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Adverse childhood experiences and potential pathways to filicide perpetration: A systematic search and review

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Abstract

Filicides, where children are killed by their parents or stepparents, are uncommon occurrences, which are committed by both paternal and maternal perpetrators. The aim of this paper is to explore to what extent the antecedents of filicides can be traced back to one of the factors identified within the literature – the adverse childhood experiences of the perpetrators – and what this might mean for the way that services seek to intervene to safeguard and support children in precarious situations. Systematic searches were used to retrieve relevant articles in six electronic databases: AMED, CINAHL, Criminal Justice Abstracts, Medline (PubMed), PsycINFO and SCOPUS. Key findings were that numerous studies reported significant levels of complex, multiple and sustained experiences of childhood adversity for many perpetrators, and that various potential pathways to filicide perpetration may emanate from such experiences. This review suggests that evidence-based interventions should be made readily available early in life to persons experiencing adverse childhood experiences, together with supportive services to those who become parents and carers. Such support may help prevent the compounding of adversity over time, thereby reducing the potential for risk of harm and possible tragic outcomes for their dependent children. Evidence-based interventions should be made readily available early in life to persons experiencing adverse childhood experiences, together with supportive services to those who become parents and carers. Interventions need to provide early help to children whilst also incorporating a long-term view of support. Attention to planning and co-ordination issues between varied services and practitioners can help overcome fragmentation, duplication and gaps in services.

KEYWORDS
adverse childhood experiences, filicide, intervention, perpetrators, systematic review

Key Practitioner Messages

- Evidence-based interventions should be made readily available early in life to persons experiencing adverse childhood experiences, together with supportive services to those who become parents and carers.
- Interventions need to provide early help to children whilst also incorporating a long-term view of support.
- Attention to planning and co-ordination issues between varied services and practitioners can help overcome fragmentation, duplication and gaps in services.

INTRODUCTION

Filicide is defined as the situation where 'one or more child is killed by a parent, stepparent or equivalent guardian' (Brown et al., 2018, p. viii). Filicide is an uncommon occurrence, with rates varying from 0.6 per 100,000 children under 15 in Sweden to 2.5 per 100,000 children under 18 in the United States (Putkonen et al., 2009). However, effective measurement of its prevalence is limited because few studies report country-level filicide statistics (Brown et al., 2019) and standardised data is lacking (Klier et al., 2019).

Filicides can be seen as both 'shocking' and 'inexplicable' when the person who is meant to nurture and protect a child presents the greatest risk to them (Brown et al., p. vii). Filicides are committed by both paternal and maternal perpetrators, however neonaticides ('the killing of a child on the day of birth' (p.74)), are nearly always carried out by mothers, as are filicides taking place during the first week of life, while filicides in later childhood are often perpetrated by fathers or stepfathers (Bourget et al., 2007). Emerging evidence indicates a relationship between certain factors in perpetrators' lives, including mental health problems, problematic substance use, previous experiences of violence, interpersonal relationship breakdown and potential risks for children (Klier et al., 2019).

In this paper, we seek to explore to what extent the antecedents of filicides can be traced back to one of the factors identified within the literature – the childhood experiences of the perpetrators – and what this might mean for the way that services seek to intervene to safeguard and support children in precarious situations.

To assist us in developing greater understanding of the potential contribution of childhood adversity to risks of filicide in later life, we will draw on the Adverse Childhood Experiences (ACEs) framework to systematically review the literature to explore the types of adverse childhood experiences reported by or about filicide perpetrators, and the possible 'mechanisms or pathways' (Grady et al., 2017, p. 433) leading from such adversity to filicide perpetration later in life.

The ACEs study, a large epidemiological study of almost 10,000 adults, was carried out in the mid-1990s at the Kaiser Permanente Medical Center in San Diego, California to develop understanding of how childhood adversities might affect health in adulthood (Felitti et al., 1998). In the study, experiences of childhood adversity involving child abuse and neglect and household dysfunction were found to lead to coping strategies involving risk-laden behaviours contributing to a range of significant health and social problems (Grady et al., 2017). Substantial subsequent research has reinforced the key finding that the experience of multiple ACEs is a considerable risk factor for such problems (Hughes et al., 2017), with ACEs also being associated with greater acceptance of potentially damaging parenting approaches, such as shaking babies (Clemens et al., 2020).

In relation to potential pathways, as indicated by Nurius et al. (2015, p. 144), the process of 'stress proliferation' occurs when adversity accumulates over time. Those who are made vulnerable by adverse childhood experiences are more likely, on their life journey, to struggle with further stressful episodes, for the stress burden to accumulate, to encounter social and behavioural difficulties and to have increased likelihood of mental health problems. Hence, adversities in early life are primary stressors that establish the required conditions for, and interact with, secondary stressors in the form of further adversities. These processes proliferate and link in chains of risk – one adversity leading to another – that may potentially connect ACEs and later-life outcomes.

The questions that will be used to guide this review are:

1. What is the prevalence of adverse childhood experiences in the lives of filicide perpetrators?
2. What potential pathways from these adverse childhood experiences may arise that could lead to filicide perpetration in later life?

METHODS

Retrieval and selection of articles

This review is part of a larger systematic search of literature in relation to child homicide (Frederick et al., 2019). Relevant articles in peer-reviewed journals were identified through systematic searches in six electronic databases: AMED, CINAHL, Criminal Justice Abstracts, Medline (PubMed), PsycINFO and SCOPUS. The following search terms were used to retrieve relevant articles: (homicide OR murder OR manslaughter OR filicide OR infanticide OR neonaticide OR filicide-suicide OR familicide OR fatal child abuse OR fatal child maltreatment OR death OR kill OR fatality) AND (victim OR child OR infant OR baby OR toddler OR pre-schooler OR adolescent OR teenager) AND (perpetrator OR parent OR mother OR father OR step-parent OR biological parent OR carer OR guardian OR foster-parent OR partner OR de facto OR paramour OR boyfriend OR girlfriend OR baby-sitter OR child-minder OR spouse OR

friend OR stranger OR murderer OR killer). We limited our searches to peer-reviewed articles published in English between 1st January 1990 and 31st August 2020.

A further strategy employed in this search process, as recommended by Greenhalgh and Peacock (2005), involved hand searching reference lists in filicide articles already identified to determine if there were any other relevant articles. This resulted in the inclusion of three additional articles by Simpson and Stanton (2000), Kunst (2002) and Dekel et al. (2020), which met all inclusion criteria but were not identified in the databases search.

