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Who are the Perpetrators of Child Maltreatment?

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Executive Summary

The National Framework for the Protection of Australia's Children 2009-2020 has emphasised the need for effective prevention of child maltreatment as well as multi-tiered interventions. To date, victims of maltreatment have received more research attention than perpetrators, resulting in limited knowledge regarding heterogeneity of perpetrators and trajectories of perpetration over the life-course. The aim of this research project was to shift attention from the victims of child maltreatment to the perpetrators of maltreatment, thereby contributing to efforts to stop maltreatment at its source. Therefore, the focus of this study was maltreatment perpetration by a cohort of individuals born 1983 and 1984. The data were administrative records reflecting individuals' substantiated contacts with the Queensland child protection system as perpetrators from the age of 10 years to 30 years. The results of this study provide a life-course profile of maltreatment perpetrators and explore perpetration heterogeneity with reference to age, gender, race, perpetrator-victim relationships and maltreatment characteristics.

The results of the study were reported in two sections: *Descriptive data* and *Group-based trajectory analyses*. The descriptive data show that by the age of 30 years, 3,217 distinct perpetrators born in 1983 or 1984 were responsible for 11,131 child maltreatment substantiations (M = 3.5, SD = 3.8) of harm towards 6,464 children (M=2.2, SD=1.4). These substantiations were recorded across 6,377 distinct events (M=1.98, SD=1.7) in Queensland. The maximum number of substantiations for any one individual was 39, and the maximum number of events for any one individual was 20. The mean age at first substantiated perpetration was 23.19 years (SD = 4.11).

Almost 60 percent of perpetrators had a single maltreatment event (one contact with the children protection system), meaning over 40 percent of perpetrators were recidivists (multiple contacts with the child protection system). Overall, neglect (38.5%) was the most common maltreatment type (hereinafter referred to as 'harm type'), followed by emotional abuse (38%), physical abuse (20.9%) and sexual abuse (2.6%). Importantly, multi-type maltreatment was common (35% of distinct substantiations had more than one harm type flagged, and just over half of all perpetrators were substantiated for more than one harm type over the observation period). Most perpetrators (83%) had only one perpetrator-victim relationship across all substantiations, with the most common relationship type indicating perpetration against a biological child (78.5%). Over 40% of perpetrators had a single victim, together accounting for about 17% of all substantiations. In contrast, a small percentage of perpetrators (3.2%) had six or more distinct victims, accounting for a disproportionally high percentage of substantiations by the cohort (12.4%).

There were important patterns noted in relation to gender and Indigenous status. Overall, Indigenous and non-Indigenous females had more substantiations (M=3.97, SD=4.21) than Indigenous and non-Indigenous males (M=2.82, SD=3.00). However, Indigenous females (M=5.01, SD=4.77) had more substantiations than non-Indigenous females (M=3.65, SD=3.97). Across substantiations by females, neglect was the most common harm type followed closely by emotional abuse, with sexual abuse being uncommon. Across substantiations by males, emotional abuse was the most common harm type, followed by physical abuse and neglect, with sexual abuse being the least common (albeit more common for males than females). These gender patterns were consistent across Indigenous and non-Indigenous perpetrators.

The group-based trajectory analysis provided additional illustration of heterogeneity in maltreatment perpetration over the life-course, with four distinct trajectories of perpetration identified based on the timing and frequency of maltreatment events when perpetrators were aged 10 to 30 years. Characteristics of perpetrators assigned to these trajectories were explored, extending the earlier descriptive results.

Groups 1 (N=1,152, 35.8%) and 3 (N=1,689, 52.5%) contained the largest proportion of perpetrators and accounted for a proportionately large percentage of events and substantiations. On average perpetrators in Group 1 had contact with the child protection system during their early 20s. Female perpetrators in this group overwhelmingly perpetrated against their own biological children, and their harms were predominately attributable to neglect and emotional abuse. Male perpetrator harms were largely attributable to emotional abuse, followed by physical abuse and neglect. In this group, on average, over half of each male's perpetration related to their own biological children.

On average, perpetrators in Group 3 had contact with the child protection system across their mid-to-late 20s, and had a higher average number of victims compared to Groups 1 and 2. Largely consistent with the overall cohort of perpetrators, there were more females than males in this trajectory group. Harms by female perpetrators in Group 3 were predominately attributable to neglect and emotional abuse, and overwhelmingly perpetrated against their own biological children. Harms by male perpetrators were predominately attributable to emotional abuse, followed by physical abuse and neglect, and predominately perpetrated against their own biological children followed by their non-biological children.

Groups 2 (N=275, 8.5%) and 4 (N=101, 3.1%) were notably different from the general cohort. Group 2 was typically characterised by adolescents who had contact with the child protection system for a short period of time and were responsible for a relatively small proportion of substantiations and events in the dataset. Non-Indigenous males were mildly overrepresented in this group. A particularly high mean proportion of harm by males in this group was attributable to sexual abuse compared to other groups, followed by physical and emotional abuse. For male perpetrators in this group, perpetrators were most often an "other child", with the next largest mean proportion sharing an "unknown" relationship with their victim. Only 20 percent were biological parents. Female perpetrators in this group were predominately biological parents of their victims, and similar to other female trajectories predominately perpetrated neglect, followed by emotional abuse.

Group 4 was characterised by a "chronic" maltreatment trajectory, meaning perpetration spanned a considerably longer period for this group compared to the other groups. On average, perpetrators in this group onset during adolescence and continued throughout young adulthood. Females, especially Indigenous Australian females, were overrepresented in Group 4. Harms by female perpetrators in Group 4 were predominately attributable to neglect and emotional abuse, though most were also responsible for at least one substantiation of physical abuse. Harms by male perpetrators in Group 4 were attributable to all harm types, with the largest mean proportion attributable to emotional abuse, followed by physical abuse, neglect and sexual abuse. However, just 13 males were classified into this trajectory group.

The longitudinal methodology employed in this study had clear benefits over more common cross-sectional methodologies, particularly in relation to illustrating considerable heterogeneity of perpetrators and their perpetrations over time. The results have important

implications for policy. Taken together, the results demonstrate that a reasonable proportion of maltreatment perpetrators have more than one contact with the Department, indicating multiple opportunities for perpetrator-focussed intervention efforts. Similarly, a generous proportion of perpetrators had multiple victims, indicating considerable need to effectively intervene with perpetrators. Indigenous Australians are over-represented both in terms of prevalence of maltreatment perpetration and the extent of substantiations and events. The results indicate that different types of interventions may be appropriate for perpetrators based on their maltreatment perpetration pathway, and that a multi-tiered approach to intervention is required.

