (2017) found extrafamilial child poly-victimisation to be the biggest predictor of trauma. Using self-reported victimisations, they also state that childhood victimisation is rarely an isolated event. In our study, using only recorded crime, however, 'only' 27% of CE victims went on to suffer another victimisation, a result which is somewhat discrepant from Jackson-Hollis

et al.'s (2017) finding. This difference may have arisen from the different data sources used (self-reported mechanisms versus police data) and highlights the importance of methodological considerations in research. Shorrocks et al. (2020) not only recognise the personal cost of repeat victimisation but also the cost to agency resources. A focus on repeat victims targets harm reduction, trauma mitigation and a reduction in multi-agency service use. This research advocates the consideration of repeat victimisation particularly in CE where the social and psychological effects can last a lifetime.

Conditional Probability of Further Victimization in CE Repeat Victims

The findings derived from conditional probability in this research were similar to findings yielded by Bland and Ariel (2015) in their domestic abuse analysis which found that there was a 24% chance of reporting a second incident given a first and a 44% likelihood of reporting a third given a second. Similarly, a large increase in mean harm occurred between event three and four. It is unknown whether the similarity in findings correlate to similarities these two crime types share. They are both facilitated by an imbalance of power, interpersonal complexities, vulnerability and harm. The use of conditional probability in targeting CE repeat victims at the second victimisation offers an effective opportunity to reduce CE harm due to a higher probability of a third victimisation given a second and a high increase in victim harm at the third victimisation.

MACE

The composition of children entering MACE is unexpected. And 26.6% were neither victims nor offenders; however, professional judgement indicated that these children were at high risk of CE. Also, 36.2% of MACE children were CE victims, a lower number than expected. The most harmed child was a 15-year-old female CE victim with a harm score of 15,330. She experienced six separate victimisations. The child with the highest frequency of victimisations was a 16-year-old male CE victim who amassed 31 victimisations in 18 months with a harm score of 1057.5. Neither were subject to MACE indicating referrals to MACE did not consistently assess frequency of victimisation or objective harm experienced.

There was no significant difference in harm scores between the 90.7% of CE repeat victims who were not subject to MACE and the children who were referred to MACE in the 18 months following either repeat victimisation or entrance to MACE. It may be questioned whether MACE makes a difference; however, this study cannot assess causality due to the number of independent variables that cannot be controlled. It could be argued that without MACE intervention, the MACE children may have suffered more harm than they did. Either of these positions cannot be evidentially supported, and they remain perspectives without any tangible answer. Speculation is further complicated by the repeat victimisation rates. CE victims were 1.8 times more likely than all victims to experience repeat victimisation; however,

MACE subjects were 7 times more likely. One perspective could controversially suggest that MACE may correlate with further victimisations. Are these children so vulnerable that the MACE process cannot prevent further harm? Another perspective could argue that the increased involvement with professionals in the MACE process may lead to more victimisations being recognised, reported and recorded in police data. Another point of note is that although the MACE subjects were more likely to be repeat victims, the harm they experience from these victimisations is not significantly more harmful than the CE repeat victims. Does MACE therefore prevent high harm victimisation? As before, all these perspectives remain hypotheses which cannot be evidentially answered.

Limitations

Whilst this is a comprehensive analysis, it requires acknowledgement that data used in this study is likely only part of the victimisation and offending that is occurring in this population. Bunting (2014) claims that children are largely absent from crime recording in the UK and believes that child protection referrals are better at identifying and targeting harm. However, over recent years, crime recording practices have improved significantly following scrutiny (HMICFRS, 2018), and consequently children may now be more widely represented in crime data. Another valid consideration in underreporting is the child's ability to recognise themselves as victims. Beckett and Warrington (2014) state that failure of the child to recognise victimisation is particularly evident when victims are groomed or criminal behaviour within peer groups becomes normal.