In terms of inclusion and exclusion criteria, articles were included in our final selection only if they involved: (a) the collection of empirical data regarding (b) filicides of (c) one or more people younger than 18 years old, where (d) there was consideration of adverse childhood experiences in the lives of filicide perpetrators. Figure 1 shows the screening and selection flowchart. The first two authors carried out screening and selection by consensus, with the third author screening a subset of the papers as an additional check (no discrepancies found).

Coding and analysis

Initial coding was undertaken by the first two authors. Discussion regarding this coding then took place among all three authors until consensus was reached. Information was extracted in three domains.

First, the design and methods were recorded, including a brief description of the design and any standardised definitions and measures used. Second, we summarised the sample in relation to demographics, location and size. Third, we reviewed and summarised all eligible articles for both quantitative and qualitative evidence of adverse childhood experiences in the lives of the perpetrators and possible subsequent pathways to filicide perpetration in later life. We then mapped these experiences on to the framework of adverse childhood experiences (ACEs), as described by Dube et al. (2003), comprising:

A. psychological abuse; B. physical abuse; C. sexual abuse; D. physical neglect; E. emotional neglect; F. loss of parent; G. parental imprisonment; H. violence against mother; I. parental substance abuse; and, J. parental mental illness.

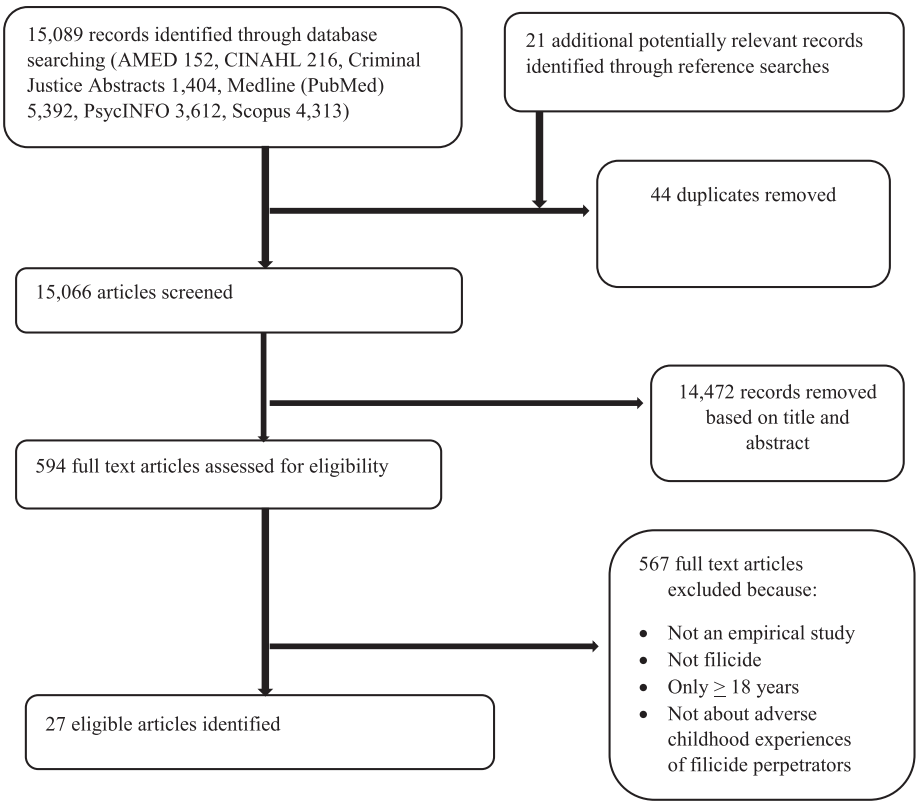

FIGURE 1 Flow chart of the screening and selection of studies

Findings

Our initial search resulted in 594 potentially eligible articles, of which 27 met our inclusion criteria. The included articles ranged from one case to 124 cases of filicide (see Table 1 for an overview). Twenty-four research designs were case series, two were case studies and one an epidemiological study. Three articles were about the same study – Dekel et al. (2018, 2019, 2020) – and another two also involved the same study – Cavanagh et al. (2005, 2007). The largest number ($N = 11$) of the included articles drew upon data from the United States; three from Finland and from South Africa; two from England, and England, Scotland and Wales as a group, and from Italy; one from Austria and Finland as a group; and finally, there were also single papers from Australia, Canada and New Zealand. There was substantial diversity among the various studies in terms of factors such as definitions, samples and research approaches, which needs to be taken into account when interpreting these findings.

Prevalence of adversity

In answer to our first question, a significant amount of childhood adversity in the lives of perpetrators was found in the reviewed studies.

These ACEs are presented below in Table 1:

Considerable levels of different forms of abusive and neglectful experiences in childhood were reported in many studies, with rates as high as 100 per cent (nine) (among males) (Eriksson et al., 2016) and 90.9 per cent (20) (Dekel et al., 2018) for emotional neglect; 81 per cent (13) (Spinelli, 2001) and 70 per cent (seven) (Kauppi et al., 2008) for psychological abuse; 74 per cent (31) for physical and/or sexual abuse (Crimmins et al., 1997); and 66.7 per cent (six) (males) for both physical abuse and physical neglect (Eriksson et al., 2016). However, some studies reported lower levels than this, such as: psychological abuse 14 per cent (six) (Crimmins et al., 1997); physical abuse 14 per cent (five) female and 13 per cent (three) male (Kauppi et al., 2010); and sexual abuse 2 per cent (one) (Cavanagh et al., 2005). As well, experiences of sexual abuse in childhood were not always specified as being experienced within the family; seven studies (Bourget & Gagne, 2002; Crimmins et al., 1997; Dekel et al., 2018, 2019; Kunst, 2002; Simpson & Stanton, 2000; Smithey, 1997) reported that this sexual abuse was perpetrated by parents; however, most did not provide this level of information.

Significant levels of familial problems were also found in many studies, for example: violence against mother 77.8 per cent (seven) (for males) (Eriksson et al., 2016) and 37 per cent (25) (Stroud, 2008); loss of parent 68 per cent (15) (Dekel et al., 2018) and 46 per cent (12) (Cavanagh et al., 2007); parental substance abuse 60 per cent (25) (Crimmins et al., 1997); and, parental mental illness 54.5 per cent (30) (Lewis & Bunce, 2003) and 33 per cent (26) (McKee & Bramante, 2010). Again, however, some studies reported lower levels than these, for instance: loss of parent 17 per cent (seven) (Crimmins et al., 1997); violence against mother 7 per cent (six) (for females) and 3 per cent (one) (for males) (Putkonen et al., 2010; and, parental mental illness 7 per cent (three) (Cavanagh et al., 2005).