There is an ongoing need for additional longitudinal research using maltreatment perpetrators as the unit of analysis. Future research should explore factors associated with the broader developmental system of perpetrators at various points along perpetration trajectories. This would assist identification of changing risks and needs across perpetrators and time, which may further inform the targeting of existing interventions, and development and implementation of others.

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Introduction and Literature Review

Preventing maltreatment and ensuring the safety of children is a challenge for all governments (Council of Australian Governments, 2009). Though a growing body of research has provided some insight into the risks, needs, experiences and outcomes of maltreated children, there is comparatively far less Australian or international research that focusses on the "perpetrators" of child maltreatment (McDonald, Higgins, Valentine, & Lamont, 2011). Longitudinal data on maltreatment "perpetrators" is particularly limited (McDonald et al., 2011). The current dearth of longitudinal research depicting maltreatment "perpetrators" and their "perpetration" over time has resulted in limited insight into the typical onset, duration and characteristics of "perpetration" over the life-course, as well as limited understanding of whether risks and needs differ across "perpetrator" pathways; particularly in relation to child protection responses. These limitations translate to reduced opportunities for prevention and early intervention. The aim of this research project is to shift research attention from the victims of child maltreatment to the "perpetrators" of maltreatment, thereby helping to target child protection resources to stop maltreatment at its source. Consistent with this aim, this study examined maltreatment "perpetration" by a cohort of individuals born in 1983 and 1984, focussing on their substantiated contacts with the Queensland child protection system as "perpetrators" between the ages of 10 and 30 years. The cohort is used to develop a life-course profile of maltreatment "perpetrators" and their "perpetration" until young adulthood, and to explore heterogeneity among "perpetrators" and their "perpetrations" over time.

Why Focus on "Perpetrators"?

Child maltreatment is a nationwide issue. Currently the Australian federal government is conducting the *Royal Commission into Institutional Responses to Child Sexual Abuse.* Commissions of inquiry have also been held in many Australian jurisdictions. For example, in Queensland the Government completed *The Queensland Child Protection Commission of Inquiry*, which reviewed the progress of two earlier inquiries, the 1999 *Commission of Inquiry into Abuse of Children in Queensland Institutions* and the 2004 *Protecting Children: An Inquiry into Abuse of Children in Foster Care.* By multiple accounts, child maltreatment appears to be increasing.

The latest Report on Government Services indicates that the national rate of child maltreatment substantiations has increased by 29% over the past 5 years from 6.2 per 1,000 children in 2010/2011 to 8.0 per 1,000 children in 2014/2015 (i.e., 31,527 to 42,457 substantiations). An increase was found across most jurisdictions. The reported increase may reflect a multitude of factors, including changing reporting patterns and a greater community awareness of child maltreatment, rather than a real increase in the number of maltreated children. Regardless of the underlying reasons for the increase, the national total recurrent expenditure on child protection, out-of-home care, family support services and intensive family support services increased to $4.3 billion in 2014-15, representing a real increase of $472.5 million since 2010-11 (SCRGSP, 2016). It is imperative that child protection resources are effectively targeted to ensure the safety of Australian children.

It is widely acknowledged that many families involved with the child protection system are overwhelmingly "vulnerable" (Council of Australian Governments, 2009). The term "perpetrator" may seem emotive and loaded, but is not intended to vilify or cast blame in this study. The use of the term "perpetrators" is evident is some existing literature (e.g., Jonson-

Reid et al., 2003). In some cases, the term "perpetrators" could be easily interchanged with "vulnerable parents". The term "perpetrators" could also be more generally replaced with the term "maltreaters"; although either option is limited by the reality that much maltreatment is characterised by parental omissions as opposed to commissions, and "risk of harm" to a child rather than "actual harm" (Child Family Community Australia, 2015). Regardless, it should be acknowledged that the overwhelming focus on "victims" rather than "perpetrators" in the child maltreatment literature base is seemingly unparalleled in modern-day criminology.

An important assumption underlying this study is that redirecting research attention to the perpetrators of maltreatment will facilitate the targeting of child protection resources on the basis of perpetrators' risks and needs. Intervening with perpetrators provides the best opportunity for primary prevention of child maltreatment, which is a central goal of the National Framework for Protecting Australia's Children 2009-2020 (Council of Australian Governments, 2009). This study advocates the need to expand current knowledge of perpetrators, to improve interventions that stop maltreatment at its source. An increased capacity to assess risks and needs of perpetrators will ensure better outcomes for vulnerable families. This study contributes to four of the six supporting outcomes of the National Framework, namely: Children and families access adequate support to promote safety and *intervene early* (Supporting outcome two), *Risk factors* for child abuse and neglect are addressed (Supporting outcome three), Indigenous children are supported and safe in their families and communities (by exploring overrepresentation of Indigenous perpetrators and differences between Indigenous and non-Indigenous subgroups; Supporting outcome five) and Child sexual abuse and exploitation is *prevented* and survivors receive adequate support (Supporting outcome six) [emphasis added] (Council of Australian Governments, 2009).

Theoretical Framework

Developmental and Life-Course Criminology (DLCC) is the primary theoretical framework of this project. DLCC seeks to explain continuity and discontinuity in antisocial and criminal behaviour across the life-course, with a particular focus on the impact of risk factors (factors that increase risk of offending), protection factors (factors that decrease risk of offending) and life events (Farrington & Loeber, 2013). Trajectories of antisocial behaviour, meaning broad behavioural patterns over time, are of particular interest in DLCC (Sampson, Laub, Glueck, & Glueck, 1995); therefore, temporal longitudinal data are typically preferred (Le Blanc & Loeber, 1998).