It is possible some CE offences were not captured in this data despite the double catch mechanism of flags or home office codes for record selection. Some offences such as harassment or malicious communications may be linked to exploitation; however, if a CE flag is not applied, these arbitrary crimes would fall outside of the data collection funnel. Conversely, it is possible that some CE offences included did not fully comply with the statutory definition of exploitation as it was sometimes difficult to explicitly demonstrate an imbalance of power between victim and offender and to explicitly identify what the victim needed or wanted from the perpetrator. These elements of the statutory CSE and CCE definitions were often not easy to identify or negate from reading the *modus operandi* of non-flagged cases. Nevertheless, this study has, for the first time, identified an effective mechanism to predict and, importantly, mitigate the risk of repeated CE victimisation and the harm and trauma experienced by victims.

Policy, Practice and Research Implications

This research explores areas of child victimisation and CE not previously undertaken in quantitative research. Evidential assessments of CE prevention models are non-existent, a fact also noted by Allnock et al. (2017). This is the first time a quantitative approach has been used to form an evidential and predictive

method of targeting risk and harm in all CE victims. The analysis of both CCE and CSE in this study makes it relevant to the current exploitation picture in the UK. Again, these dual strands of CE have never been studied holistically together before.

The most effective risk and harm targeting method derived from these findings is a focus on CE repeat victims using a conditional probability tool to minimise future harm. It is apparent that MACE children do not experience any less harm after 18 months than CE repeat children who do not enter MACE; however, causative factors cannot be speculated on due to the multiple independent variables that cannot be separated. Using an approach to all CE founded on conditional probability, it is possible to target CE victims efficiently and effectively. This proposal is ethical, of public interest, and importantly, it 'does no harm' (Wilcox & Hirschfield, 2007). It provides a structured response and invests resources and interventions where they are needed most. It also fulfils HMICFRS requirements on the adoption of evidence-based practice by demonstrating effectiveness, efficiency and legitimacy (HMICFRS, 2019).

Due to the important issue of underreporting in CE, MACE would be beneficial for those children displaying CE risk factors who have not yet reported victimisation. Information contained within intelligence and safeguarding reports requires proactive consideration of children who have not reported victimisation. It is also equally important to consider proactive approaches to CE offenders and locations that contribute to the facilitation of CE, of which MACE can govern. Considering that 90.7% of CE repeat victims are missed by MACE and there is no difference in harm post 18 months between these children and the MACE children, it could be questioned whether MACE is a viable and effective mechanism to manage CE. This research does not advocate the removal of MACE; however, the scope and purpose of the panel should be re-examined. This research proposes to widen the identification of CE using a two-tiered approach, one that uses conditional probability targeting repeat CE victims in recorded crime and one that uses a pro-active approach based on intelligence and information held by multi-agency professionals.

Given that there are underreporting issues in sexual offences (ONS, 2018, Taylor & Gassner, 2010) and in children and in exploitation (Beckett & Warrington, 2014), it would be unwise to rely solely on reported and recorded victimisation as a foundation for assessment and intervention. In an area of high harm and vulnerability, the possibility of unmitigated false negatives would be catastrophic for the victim, police and community confidence. MACE can fill this void by focussing on those children not yet victimised but who display a high likelihood of victimisation in the judgement of professionals. The role of MACE could be to prevent CE rather than minimise the harm caused. The void of intelligence around victim networks, offences and places of CE concern could also be filled by MACE. MACE would then be a proactive rather than reactive mechanism of prevention.

This research has important findings for police, statutory CE stakeholders and policy formation on a national level. Most importantly, the findings can make a real and tangible difference to the lives of some of the most vulnerable children in our communities. Now, there is an evidence-based framework to identify those exploited children most at risk of further victimisation and harm; there is a moral and social

responsibility to evidentially test which interventions are the most effective in reducing risk and harm in this cohort of exploited children.

Author Contribution Data was prepared, analysed and interpreted by Alisa Wilson and Katrin Mueller-Johnson. The literature review was conducted by Alisa Wilson. Alisa Wilson and Katrin Mueller-Johnson wrote the main manuscript. Alisa Wilson prepared Figs. 1–3.

Data Availability The data that support the findings of this study are available from the corresponding author upon request.

Declarations

Ethics Approval This study was approved by the University of Cambridge and the Northern English Constabulary referred to in this research.

Consent for Publication Consent to publish was obtained from the Northern English Constabulary referred to in this research.

Competing Interests The authors declare no competing interests.

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