In certain studies, abuse was categorised in an indeterminate way, for example, 49.1 per cent physical/sexual abuse (unspecified) (Lewis & Bunce, 2003); 38 per cent physically or sexually abused (Friedman et al., 2005), which means that precision in the findings in relation to percentages was not always possible.

As well as statistical data, some of the articles reported qualitative data which helps provide additional insight into the experiences of the perpetrators as children, with vivid descriptions of their experiences in their own words.

Regarding physical abuse in her own childhood and then her infliction of this form of abuse on her own child as a mother, Alma said:

> 'I did not know what to do 'cause I do not understand nothing about disciplining a child 'cause I was raised by my own family, how they abused me and I did not know what to do, so I took it out on my son… he wasn't breathing… I only hit him twice in the head with my hand… I did not know how to love him, 'cause I did not have, did not love myself, I did not know how to love him' (Crimmins et al., 1997, p. 58).

The qualitative data also conveyed the pain of loss and abandonment experienced by perpetrators as children; for example, Deidre, an only child, was abandoned by her mother aged eight:

> 'My mother walked away from home and she never came back. My world fell apart when she left'.

Deidre explained that her father was an alcoholic:

TABLE 1 ACEs indicators of child abuse, neglect and familial problems found among perpetrators

Study	Study aim	Design and measures.	ACES indicators
1. **Barone *et al.* (2014)** Italy $N = 23$ female perpetrators Primary focus: Female perpetrators.	Aim: to examine whether attachment theory could contribute to identifying risk factors involved in filicide.	Participants were 121 women: mothers from the normative population (NPM, n = 61), mothers with mental illness (MIM, n = 37) and filicidal mothers (FM, n = 23). Descriptive variables collected and the adult attachment interview used to assess mental representations of attachment relationships.	20 (86.9%) – B, C, F (unspecified).
2. Bourget & Gagne (2002) Canada $N = 27$ female perpetrators. Primary focus: female perpetrators.	Aim: to develop a filicide classification system using a sample of mothers who committed filicide.	A sample of 27 maternal perpetrators in an eight-year review (1991 to 1998) of all consecutive coroners' files in Quebec, Canada. Four case studies of particular perpetrators.	In the four case studies, one reports a childhood history of sexual abuse by her father and brothers for five to 10 years and in another, when the perpetrator was 12 years old, her father murdered her mother in front of her and her siblings.
3. Brewster *et al.* (1998) USA $N = 31$ male and female perpetrators. Primary focus: victim, perpetrator, family, and incident variables.	Aim: to extend the previous number of variables used to describe infanticide and identify factors that might be used to prevent infanticide.	Available investigative, birth, medical, autopsy and Air Force Family Advocacy Program records concerning substantiated cases of infanticide due to family maltreatment occurring in the US Air Force from 1989 through 1995 were independently reviewed for 58 criteria. Interrater reliability was 96%.	A, B and/or C = 23% (specific form of abuse not reported)
4. Cavanagh *et al.* (2005) England, Scotland and Wales $N = 49$ male perpetrators (within the family). Primary focus: male perpetrators.	Aim: to examine all types of murder of children by men to provide detailed evidence about the nature, context, situations and lethal intentions associated with different types of murder.	Data obtained from the Murder in Britain study containing 866 cases of men and women convicted of murder in England or Scotland. This study based on subset of cases of 90 men who were convicted of killing a child aged between one day and 15 years old at time of death. Forty-nine of the deaths were within the family and 41 outside the family.	B. 30% C. 2% F. 37% H. 28% I. 20% J. 7%
5. Cavanagh *et al.* (2007) England, Scotland and Wales $N = 26$ male perpetrators Primary focus: male perpetrators.	Aim: to examine the backgrounds of fathers who fatally abuse their children and the contexts within which these homicides occur. The type of relationship between victim, perpetrator and the victim's mother was a particular interest.	Data gathered from 26 cases of fatal child abuse perpetrated by birth and stepfathers derived from the wider Murder in Britain study. The 26 child victims were between three weeks and four years old. Quantitative and qualitative data were collected from extensive prison case files of men serving life sentences for child murder.	B. 22% C. 4% F. 46% H. 25% I. 22% J. 13%
6. Crimmins *et al.* (1997) USA $N = 42$ female perpetrators *Primary focus*: female perpetrators.	Aim: to understand homicides involving women who have killed children.	Sociodemographic variables and offence information obtained from official Department of Correctional Services records, together with life history interviews.	A.14% serious/prolonged verbal abuse B.67% witnessed or experienced serious physical harm C.50% witnessed or experienced serious sexual harm E. 64% F. 17% H.26%

(Continues)

TABLE 1 (Continued)