Existing research using the DLCC framework has highlighted varying trajectories of general criminal offending and antisocial behaviour, and different intervention points for each (Allard et al., 2014). Guided by DLCC, a key point of interest in this project is understanding trajectories of maltreatment perpetration, including consideration of the onset, frequency, duration and type of maltreatment by perpetrators across the life-course, and varying points for intervention with perpetrators. DLCC highlights the impact of the broader developmental system on individual offenders (Tanner-Smith et al., 2013), and assumes variability will be evident across perpetrators as a function of numerous factors including, but not limited to, age, gender and race (Farrington & Loeber, 2013). Variations across gender and race are considered in this project.

The primary goal of DLCC is the development of effective crime prevention and intervention methods, especially early intervention (Tanner-Smith, Wilson, & Lipsey, 2013), which aligns well with the National Framework's emphasis on primary and secondary prevention of child maltreatment (Council of Australian Governments, 2009). Though research on maltreatment

perpetrators would ideally consider the broader system surrounding perpetrators, and changing risks and needs across perpetrators, over time, the first requirement is to explore longitudinal data to determine perpetrator contacts with child protection services and heterogeneity, particularly in relation to gender, race, perpetrator relationships and maltreatment characteristics. A longitudinal consideration of perpetrator trajectories over time assists identification of potential points for the direction of intervention efforts. This research can inform future efforts aimed at understanding changing risks and needs across perpetrators over time.

What is Child Maltreatment?

There are four generally accepted subtypes of child maltreatment: Sexual abuse, physical abuse, emotional abuse and neglect (Child Family Community Australia, 2015). Though some researchers and child protection systems consider exposure to domestic violence to be a separate fifth subtype of maltreatment, it is also commonplace for exposure to domestic violence to be classified as emotional abuse or neglect (Child Family Community Australia, 2015). To date there are no universally accepted definitions of maltreatment subtypes. This lack of consensus is attributable to a range of factors including variations in cultural norms, inconsistent acknowledgment of maltreatment dimensions (such as timing, severity, frequency and perpetrator-victim relationships), disagreement over the importance of perpetrator intent versus harm outcomes, and variations across jurisdictions in relation to legislation, policy and system responses (Child Family Community Australia, 2015).

Each state and territory across Australia has a separate and distinct child protection system driven by legislation that is unique to that state or territory. These variations in legislation and system functioning can create variations in processes around maltreatment notifications and substantiations, which in turn, result in differences in administrative data collected across these systems (Australian Institute of Health and Welfare, 2016). As this study utilises administrative data from the Queensland child protection system, research definitions in this study are derived from the *Child Protection Act 1999* (the key legislation from Queensland governing the sample in this study) and departmental definitions from the Queensland Department of Communities, Child Safety and Disability Services. This study necessarily relies on departmental classifications to determine the maltreatment types attributable to perpetrators. Key variables are described further in the *Methodology* section of this report. Finally, there is growing awareness that many children experience multi-type maltreatment (more than one subtype of maltreatment) over their life-course (Price-Robertson, 2013), and many perpetrators are responsible for more than one type of maltreatment over time (Jonson-Reid, Chung, Way, & Jolley, 2010; Jonson-Reid, Drake, Chung, & Way, 2003; Thornberry et al., 2014). To ensure comparability, perpetration of multi-type maltreatment is a key point of interest in this study.

Who Are The Perpetrators of Child Maltreatment?

In Australia, data on who abuses children is limited (Child Family Community Australia, 2014). This is reflected in the findings of a recent audit of research relating to the protection of Australian children (McDonald et al., 2011). McDonald et al. (2011) identified 1,359 research projects undertaken over a 15-year period on topics relating to the protection of children. Of these 1,359 research projects, only 26 (4.0%) projects focused on the *perpetrators/offenders of child sexual abuse*, and there were not enough projects addressing perpetrators/offenders of any *other* forms of maltreatment to warrant a separate category. They also found that there were only a small proportion of projects (n = 16, 2.4%) that addressed the issue of *characteristics of abusive families/parents* (e.g., characteristics of

young people who sexually abuse their siblings, characteristics of families that may contribute to a breakdown in care, or step-parents as perpetrators of child physical abuse).

A key reason for this research deficit is information about perpetrators is often not routinely collected and reported (Child Family Community Australia, 2014). The 'family type' of the victim is typically reported in reports using national child protection data (Australian Institute of Health and Welfare, 2016). In their discussion paper, Hunter and Price-Robertson (2012) noted that research examining whether some family structures expose children to a higher risk of child maltreatment has produced ambiguous and conflicting results. By comparing national child protection administrative data and population data from the Australian Bureau of Statistics, Hunter and Price-Robertson (2012) noted that certain family types were over-represented in the maltreatment data. Just over 32 percent of maltreatment substantiations came from intact two parent families (which made up 73 percent of Australian families at the time; defined as families in which children are the biological or adopted children of both parents). Sole-mother families were identified in just under 34 percent of maltreatment substantiations but comprised 17 percent of Australian families. Step or blended families generated 15 percent of substantiations from 7 percent of Australian families. Finally, sole-father families comprised 3 percent of the population and 4.5 percent of substantiations. However, these authors noted that such comparisons should be interpreted with caution due to serious methodological limitations of the child protection data, including data collection inconsistencies, and the possibility that some maltreating families may be more likely than others to be reported to child safety services (Hunter, 2012).

To provide an overview of current knowledge of maltreatment perpetrators, relevant international and national literature is addressed in three subsections to follow: (1) *The importance of gender, perpetrator-victim relationships, age, and race*; (2) *What do we know about recidivism by maltreatment perpetrators*?; and (3) *Data specific to perpetrators in Queensland*, respectively.

The importance gender, perpetrator-victim relationships, age, and race.

Fortunately, some systems have shown improvement in relation to the degree of information collected and reported on maltreatment perpetrators (U.S. Department of Health & Human Services, 2016). US administrative data from the National Child Abuse and Neglect Data System (NCANDS) (U.S. Department of Health & Human Services, 2016) indicate that the majority of perpetrators (92.9%) across child protection systems in the US had a single report in the year 2014, and 6.7 percent had two. A small percentage of perpetrators (.5%) had three or more reports in the single year. Across all unique perpetrators 61.5 percent had a single victim, while 22.5 percent had two victims. A small percentage (16%) had three or more victims in a single year. Though nationwide perpetrators could be as young as 6 years of age, in the NCANDS report only perpetrators 18 years or older were incorporated in the full count, resulting in a perpetrator age range between 18 and 75 years. Most recorded perpetrators (83.2%) were between 18 and 44 years of age, with the highest rate (5.0 per 1,000 adults) aged 25 to 34 years. Just over half of all perpetrators were female (54.1%). Most perpetrators (78.1%) were the parent of the victim, and a small percentage shared multiple relationships across their victims (4.1%). Consistent with proportions of victims, the largest proportions of perpetrators were White (48.8 percent), African-American (20%) and Hispanic (19.8%). Importantly, rates of victimisation using child data indicate racial disproportionality in the child protection system. African-American children were victimised at a rate of 15.3 per 1,000 children, Hispanic children at a rate of 8.8 per 1,000 children, and White children at a rate of 8.4 per 1,000 children.