Study	Study aim	Design and measures.	ACES indicators
			I.60% – any substance/57% – alcohol J.7% Qualitative data involving the following ACEs: B, C
7. Dekel *et al.* (2018) South Africa $N = 22$ male and female perpetrators *Primary focus*: maternal and paternal filicide perpetrators.	Aim: to explore the adverse parent–child relationships of 22 filicide perpetrators (14 female and eight male) imprisoned for the murder of either a biological child, a stepchild or a child in their care.	Interviews conducted with a sample of 22 convicted men and women recruited from five correctional centres, based within the Western Cape Province of South Africa.	B. 50% C. 40.9% E. 90.9% emotional rejection by a parent F. 68% abandoned by a parent I. 45.45% Qualitative data involving the following ACEs: B, C, E, F
8. Dekel *et al.* (2019) South Africa $N = 22$ male and female perpetrators *Primary focus*: maternal and paternal filicide perpetrators.	Aim: to explore the context of violent experiences in the lives of 22 filicide perpetrators (14 female and eight male) including their use of and experiences of violence in their intimate and parenting relationships.	Interviews conducted with a sample of 22 convicted men and women recruited from five correctional centres, based within the Western Cape Province of South Africa.	No quantitative data on ACEs. Qualitative data involving the following ACEs: A, B, C, E, F and I.
9. Dekel *et al.* (2020) South Africa $N = 22$ male and female perpetrators *Primary focus*: maternal and paternal filicide perpetrators.	Aim: to explore the widespread and cumulative nature of violence and trauma experiences within multiple domains of the lives of 22 filicide perpetrators (14 female and eight male).	Interviews conducted with a sample of 22 convicted men and women recruited from five correctional centres, based within the Western Cape Province of South Africa.	F. 59% Qualitative data involving the following ACEs: A, B, C, E, F, H and I.
10. Eriksson *et al.* (2016) Australia $N = 14$ male and female perpetrators Primary focus: characteristics of perpetrators of child homicide.	Aim: to study the differences between maternal and paternal filicide perpetrators in relation to motivations for filicide together with adversities experienced by them in childhood and adulthood. Nine male and five female perpetrators.	Data were obtained between 2010 and 2013 in Australia through interviews with 231 male and female perpetrators of murder or manslaughter, of whom 14 (five mothers and nine fathers) had committed filicide. Comprehensive data were collected regarding upbringing, motives and contexts of the perpetrators.	B. 0% female/66.7% male D. 20% female/66.7% male E. 60% female/100% male H. 40% female/77.8% male
11. Ferranti *et al.* (2021) USA $N = 47$ female perpetrators *Primary focus*: female perpetrators	Aim: to investigate gender differences in the characteristics of psychosis and crime variables in psychotically motivated homicide.	Records of 47 women found not guilty by reason of insanity (NGRI), who were hospitalised at a large US forensic facility between January 1991 and August 2005 for a homicide offence, were reviewed. A random sample of 47 men who were committed during the same period for the same offences was selected for comparison.	B. 56% female/34% male C. 58% female/18% male
12. Friedman *et al.* (2005) USA $N = 39$ female perpetrators *Primary focus*: female perpetrators	Aim: to describe characteristics preceding the filicide and to suggest prevention strategies.	Analysis of Forensic hospital records of 39 severely mentally ill mothers adjudicated Not Guilty by Reason of Insanity for filicide.	B. 38% (physically or sexually abused) C. 38% (physically or sexually abused) F. 49% (abandoned by own mothers either by death, separation or removal from mother's custody)

(Continues)

TABLE 1 (Continued)

Study	Study aim	Design and measures.	ACES indicators
13. Haapasalo & Petaja (1999) Finland *N* = 48 perpetrators *Primary focus*: female perpetrators	Aim: to examine the life circumstances, childhood abuse and types of homicidal acts of 48 mothers who killed/attempted to kill their child/ children under age 12 between 1970 and 1996 in Finland.	Data collected from mental state examination (MSE) reports. Qualitative and nonlinear principal components analysis showed that different variables were related to neonaticide and non-neonaticide cases.	A.44% B.25% C.6% D.10% (but not specified whether physical or emotional) E.10% (but not specified whether physical or emotional)
14. Kauppi *et al.* (2008) Finland *N* = 10 female perpetrators. *Primary focus*: female perpetrators	Aim: to describe 10 cases of filicides committed by mothers who intentionally killed one or more of their children within 12 months after delivery.	Data collected from police and court records, forensic psychiatric records, autopsy reports and other medical records.	A.70% B.40% (parent alcohol dependent and violent) F.50% I.40% (parent alcohol dependent and violent) J.30%
15. Kauppi *et al.* (2010) Finland *N* = 58 male and female perpetrators. *Primary focus*: male and female perpetrators.	Aim: to show the differences between filicides involving mothers and fathers over a 25-year period. 20 male and 38 female perpetrators.	Information concerning all deaths certified as homicide or with an undetermined cause of death in Finland for children 15 years of age or younger was obtained from Statistics for the 25-year period from 1970 to 1994. A sample of 65 filicide cases was studied in depth by forensic psychiatric examination and review of collateral files.	A.67% B.14% women; 13% men F. 40% H, I and/or J. (alcohol abuse by a parent and domestic violence, as well as mental illness of a parent, were also major factors (55% of the maternal and 74% of the paternal perpetrators (breakdown not specified))
16. Krischer *et al.* (2007) USA *N* = 57 female perpetrators *Primary focus*: female perpetrators.	Aim: to examine different motivational factors, leading mothers to commit neonaticidal, infanticidal or filicidal acts in a sample of 57 women who were admitted to a psychiatric centre.	Study based on data gathered through a retrospective chart review of all filicidal women admitted to the Mid-Hudson Forensic Psychiatric Hospital in New York State between 1976 and 2000.	B, C. A history of childhood physical or sexual abuse was associated with filicide perpetration.
17. Kunst (2002) USA *N* = two female perpetrators Primary focus: maternal perpetrators.	Aim: to explore the psychodynamics of maternal filicide from an object relations perspective.	Two case studies of maternal perpetrators at Patton State Hospital, California Department of Mental Health, Patton, California.	Case 1: A, B, C, D, E, F, I. Case 2: C, E, J.
18. Lewis & Bunce (2003) USA *N* = 55 female perpetrators *Primary focus*: female perpetrators	Aim: to examine a sample (n = 55) of filicidal mothers to compare those with and without psychotic symptoms at the time of the filicide.	Clinical data gathered through retrospective chart review of filicidal women referred for criminal responsibility/competence to stand trial evaluations from 1974 to 1996 at Michigan's Center for Forensic Psychiatry.	B. 49.1% (physical/sexual abuse (not specified)) G. 49.1% (physical/sexual abuse (not specified)) J. 54.5% Qualitative data involving the following ACE: B
19. McKee & Bramante (2010) Italy N = 80 maternal perpetrators *Primary focus*: female perpetrators	Aim: to compare the demographic, historical, clinical, victim and offence/forensic characteristics of maternal perpetrators with and without severe mental illness.	Review of the records and evaluation reports of 80 mothers in Italy who had attempted or committed filicide of one or more of their children between 1967 and 2003.	A, B, C. 8% (childhood abuse (not specified)) J. 33%
20. McKee & Shea (1998) USA *N* = 20 female perpetrators. *Primary focus*: female perpetrators	Aim: to describe the demographic, historical, clinical, forensic and	A retrospective case review of all adult women charged with murdering their children who were referred to a university-affiliated forensic psychiatric hospital for pretrial evaluation of	B and C. 35% reported being sexually abused (15%), physically abused (20%) or both as children J. 45%

(Continues)

TABLE 1 (Continued)

Study	Study aim	Design and measures.	ACES indicators
	offence characteristics of filicidal women and their victims and compare these data to samples of international (Resnick, 1969), English (d'Orban, 1979) and Canadian (Bourget & Bradford, 1990) filicidal women.	their competency to stand trial and mental state at the time of offence. Each woman was evaluated by a staff psychiatrist and psychologist. Case social workers collected personal histories from records, family members, legal documents and other collateral sources.	
21. Mugavin (2008) USA $N = 1$ *Primary focus*: female perpetrators.	Aim: to develop a Maternal Filicide Theoretical Framework derived directly from the narratives of filicidal women found in peer-reviewed literature with key features confirmed by in-person interviews of women incarcerated for fatal and nonfatal abuse.	The author conducted a cross-sectional exploratory study that included a sample of 19 incarcerated women (10 who committed filicide and nine who abused their children). One case study of a filicide perpetrator was presented from the study data.	Qualitative data involving the following ACEs: F, G, I and J.
22. Putkonen *et al.* (2010) Austria and Finland $N = 124$ perpetrators -female (79) and male (45). *Primary focus*: Primary focus: female and male perpetrators.	Aim: to discover gender differences in filicide perpetrators' psychiatric diagnoses, history, and other mental health-related variables.	A nationwide register-based study covered all filicide perpetrators in Austria and Finland in 1995–2005.	H. female 7%/male 3% I. male 21%/female 13% J. male 20%/female 10%
23. Simpson & Stanton (2000) New Zealand $N =$ five female perpetrators *Primary focus*: female perpetrators.	Aim: to examine a series of selected cases to illustrate the range of issues which may be relevant in typical non-neonaticidal maternal filicides.	Series of five cases not selected to be representative from a quantitative perspective but as information-rich cases to study from a qualitative one.	A.40% B.60% C.60% D.40% E.20% F.20% G.40% H.20% I.20% Qualitative data involving the following ACEs: A, B, C, D, E, F, G, H, I
24. Smithey (1997) USA $N = 15$ female perpetrators. Primary focus; maternal perpetrators.	Aim: to identify relevant common factors that are potential social correlates of infant homicide and to incorporate them into a multidimensional, theoretical model.	Qualitative data were derived from intensive interviews with 15 maternal perpetrators. The sample was obtained from the medical examiner's office in five Texas counties that house large (population more than 400,000) metropolitan areas for the years 1981 through 1991.	No quantitative or qualitative data attributable to the adverse childhood experiences of any particular perpetrator. General qualitative data involving the following childhood adversities: A, B, C, H and I.
25. Spinelli (2001) USA $N = 16$ female perpetrators *Primary focus*: female perpetrators	Aim: to systematically investigate the clinical characteristics of 16 women charged with homicide after alleged neonaticides.	Perpetrators received a psychiatric evaluation and were administered the Dissociative Experiences Scale.	A and E. 81.25% B. 37.5% C. 56.25%

(Continues)

TABLE 1 (Continued)

Study	Study aim	Design and measures.	ACES indicators
26. Stroud (2008) England *N* = 68 male and female perpetrators *Primary focus*: 26 male and 42 female perpetrators	Aim: to explore the psychosocial factors and processes involved in the pre-offence experiences of 68 individuals charged with a child homicide or its attempt, who had been assessed by forensic psychiatrists. and the association with mental disorder.	Data collected and thematically analysed from detailed forensic psychiatric reports prepared for court, providing the context of the offence, the individual's background and psychological history based upon interviews with the individual and also on information from the depositions of family, friends and involved professionals.	B. 34% (physical and sexual abuse) C. 34% (physical and sexual abuse) D. 15% (but not specified whether physical or emotional) E. 15% (but not specified whether physical or emotional) F. 51% H. 37% (parental discord and violence)
27. Wilczynski (1995) England *N* = 48 male and female perpetrators. *Primary focus*: 20 male and 28 female perpetrators.	Aim: to provide a detailed profile of common background risk factors in cases of filicide.	Data analysis of a sample of 48 case files from the Director of Public Prosecutions in London which included all cases of homicide by a parent or parent-substitute in England and Wales referred to the DPP by police in 1984.	A.20.8% B.12.5% C. (percentage not specified) D. (percentage not specified) E. (percentage not specified) F. 29.2% (40% of males) separated from a parent G. 14.6% (family history of criminality more common among men (25%) than women (7%)) H. (witnessed parental conflict or violence – percentage not specified) J. 22.9%

Legend: A. Psychological abuse; B. Physical abuse; C. Sexual abuse; D. Physical neglect; E. Emotional neglect; F. Loss of parent; G. Parental imprisonment; H. Violence against mother; I. Parental substance abuse; and, J. Parental mental illness.

> 'My dad just wanted to drink and have his own life doing his own thing… Me and my father did not have a relationship… I needed somebody to talk to and to be there for me when I ask a question and my dad wasn't there' (Dekel et al., 2018, pp. 9, 12).

Overall, there was a clear pattern from the majority of included studies of perpetrators having had childhoods marked by significant levels of adversity.

Potential pathways to filicide perpetration

We will now consider the findings in relation to our second question regarding possible pathways to filicide perpetration in later life that may arise from these adverse childhood experiences. These include perpetrators' high levels of stress, mental illness, problematic substance use, intimate partner violence, isolation and lack of support, together with possible multiple pathways.

High levels of stress

ACEs are considered primary stressors which can then interact with secondary stressors on a person's life journey. High levels of stress among perpetrators were reported in many of the reviewed studies (Eriksson et al., 2016; Haapasalo & Petaja, 1999; Kauppi et al., 2008, 2010; McKee & Shea, 1998; Smithey, 1997; Stroud, 2008), suggesting that this may be a potential pathway. Stroud (2008) stated that virtually all the 68 perpetrators in her study of filicide perpetrators suffered stressful lives, involving both previous and ongoing stress. Kauppi et al. (2010) and McKee and Shea (1998) both found high levels of stress among female perpetrators in the period preceding and at the time of the filicide. Stress was noted in relation to childcare and childrearing (Kauppi et al., 2008; McKee & Shea, 1998), with Kauppi et al. (2008) finding that lack of support was a stress factor in 50 per cent of their sample of 10. Kauppi et al. (2010) also stated that maternal perpetrators reported experiencing severe stress caused by violent partners. Haapasalo and Petaja (1999) considered that a build-up of stress factors for some mothers had resulted in an impulsive release of repressed aggressive feelings.