Comparative US data are reported in the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4; Sedlak et al., 2010), which extends beyond child protection administrative data to include data from professionals who have contact with maltreated children in the course of their work (Sedlak et al., 2010). Data from NIS-4 indicate that when all maltreatment types are considered together, 11 percent of maltreated children had a perpetrator under 26 years of age, 35 percent had a perpetrator aged 26 to 35 years of age, and 38 percent had a perpetrator over 35 years of age (perpetrator age was unknown for 18 percent of maltreated children and summed figures exceed 100 percent due to some children having more than one perpetrator). Overall, 80.8 percent of maltreated children were maltreated by a biological parent, 12.4 percent were maltreated by a non-biological parent, and 6.8 percent were maltreated by a perpetrator who fell into an "other" category which included other family members, unrelated adults and others. Importantly, perpetrator relationship proportions varied over maltreatment types. Biological parents were the perpetrators in relation to 92 percent of all neglected children compared to 72 percent of physically abused children, 73 percent of emotionally abused, and 37 percent of sexually abused children. There were also important gender differences. Females represented the majority of perpetrators who were biological parents (75%) compared to representing 48 percent of non-biological parent perpetrators, and only 20 percent of "other" perpetrators. Neglected children predominately had a female perpetrator (86%), while abused children overall most often had a male perpetrator (62%). Researchers have hypothesised that mothers are more likely than fathers to be classified as a perpetrator of neglect, because mothers are more likely to be classified as the child's primary care-giver regardless of family type, and therefore considered more accountable for the child's wellbeing (Child Family Community Australia, 2014).

It has long been recognised that Indigenous Australian children and families are chronically overrepresented in Australian child protection systems. According to the Child Protection Australia 2014-15 report (Australian Institute of Health and Welfare, 2016), Indigenous Australian children, compared to non-Indigenous Australian children, were, on average, seven times more likely to receive child protection services (39.8 per 1,000 children substantiated compared to 5.9 per 1,000 children), with the degree of overrepresentation varying across the States and Territories. In Queensland, Indigenous Australian children were approximately 6.7 times more likely than non-Indigenous children to have a substantiated maltreatment event (23.1 per 1,000 children compared to 3.5 per 1,000 children) (Australian Institute of Health and Welfare, 2015). The reduction of the over-representation of Indigenous Australians is a crucial area of focus nationally, as well as within the Queensland child protection system (Council of Australian Governments, 2009). Research examining variations in maltreatment perpetration across Indigenous and non-Indigenous males and females may assist in identifying target areas for prevention and intervention efforts.

In this project, understanding differences in both race and gender is important. Though in some analyses these variables can be examined separately, there is anticipated added value in exploring interactions between them. In "intersectionality" literature, it is accepted that identities simultaneously experienced should be simultaneously examined (Nadan, Spilsbury, & Korbin, 2015). These identities include, but are not limited to, gender and race (Nadan et al., 2015). Though, intersectionality research should incorporate a full range of simultaneously experienced identities (Nadan et al., 2015), reliance on administrative data in this study precludes consideration of identities beyond gender and race. In this study

consideration of race and gender is achieved via particular focus on comparing male and female Indigenous and non-Indigenous perpetrators to explore potential variations in maltreatment perpetration over the life-course. This is the first time such comparisons have been made.

What do we know about recidivism by child maltreatment perpetrators?

It is accepted that many children are repeatedly reported to child maltreatment services. Comparatively less research has examined repeated reports to child maltreatment services using the perpetrator as the unit of analysis. In the US, a series of studies examined maltreatment recidivism using state-wide administrative data and followed more than 31,000 perpetrators of interfamilial maltreatment over a four and half year period (Jonson-Reid et al., 2010; Jonson-Reid et al., 2003; Way, Chung, Jonson-Reid, & Drake, 2001). Overall, findings indicated that 42.4 percent of perpetrators were re-reported to the child protection services and the median time to re-report was 10 months (Way et al., 2001). Of these re-reports, neglect was the most likely maltreatment, followed by physical abuse, emotional abuse and sexual abuse. Subsequent analyses of these data indicated that there was substantial cross-recidivism at both the child and perpetrator levels (Jonson-Reid et al., 2003). Non-neglect cases were likely to return as neglect and the authors concluded that research should focus on broad areas of risk and need rather than relying on typologies based on the index (first) event; the common approach in much perpetration literature. More recent research linked these data to income maintenance and Medicaid data and examined the broader service needs of perpetrators (Jonson-Reid et al, 2010). This research identified that the mean age of perpetrators was 30 years and that females with mental health treatment histories and those receiving income support were more likely to be re-reported for maltreatment.

Data specific to perpetrators in Queensland.

The Department responsible for child protection in Queensland examined data from 1564 recorded substantiations over the period April to June 2007 for 847 households (776 mothers and 631 fathers), to produce a series of six reports under the title *Characteristics of parents involved in the Queensland Child Protection System* (DCCSDS, 2009). Across these reports the Department noted 44 percent of mothers and 42 percent of fathers in the child protection system were aged between 30 and 39 years. Indigenous Australian households were overrepresented, representing 21 percent of substantiated households (but only 3 percent of households in the broader Queensland population). Fifty percent of substantiated households had two biological parents and one quarter of households were step or blended families. Overall, emotional harm was the most prevalent harm type, followed by physical harm. However, households with a single mother and Indigenous households were more likely to be substantiated for neglect, while fathers were more likely than mothers to be substantiated for physical, emotional and sexual harm. Further, approximately 45 percent of households were characterised by substantiated multi-type maltreatment. Finally, the age of first birth for parents in contact with the Department was younger than for the general Queensland population.