Mental illness

Another possible pathway from ACEs appears to be the experience of mental illness in adult life. There were numerous reports of mental illness among perpetrators in the studies (Bourget & Gagne, 2002; Eriksson et al., 2016; Friedman et al., 2005; Haapasalo & Petaja, 1999; Kauppi et al., 2010; Krischer et al., 2007; Kunst, 2002; McKee & Bramante, 2010; Putkonen et al., 2010; Stroud, 2008; Wilczynski, 1995). In her study of 48 perpetrators, Wilczynski (1995) found that 50 per cent (14) of female and 45 per cent (nine) of male perpetrators had received prior psychiatric treatment, with 31.3 per cent (15) in total having had previous suicide thoughts or attempts. Putkonen et al. (2010) reported that, in the year prior to the filicide, 32 per cent (25) of mothers and 29 per cent (13) of fathers had requested help for mental health problems. Kauppi et al. (2010, p. 234) stated that psychosis or psychotic depression was the diagnosis in 51 per cent (19) and 20 per cent (four) of maternal and paternal cases, respectively. Further findings in this study were of personality disorder, including 'immaturity, impulsiveness, and poor control of affect', in 67 per cent (13) of paternal and 41 per cent (16) of maternal perpetrators. Haapasalo and Petaja (1999, pp. 229, 233) reported that two-thirds of the 48 maternal perpetrators in their study had 'documented psychological problems' before the incident, in particular 'depression and mood disorder symptoms'. Further, they found that three mothers who were psychotic believed that they would be saving their children from future imagined suffering by killing them. In a study of maternal perpetrators, Bourget and Gagne (2002) reported that a psychiatric motive was determined for more than 85 per cent (23), and that the majority had received prior treatment for depressive or psychotic symptoms. Friedman et al. (2005) stated that 49 per cent (19) of the mothers in their study had been patients in a psychiatric hospital, 44 per cent (17) of the maternal perpetrators had previous suicide attempts and 56 per cent (22) had planned filicide-suicides. In addition, 69 per cent (27) had experienced auditory hallucinations and 78 per cent (30) command hallucinations, often in relation to killing their children. Stroud (2008, pp. 491–492) noted in her study that the most frequently reported psychological problem was delusions, where the perpetrators' 'actions and emotions were completely influenced by delusional beliefs', predominantly 'auditory hallucinations commanding individuals to kill and delusions of persecution'.

Problematic substance use

A further possible pathway from ACEs was problematic alcohol and drug use in adult life. Substance abuse was frequently reported among perpetrators in the studies (Cavanagh et al., 2005; Eriksson et al., 2016; Friedman et al., 2005; Kauppi et al., 2010; Putkonen et al., 2010; Simpson & Stanton, 2000; Smithey, 1997; Wilczynski, 1995). Wilczynski (1995) noted that substance abuse was present among perpetrators both at the time of the incident 33.3 per cent (16) and as a longer-term problem 60.4 per cent (29). Cavanagh et al. (2005) found that alcohol abuse 38 per cent (19) and drug abuse 35 per cent (17) were features in the adult lives of many of the male perpetrators in their study, with 31 per cent (15) having been drinking at the time of the incident and 29 per cent (14) having taken drugs. Putkonen et al. (2010) stated that paternal 39 per cent (18) more than maternal 2 per cent (two) perpetrators were subject to substance abuse/dependence. However, Friedman et al. (2005) reported that 49 per cent (19) of maternal perpetrators had a history of substance abuse, but only 10 per cent (four) were actively abusing alcohol and 15 per cent (six) abusing drugs around the time of the incident. In the 24 hours before the incident, 8 per cent (three) had consumed alcohol and 13 per cent (five) drugs, but only 8 per cent (three) were intoxicated at the time (one involving alcohol and two marijuana). Kauppi et al. (2010) found that 45 per cent (nine) of paternal perpetrators abused alcohol, and that 30 per cent (six) of the fathers and 5 per cent (two) of maternal perpetrators were affected by alcohol at the time of the incident. In some cases, this problematic substance use had commenced early in life, with Simpson and Stanton (2000, p. 142) stating that one maternal perpetrator '… commenced substance abuse (alcohol, cannabis and solvents) from age 13 years'.

Intimate partner violence

An additional potential pathway from ACEs involves experiences of interpersonal violence in adulthood. There were many findings of intimate partner violence among perpetrators (Cavanagh et al., 2005, 2007; Dekel et al., 2018, 2019, 2020; Eriksson et al., 2016; Friedman et al., 2005; Kauppi et al., 2010; Smithey, 1997; Stroud, 2008; Wilczynski, 1995). Among the reviewed articles, Stroud (2008) reported that intimate partner violence was a feature in 49 per cent (33) of the cases in her study, either previously or at the time of the filicide, with Wilczynski (1995, p. 212) finding that in 18.8 per cent (nine) of her cases there had been an 'impulse or attempt' to injure another person at the time of the filicide, usually a partner. In Cavanagh and colleagues' two studies, violence against the female partner was occurring in 71 per cent (18) (Cavanagh et al., 2007) and 69 per cent (34) (Cavanagh et al., 2005) of intimate relationships. The graphic nature of this violence was illustrated in their 2007 study, where it was reported that '... he continued to treat his wife with increasing violence. Eventually her fear of him undermined her ability to report his violence. The attacks on her resulted in her nose being broken, probably on more than one occasion, her legs being cut with a Stanley knife and cigarette burns'. Friedman et al. (2005) stated that 23 per cent (nine) of the mothers who killed their child reported experiencing intimate partner violence, however this information was unavailable in 48 per cent (19) of cases. Kauppi et al. (2010) reported that male perpetrators were violent towards other family members in 45 per cent (nine) of cases, and Dekel et al. (2018) found that 50 per cent (seven) of the women in their study were beaten by their male partners.

Isolation and lack of support

Another possible pathway from ACEs concerns limited social support in adult life. Isolation and lack of personal and social support among perpetrators were commonly reported (Kauppi et al., 2008, 2010; McKee & Shea, 1998; Simpson & Stanton, 2000; Smithey, 1997; Stroud, 2008). Smithey (1997, p. 268) found that the mothers in her study 'not only had little or no emotional support, but the relationships they had with others tended to be emotionally destructive'. In certain cases, intimate partner violence was the cause of isolation:

> 'He was OK for a while, then I started feeling isolated 'cause he was keeping me stuck in the house. He would come home [angry] and take it out on me, you know, beat me. He cut off my friends and tried to cut off my family' (p. 264).