Importantly, the above data reflect contacts with the Department *during* the specified period only. Therefore, these data do not necessarily capture perpetrators' first contact with the Department, nor their last. In fact, additional data were obtained for 695 of the above described 847 households and revealed that the period of focus only incorporated the first contact of 32 percent of the households, while 68 percent of the households had prior contact with the Department (38 percent of these resulting in ongoing intervention) (DCCSDS, 2009). Without longitudinal perpetration data, it is difficult to illustrate the onset, duration

and desistance/persistence of maltreatment perpetration, and associated risks, needs, and opportunities for effective intervention. Though the Department did identify five key parental risk factors for maltreatment often identified in the literature (e.g., Stith et al., 2009), namely drug and alcohol abuse, domestic violence, mental illness, history of maltreatment, and having a criminal history (DCCSDS, 2009), without longitudinal examination of these factors it unclear how they may impact on patterns of maltreatment over time or maltreatment heterogeneity, including onset versus "maintenance" of behaviour.

Previous Queensland-based research explored trajectories of maltreatment victimisation using victims as the unit of analysis (Stewart, Livingston, & Dennison, 2008). This research identified two "chronic" trajectory groups accounting for approximately 8 percent of maltreated children, characterised by a higher frequency of victimisations than other groups. However, information on the perpetrators of these repeated reports was lacking (Stewart et al., 2008). It was not possible to identify whether the same or different children were maltreated by perpetrators over time. Similarly, national data for the 2014-15 financial year indicate that 73 percent of children in contact with Australian child protection services were repeat clients, but no data are provided in relation to repeat perpetrators (AIHW, 2016).A search of available literature fails to yield longitudinal Australian research examining perpetrators' repeated contact with the child protection system over the life-course.

Methodological Issues and the Benefits of Linked Administrative Data

Most research examining child maltreatment suffers from a number of methodological issues. Very few studies use longitudinal data, relying on cross-sectional, retrospective data sources with small sample sizes (and often clinical samples) (McDonald et al., 2011). Retrospective data can be negatively impacted by poor recall and biased reporting. Small sample sizes reduce generalisability and opportunities to explore interactions between important factors such as gender, race, maltreatment timing and type. Cross-sectional data do not allow consideration of heterogeneous patterns of onset and persistence/desistance over time. These limitations in turn prevent exploration of perpetrators' changing risks and needs over time, and inhibit the development of prevention and early intervention strategies.

In recent years there has been an increasing awareness of the advantages of linked administrative data for examining child maltreatment (Brownell & Jutte, 2013) and antisocial behaviour (Stewart et al., 2015). Some of the strengths of this methodology include time- and cost-effective access to large and unbiased samples, objective measures of maltreatment, long-term follow-up and continuous data collection (see Brownell & Jutte, 2013 and Stewart et al., 2015 for further discussion). For the purposes of this study these advantages outweigh the limitations of these official sources of data, including the absence of unreported and unsubstantiated cases of child maltreatment, changes to data-management and system capacity over time, and limited information on the broader developmental system and characteristics of individuals in the sample. Importantly, when administrative data are supplemented by census data (Krieger, 1992) they become a powerful tool for research that can contribute to a whole of government understanding of serious social issues, including child maltreatment, and can contribute to the development of evidence based policy. Specifically, maltreatment perpetration data linked with census data enable estimation of rates of maltreatment perpetration within the broader population and overrepresentation of gender/race subgroups.

The Context of the Current Study: Research Questions

This study uses prospective population based longitudinal administrative data from the Queensland child protection system. These data provide the first opportunity for researchers in Australia to examine a cohort of maltreatment perpetrators across the life-course. This research significantly contributes to the very limited national and international longitudinal research base focussed on child maltreatment perpetrators and their recidivism by reporting a range of descriptive figures, as well as the findings of a group based trajectory analysis. The descriptive figures reflect a profile of a population of child maltreatment perpetrators in Queensland, exploring their gender and Indigenous status as well as recidivism patterns.

The group based trajectory analysis provides a response to four key Research Questions:

1. How many distinct groups of maltreatment perpetrators can be identified based on the timing and frequency of maltreatment events between 10 and 30 years of age?
2. What is the distribution of gender and Indigenous status across distinct perpetrator groups?
3. What is the nature of maltreatment perpetrated within each distinct perpetrator group? and
4. What are the relationships between perpetrators and victims in each distinct perpetrator group?

By addressing these research questions, this study will provide additional insights into patterns of child maltreatment perpetration over time, including potential variations based on the timing and frequency of maltreatment and differences across gender and Indigenous status. These findings may be used to advocate for more effective and efficient targeting of scarce child protection system resources.

Method

Data Sources

This study uses child maltreatment perpetration data from the 1983/1984 Queensland Longitudinal Dataset (Queensland Linkage Project; Stewart et al., 2015). Within this dataset, child maltreatment perpetration data is derived from substantiated notifications with Queensland's Child Safety Services (Department of Communities, Child Safety and Disability Services; herein DCCSDS) and was extracted from DCCSDS's Integrated Client Management System (ICMS). Importantly, for DCCSDS to investigate notifications for (potential) substantiation there must be:

> a reasonable suspicion that the child is in need of protection, that is, that the child has been significantly harmed, is being significantly harmed or is at risk of significant harm and may not have a parent able and willing to protect them from harm (DCCSDS, 2013, p. 52)[1].

Following investigation, the notification is classified as either substantiated or unsubstantiated. This study focusses only on substantiated notifications.

Information is available about all individuals born in 1983 and 1984 who were determined to be responsible for harming a child or putting a child at risk of harm (i.e., substantiated notifications). Data comprise all substantiations between age 10 (i.e., minimum age of responsibility for child maltreatment[2]; DCCSDS, 2013) and age 30[3]. Data were excluded for perpetrators who were younger than 10 years of age at the time of notification and therefore could not be held responsible (i.e., 13 perpetrators and 19 substantiations excluded). Data were also excluded for perpetrators and/or substantiations due to missing data on essential harm variables (i.e., 1 perpetrator and 4 substantiations excluded).

Using a unique identifier assigned to each perpetrator, data were linked and aggregated at the individual level to create a population-based Queensland child maltreatment perpetrator cohort with complete official substantiation histories to age 30. Although these data are right censored at age 30, previous research suggests that most perpetrators onset before 30 years of age and cross-sectional data of all (substantiated) perpetrators in the USA indicate that 62% are younger than 35 years of age (U.S. Department of Health & Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau, 2015; 2016; see also Jonson-Reid et al., 2010; Way et al., 2001).

This project was approved by the Griffith University Human Research Ethics Committee (CCJ/01/14/HREC) and the DCCSDS's research committee and Director-General. Given the sensitive nature of these data, the management and use of these data are also governed by a Data Transfer and Usage Agreement (DTUA) with the Queensland Government Statistician's Office (despite data being de-identified). This project was conducted in accordance with the ethical principles of the National Health and Medical Research Council and the requirements of both DCCSDS and the DTUA.

Sample

The sample comprised 3,217 distinct child maltreatment perpetrators (55.5% female; 22.8% Indigenous Australian). Perpetrators were, on average, 23 years of age at first substantiated

[1] Reports of alleged harm that do not meet these requirements but may be indicative of a criminal offence are reported to the Queensland Police Service (Child protection Act, 1999)

[2] This is also consistent with the minimum age of criminal responsibility (Chrzanowski & Wallis, 2011; Urbas, 2000).

[3] Data were extracted in November 2015, resulting in complete data to age 30 for both cohorts.

notification (SD = 4.11). By age 30, perpetrators were responsible for 11,131 substantiations involving 6,964 children[4]. These substantiations were generated from 6,377 separate investigations with DCCSDS (i.e., investigation and assessment events)[5]. The maximum number of substantiations for an individual perpetrator was 39 (*M* = 3.46; *SD*= 3.77), and the maximum number of events for an individual perpetrator was 20 (*M* = 1.98; *SD*= 1.70).

To contextualise the size and demographic composition of the sample, the current sample can be compared with the number of individuals with 1983/1984 birthdates in the entire Queensland population. Since these data are population-based including all official substantiations for all individuals in Queensland with birthdates in 1983 and 1984 – lifetime perpetration prevalence rates can also be estimated (to age 30) from such comparisons. Indeed, this established epidemiological research method is utilised by the U.S. Department of Health & Human Services (2015; 2016) to derive similar estimates of the prevalence of child maltreatment perpetration in the USA. Comparative figures are illustrated in Table 1. Although this method only provides rough estimates of prevalence rates due to issues of migration and attrition (e.g., death), it is clear that Indigenous Australians are overrepresented in the cohort of child maltreatment perpetrators. Moreover, perpetration rates are highest for Indigenous females (163 per 1000 adults). The prevalence of child maltreatment perpetration for the sample as a whole is 23 per 1000 adults.

Table 1. Queensland 2015 population data and perpetrator data (individuals born 1983 and 1984) by gender and Indigenous status.

		Population [1]		Perpetrators		
		N	%	n	%	rate per 1,000[2]
Male	Indigenous	2,563	1.9%	312	9.7%	122
	Non-Indigenous	65,275	47.6%	1,119	34.8%	17
Female	Indigenous	2,591	1.9%	422	13.1%	163
	Non-Indigenous	66,781	48.7%	1,364	42.4%	20
	Total	137,210	100.0%	3,217	100%	23

1. 2015 estimated resident population of 31 and 32 year olds (i.e. born in 1983 and 1984) in Queensland by sex and Indigenous status (ABS, 2014)
2. Rates are obtained by dividing the number of child maltreatment perpetrators by the total population and then multiplying this number by 1000.

Key variables

In this section, key variables analysed in this study are defined and operationalised. Importantly, since many variables are interrelated, an accurate interpretation of individual variables often requires an understanding of associated variables.

Child maltreatment perpetrator

Perpetrators are individuals deemed to be responsible for harming a child (children) or putting a child (children) at risk of harm. To be considered a perpetrator, the notification of harm had to be substantiated. As we detail below, this encapsulates the commission of harmful acts as well as acts of omission, including the failure to protect a child from abuse or

[4] Refer to definition of child victims for further information on counts of children.
[5] Clear definitions of substantiations, victims and events are provided in the key variables subsection.

neglect. For an individual to be held responsible, they must be at least 10 years of age (DCCSDS, 2013). Distinct perpetrators are assigned unique identifiers in these data. Importantly, when a notification relates to multiple perpetrators born in 1983 or 1984, both perpetrators would be captured in these data.

Victims

In line with the *Child Protection Act 1999*, a victim is an individual 17 years of age or younger who was harmed by, or at risk of harm from, a perpetrator in the current sample (i.e., substantiated). Distinct children are distinguished by unique identifiers in these data. Though a small number of children were maltreated by more than one perpetrator in the cohort, most co-perpetrators are not born in 1983 or 1984 and therefore are omitted from these data. Since the unit of analysis in this study is the 'perpetrator', counts of children *across perpetrators* refer to unique perpetrator-child pairs. This facilitates simpler interpretations of findings since the percentage of children harmed totals 100% across perpetrators. To illustrate, if child 'x' was harmed by perpetrator 'a' and perpetrator 'b', child 'x' will be counted twice – once for each perpetrator-child pair. This counting strategy accurately reflects how many unique children are harmed by each perpetrator. Moreover, since data is not available for all co-perpetrators, using unique child identifiers to describe patterns of co-perpetration is also misleading. In this sample, there were 6,464 unique children maltreated but 6,964 unique perpetrator-child pairs.

Substantiations

A substantiation is "the outcome of an investigation and assessment where it is assessed that (a) the child or young person has experienced harm, and/or (b) there is unacceptable risk of harm and there is no parent able and willing to protect the child" (DCCSDS, 2016a; also see *Child Protection Act 1999*). Therefore, a perpetrator may not have harmed a child but may be deemed responsible for putting that child at risk of harm. Here, assessments are based on the 'balance of probability' (DCCSDS, 2013). Each substantiation concerns a single child. If harm towards multiple children is substantiated, a perpetrator will have one substantiation for each child. Importantly, a single substantiation may involve multiple types of harm towards an individual child. Harm types are defined next.