Stroud (2008) reported that participants did not have either practical or emotional support, lacked a trusted person they could confide in and were socially isolated. Wilczynski (1995) stated that perpetrators had infrequent contact, or poor relationships, with relatives or friends and did not have anyone who was practically or emotionally supportive. She added that social isolation was often severe, for example, Ray said:

> 'We never go out except to my sister's. My Mam died… [six years ago] I do not get on with my Dad… and [my wife's] parents are against us. We do not know no-one [in our area], no friends or anything' (p. 202).

Multiple pathways

It was also apparent from the findings that multiple pathways may in fact occur. To illustrate, in the case of Deidre, mentioned earlier (Dekel et al., 2018), following her experience of abandonment by her mother and the lack of a caring relationship with her alcoholic father, she reported being stabbed by her stepmother at 12 years of age and shortly afterwards she left school. She said that she withdrew socially:

> 'I was not like a social person. I was always on my own. I was never with friends' (p. 6).

She became involved in crime, was arrested for robbery and, later in life, her one-year-old baby died from neglect.

Another example of multiple pathways from abusive experiences in childhood to perpetration of filicide, is summarised from Simpson and Stanton (2000, p. 140). As a child, the perpetrator was physically assaulted and sexually abused by her father, and her mother was a victim of intimate partner violence. When she was seven years old, her father killed her mother, and she was then adopted by a maternal aunt. Her father later died by suicide in prison. In adolescence she had few friends and showed disordered conduct. At 18 years of age she entered a relationship with a man which was characterised by heavy drinking and violence. Aged 19 years, she gave birth to a daughter who required the intervention of extended family members to protect her from violence. A son was born two years later, however the marital relationship deteriorated. She became increasingly depressed and six weeks after the birth of her second child, she threw her daughter repeatedly to the floor and killed her when she would not eat her dinner. As can be seen, a significant number of ACEs are present in this perpetrator's childhood – physical abuse, sexual abuse, loss of parents, parental imprisonment and violence against mother – with a series of complex problems then arising.

A further illustration, summarised from Crimmins et al. (1997, pp.65–66) shows how the experience of losses in childhood can compound. The authors describe how, for the sample of women in their study, 'their early years were characterized by various kinds of losses that were followed immediately by gross insensitivity to their emotional needs… typically the result of inadequate parenting and a paucity of social supports'. They then 'learned maladaptive ways of coping with harm and trauma (e.g., drug and alcohol abuse)' which 'exacerbated the women's difficulties and left them vulnerable to becoming involved in additional situations of harm' with 'feelings of rage and despair' later flaring up 'into violent aggressive behaviors'.

DISCUSSION

In answer to our two research questions, we have found in this review that:

(1) adverse childhood experiences, usually in multiples, were prevalent among the described filicide perpetrators; and,
(2) potential pathways, involving serious problems including high levels of stress, mental illness, problematic substance use, intimate partner violence and social isolation and lack of support in adulthood can be traced from these childhood experiences to harmful actions towards dependent children in later life.

A key finding of this review is of the pervasiveness of ACEs among filicide perpetrators. Numerous studies reported significant and disturbing levels of complex, multiple and sustained experiences of childhood adversity experienced by many perpetrators. There are manifold and serious consequences of such experiences. As noted by Spratt (2012, p. 1577) 'multiples matter', that is, the higher the number of adversities a child experiences, the greater the likelihood they will encounter problematic outcomes in adulthood. In a substantial review of ACEs research, Hughes et al. (2017) found also that multiple experiences of childhood adversity are a significant risk factor for numerous negative outcomes for children in the next generation, particularly in relation to violence, mental illness and substance abuse. Thus, not only are poor outcomes as adults more likely for the individuals who experience ACEs, but there are increased risks for their children.

The second major finding is the delineation of various potential pathways to filicide perpetration which can emanate from the experience of ACEs on the part of the perpetrators. These possible pathways are closely aligned with the negative consequences of multiple ACEs. Early experiences of adversity are primary stressors which can interact with secondary stressors later in life (Nurius et al., 2015), as well as impair a person's response to stress (Merrick et al., 2017). Bourget et al. (2007) report significant levels of life stressors among both male and female filicide perpetrators. Given

the pernicious outcomes for both adults and children that result from their experiences of adversity, several of the included research studies have sought to examine how traumatic experiences may affect parenting practices and parenting stress (Lange et al., 2019). In their study of women receiving therapy for trauma, Lange et al. (2019) showed that the experience of greater numbers of ACEs early in life by a mother is positively associated with a mother's present parenting stress, with this association following a dose–response relationship. Subjective feelings of stress appear to be exacerbated by the childhood adversity experienced by filicide perpetrators resulting in their inability to cope with life's demands, including the compromising of their role as a parent.

There is a strong body of evidence linking adversity in childhood to later mental illness (Hughes et al., 2016, 2017; Jones et al., 2018; Mongan et al., 2019; Varese et al., 2012). In turn, individuals who experience mental illness are overrepresented among filicide perpetrators (Stroud, 2008). In a nationally representative sample in England and Wales, Flynn et al. (2013) found that 40 per cent (119) of filicide perpetrators had a history of mental health problems, with mothers 66 per cent (67) more likely than fathers 27 per cent (52) to have such a history, as well as symptoms at the time of the incident (53% (42) vs. 23% (22)). It has also been noted that some parents have had mental illnesses which were not being treated or managed (McKee & Shea, 1998), with Flynn et al. (2013) finding that only 20 per cent (58) were receiving mental health services, and just 12 per cent (35) within 12 months of the incident. In certain cases of filicide, even when under the care of services, the potential harmful consequences of a parent's mental illness for their children were not considered (Brandon et al., 2012).

Problematic substance use is strongly associated with the experience of ACEs (Hughes et al., 2017). In the original ACEs study (Felitti et al., 1998), when comparing individuals with ≥4 childhood exposures to ACEs to those with none, odds ratios for developing alcoholism were 7.4 and for injected drug use were 10.3. Dube et al. (2003) also reported that the number of ACEs an individual is exposed to has a strong graded relationship to later drug use problems and drug addiction. In turn, substance abuse has been clearly linked to filicide, both as a long-term problem and at the time of the incident, especially among male perpetrators (Cavanagh et al., 2005, 2007; Kauppi et al., 2010; Putkonen et al., 2010).