Harm Type

According to the *Child Protection Act 1999* (Part 3, Division 1), harm is "any detrimental effect of a significant nature on the child's physical, psychological or emotional wellbeing. It is immaterial how the harm is caused. Harm can be caused by— (a) physical, psychological or emotional abuse or neglect; or (b) sexual abuse or exploitation. Harm can be caused by— (a) a single act, omission or circumstance; or (b) a series or combination of acts, omissions or circumstances." According to DCCSDS, for harm to be considered significant "the detrimental effect on a child's wellbeing must be substantial or serious, more than transitory and must be demonstrable in the child's presentation, functioning or behaviour" (DCCSDS, 2016b). In DCCSDS's ICMS, substantiated harm types are assigned based on the *cause* of harm as opposed to the type of harm experienced (Queensland Child Protection Commission of Inquiry & Carmody, 2013). Therefore, in the present study, harm types more accurately reflect the type of abuse that caused harm or a risk of harm. Harm types are classified into the following four categories in DCCSDS's ICMS:

(i) Neglect – Emotional or physical harm caused by neglect, emotional or physical harm caused by failure to protect, risk of emotional harm caused by neglect or failure to protect (i.e., from neglect or physical, sexual or emotional abuse), risk of physical harm caused by neglect or failure to protect (i.e., from neglect or physical, sexual or emotional abuse).

(ii) Emotional abuse - Emotional or physical harm caused by emotional abuse, risk of emotional or physical harm caused by emotional abuse.

(iii) Physical abuse - Emotional or physical harm caused by physical abuse, risk of emotional or physical harm caused by physical abuse.
(iv) Sexual abuse - Emotional or physical harm caused by sexual abuse, risk of emotional or physical harm caused by sexual abuse.

In this study, harm types are operationalised according to these four categories.

Importantly, one substantiation may have multiple harm types and an individual perpetrator may be responsible for different harm types across different substantiations. Each substantiation for each perpetrator has a binary flag for each harm type (i.e., yes/no). These flags were used to generate four dichotomous variables measuring the presence or absence of each harm type for each substantiation (i.e., presence or absence of neglect, emotional abuse, physical abuse and sexual abuse).

Perpetrator Harm Profile.

To capture *variation* in types of harm attributed to individual perpetrators over time, we created a series of variables that together produce a 'harm profile'. These variables were created using the following steps. First, the total number of harm types were calculated across all substantiations for each perpetrator (i.e., a perpetrator with two substantiations with two neglect harm types and one emotional abuse harm type = 3). Second, the number of substantiations for each harm type was summed for each perpetrator (for the previous example: neglect = 2, emotional abuse = 1, sexual abuse = 0, physical abuse = 0). Third, the total for each harm type (step 2) was divided by the total harm (step 1) for each perpetrator (for the previous example: neglect = 0.67, emotional abuse = 0.33, sexual abuse = 0, physical abuse = 0; see
Table 2). The resulting variables reflect the versatility (versus specialisation) of child maltreatment perpetration.

Table 2. Child maltreatment perpetrator harm profile example

Maltreater	Child	Physical	Neglect	Sexual	Emotional
1	1	No	Yes	No	No
1	2	No	Yes	No	Yes
Maltreater 1 total harm flags		0	2	0	1
Maltreater 1 proportions		0	0.67	0	0.33

Maltreatment Event

An "event" is a recorded contact with DCCSDS in which at least one form of harm or risk of harm is substantiated for at least one child and is attributed to the "perpetrator". Hence, a single "event" may encapsulate multiple "substantiations" (i.e., maltreatment of multiple children) or a single "substantiation" (i.e., maltreatment of one child). As illustrated in Figure 1, a single perpetrator may also have one or more "events" across his/her life-course.

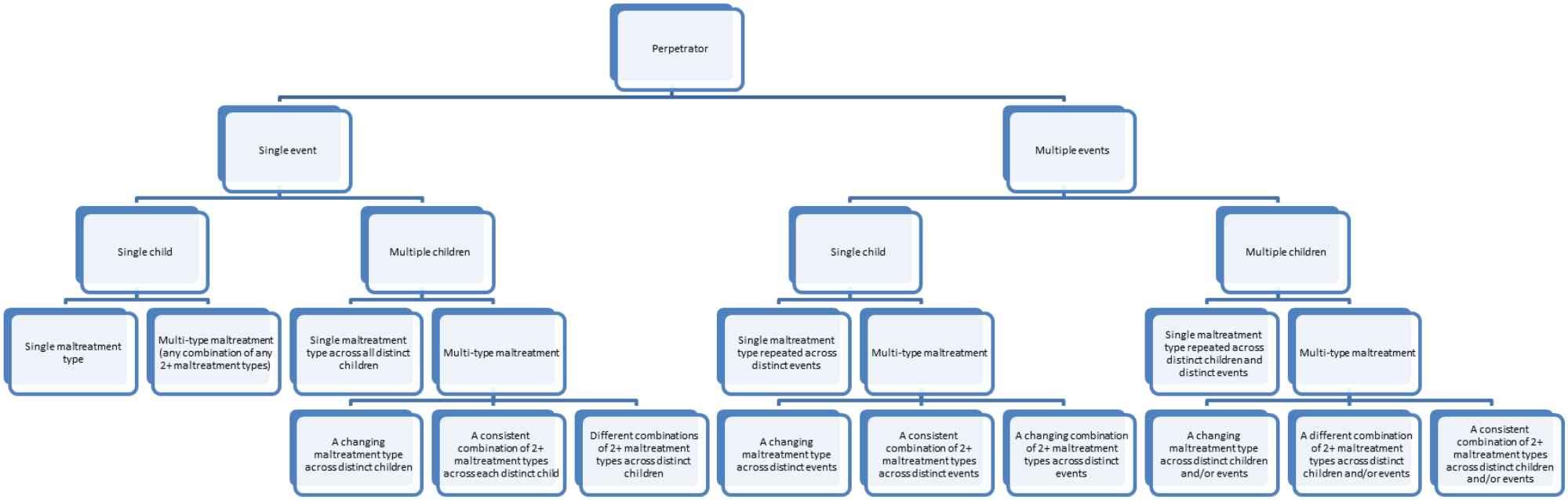

Figure 1. The complex relationship between key variables used in this study.