Extensive evidence of family violence, towards partners as well as children, was also apparent in the studies. It is widely believed that violent behaviour develops in childhood and that if children witness violence and abuse between their parents, they are likely to reproduce this behaviour in an 'intergenerational cycle of violence' as adults. In a recent review of the literature, four studies were found that tracked children's development from birth into adulthood. 'These show that severity, duration/chronicity, timing of the exposure to intimate partner violence and co-occurrence with other types of abuse influence the potential pathways from childhood exposure to adult experiences' (Radford et al., 2019, p. 9). The connection between filicide and intimate partner violence is shown in a study of filicide in Australia between 2000 and 2001 and 2011 and 2012, where 30 per cent (57) involved previous intimate partner violence, including violence perpetrated by and/or experienced by the perpetrator (Brown et al., 2019).

Many examples of personal isolation and lack of social support were also evident in the reviewed articles. ACEs have been found to have disruptive social consequences including negative effects on social development and social support (Kwong & Hayes, 2017) and to be a risk factor for interpersonal difficulties in adult life (Poole et al., 2018). A connection has been noted between intimate partner violence and isolation (Smithey, 1997), which has also been found in a number of other circumstances involving filicide (Sidebotham et al., 2016). This illustrates how certain factors and potential pathways can overlap and interact.

In trying to develop an understanding of such a complex phenomenon as filicide, it is important to consider that any possible pathways may in fact be multiple, and not necessarily mutually exclusive (Haller & Chassin, 2014). Sidebotham et al. (2016) have noted the 'accumulating risks' produced for children where a complex blend of parental risk factors, such as problematic substance use, family violence and mental illness, as well as adverse childhood experiences of the parent, are present (p. 238). In relation to ACEs, Jones et al. (2018) report that possible pathways through which they exercise influence are both complex and multiple, and also direct and indirect, but are consistent with the concept of stress proliferation which is likely to cascade progressively through a person's life damaging both health and functioning, highlighting the 'long and complex reach of early life adversity' (p. 38).

Pathways probabilistic rather than inevitable

Some caution is required in drawing inferences from these reviewed studies, however, because, as Sroufe (2013) indicates, potential pathways from early adversity are probabilistic rather than inevitable, and our review did not allow for determining causality. There is also emerging evidence of the moderating impact of positive childhood experiences as a counterweight to adversity in childhood (Baglivio & Wolff, 2020). Regarding harmful parent–child relationships, Dekel et al. (2018, p. 15) observe that adverse experiences of parents in their own childhoods are 'neither necessary nor sufficient to trigger the onset of violent behaviour'; however, the participants in their study of filicide perpetrators clearly

demonstrated an 'intergenerational cycle of adverse parenting patterns'. According to Stroud (2008), while susceptibility to psychological and relationship problems can be improved in later life by supportive interpersonal experiences, there was usually an absence of such positive occurrences in the lives of the perpetrators that she studied.

Policy and practice implications

This review identifies the salience of carefully considering adverse childhood experiences in the lives of filicide perpetrators and the contributions they may have made to the later tragic deaths of children. We have seen that damaging experiences of the perpetrators in their own childhoods are manifest, and these may have problematic consequences in their adult lives, particularly regarding risks for their own dependent children. In order to intervene in such complex processes across generations it is necessary to consider the importance of providing early help to children, whilst also incorporating a long-term view of support. As stated by Frederick et al. (2021, p. 3019), interventions need to take account of the 'genealogy of underlying causes' which tend to elongate the distance between adverse experiences and later effects.

According to Howe (2005), the key elements of effective strategies with vulnerable children and parents are that these interventions need to take place frequently; over the long-term; in a supportive atmosphere; provide feedback to parents; and, address parents' own attachment histories. Most importantly, early interventions need to take place to achieve the greatest effect. This view is endorsed in a recent study of intergenerational child abuse by Armfield et al. (2021) who recommend that where high risk of child abuse is present, interventions for children and families need to involve effective trauma-based programmes, provided early in life, before sequelae develop. The National Institute for Health and Care Excellence (NICE) in the UK recommends attachment-based intervention and child–parent psychotherapy as evidence-based approaches which should be readily available and routinely offered to all parents and carers of children under five years of age who have experienced any one of a range of childhood maltreatments (NICE, 2017).

In relation to parental risks such as problematic substance use and family violence, their nature is such that they can take place over lengthy periods of time, thus requiring interventions that move away from incident-based, episodic models to those involving long-term support (Sidebotham et al., 2016). Similarly, local attention to planning and co-ordination issues between varied services and practitioners can help overcome fragmentation, duplication and gaps in services in relation to the complex needs of vulnerable families (Sidebotham et al., 2016). It is also vital that adult services, such as mental health organisations and medical practitioners, together with court and legal services, are cognisant that many of their clients are parents and that they carefully attend to any potential safety concerns in relation to the children of these clients (Brown et al., 2019).

Limitations

This review has some limitations. The searches were originally designed to consider only peer-reviewed papers and, while this provides a form of quality control, it may preclude certain research which could appear in grey literature. However, further research into adverse childhood experiences in the lives of filicide perpetrators could consider such material. Another limitation is that it is possible that our searches may not have picked up adverse childhood experiences which were reported in an article but not mentioned in the abstract or title. Further, the identified studies varied considerably in relation to definitions, samples and research approaches, restricting comparability. In this regard, some included particular types of samples, for example, those where high rates of mental illness would be expected, such as patients in psychiatric hospitals. Additionally, some studies paid a certain amount of attention to the childhoods of perpetrators, whereas others dealt with this aspect incidentally and briefly, yielding only circumscribed information. Indeed, some information on ACEs provided by filicide perpetrators may not be able to be independently verified and may be influenced by subjective recall. Lastly, all systematic reviews are limited by decisions made regarding scope and design, such as the inclusion of only English language papers.

CONCLUSION

In this review, we found that adverse childhood experiences were prevalent among filicide perpetrators and that potential pathways can be tracked from these distressing and traumatic experiences to the deaths by filicide of dependent children in later life. Widespread experiences of abuse and neglect, together with evidence of substantial family-based problems, created vulnerability to negative psychosocial and behavioural outcomes among many perpetrators in childhood, with chains of risk linking these adverse experiences to tragic outcomes in adult life. This highlights the potential for adversity in childhood to reach forward and cause harm for another generation.

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