Perpetrator-Victim Relationship

The perpetrator-child relationships recorded in ICMS were aggregated into the following broad categories:

(i) biological parent (father, mother);
(ii) non-biological parent (stepparent, parent's partner, kinship/custom parent, guardian, parent's ex-partner);
(iii) other child (an individual under 18 years of age who was not a parent or guardian of the child such as a sibling, aunt, uncle, cousin, other relative);
(iv) other adult (an individual 18 years of age or older who was not a parent or guardian of the child such as an aunt, uncle, grandparent, sibling, cousin, other relative); and
(v) unknown/not recorded (unknown, not yet specified).

Since perpetrators may have more than one victim, individual perpetrators may also have multiple perpetrator-victim relationships. However, since substantiations are unique by child, each substantiation has one perpetrator-victim relationship.

Relationship Profile.

To measure patterns of individual perpetrators' relationships with their victims over time, a series of variables summarising 'relationship profile' were created. These variables were generated using the following steps. First, the total number of substantiations was calculated for each perpetrator. Second, the total number of substantiations with each perpetrator-victim relationship was calculated for each perpetrator. Third, the total of each perpetrator-victim relationship (step 2) was divided by the total substantiations (step 1) for each perpetrator. The resulting variables reflect the proportion of each perpetrator's substantiations with each possible perpetrator-victim relationship. To illustrate, a perpetrator with five substantiations, four of which were perpetrated against his/her biological child and one of which was perpetrated against a stepchild would have the following proportions: biological parent (0.8), non- biological parent (0.2), other child relationship (0.0), other adult relationship (0.0), unknown/not recorded (0.0).

Results

Overview

The results section is divided into two primary subsections: descriptive data and a group-based trajectory analysis. The descriptive data provide a basic profile of maltreatment perpetration by the cohort, including the frequency and nature of maltreatment and variations across gender and Indigenous status. These descriptive data are focussed around "substantiations". The descriptive data subsection ends with a summary of recidivism within the cohort using maltreatment events as the unit of analysis (i.e., the frequency of events in the cohort; see *Method Section*, above).

The second subsection reports the findings from a group-based trajectory analysis and addresses the four key research questions proposed for this study:

RQ1: How many distinct groups of maltreatment perpetrators can be identified based on the timing and frequency of maltreatment events between 10 and 30 years of age?
RQ2: What is the distribution of gender and Indigenous status across distinct perpetrator groups?
RQ3: What is the nature of maltreatment perpetrated within each distinct perpetrator group?; and
RQ4: What are the relationships between perpetrators and victims in each distinct perpetrator group?

The trajectory analysis is focussed around "events". Since multiple substantiations may represent either a single event (if multiple children are harmed) or multiple events, the modelling of events over time enables the identification of opportunities for improved targeted intervention. It also provides an understanding of variations in persistence and desistance across the cohort subsequent to departmental contact. Together, the focus on both substantiations and events provides a comprehensive illustration of heterogeneity of perpetrators and their perpetration over the life-course. A final summary of key results is presented at the conclusion of this section.

Descriptive Data

Frequency of substantiations in the cohort

The cohort of 3,217 perpetrators were responsible for 11,131 child maltreatment substantiations (M=3.5, SD=3.8). There was marked variation in substantiation rates across perpetrators (range = 1 to 39 substantiations). One third of perpetrators (34.1%) had just one substantiation, together accounting for less than 10 percent of all substantiations for the cohort (see Table 3). A comparatively small number (16.4%) of perpetrators had six or more substantiations across the life-course. However, these perpetrators accounted for almost 50 percent of all substantiations for the cohort (see Table 3).

Table 3: Frequency of substantiations by perpetrators

Number of substantiations	No. of perpetrators	% of all perpetrators	Total number of substantiations	% of all substantiations
1	1,098	34.1%	1,098	9.9%
2	704	21.9%	1,408	12.6%
3	411	12.8%	1,233	11.1%
4	298	9.3%	1,192	10.7%
5	177	5.5%	885	8.0%
6+	529	16.4%	5,315	47.7%
Total	3,217	100.0%	11,131	100.0%

Importantly, substantiation rates significantly varied across gender and Indigenous status, both in terms of their main effects and interaction (see Table 4). Specifically, Indigenous and non-Indigenous females together (M = 3.97, SD = 4.21) had significantly more substantiations than Indigenous and non-Indigenous males (M = 2.82, SD = 3.01) ($F(1,3216)=33.48$, $p<.001$). However, Indigenous females (M = 5.01, SD = 4.77) had significantly more substantiations than non-Indigenous females (M = 3.65, SD = 3.97) ($F(1,3216)=77.176$, $p<.001$). The interaction effect of gender and Indigenous status was also significant ($F(1,3216)=8.52$, $p<.01$);the difference in perpetration rates between Indigenous and non-Indigenous females was considerably greater than the difference in perpetration rates between Indigenous and non-Indigenous males. Importantly, the relatively large standard deviations indicate considerable variability within the subgroups.

Table 4: Substantiations by Gender and Indigenous status

		No. of perpetrators	Total substantiations	Substantiations	
				M	SD
Female	Indigenous	422	2,115	5.01	4.77
	Non-Indigenous	1,364	4,974	3.65	3.97
	Total	1,786	7,089	3.97	4.21
Male	Indigenous	312	991	3.18	3.18
	Non-Indigenous	1,119	3,051	2.73	2.95
	Total	1,431	4,042	2.82	3.00
Total	Indigenous	734	3,106	4.23	4.26
	Non-Indigenous	2,483	8,025	3.23	3.57
	Total	3,217	11,131	3.46	3.77

Victims per perpetrator

The cohort of 3,217 perpetrators were responsible for harming 6,964 children (M=2.2, SD=1.4). As illustrated in Table 5, more than half of the perpetrators harmed more than one

child. A small percentage of perpetrators (3.2%) harmed six or more children each. Not surprisingly, the relatively small percentage of perpetrators who harmed four or more children each (15.6%), were responsible for a disproportionately large percentage of all substantiations (39.8%) and children harmed by the cohort (35.3%).

Table 5: Perpetrators by children by substantiation

Number of children	No. of perpetrators	% of perpetrators	Total no. of children	% of children	Total substantiations	% of total substantiations
1	1,408	43.8%	1,408	20.2%	1,898	17.1%
2	817	25.4%	1,634	23.5%	2,379	21.4%
3	489	15.2%	1,467	21.1%	2,431	21.8%
4	247	7.7%	988	14.2%	1,734	15.6%
5	152	4.7%	760	10.9%	1,310	11.8%
6+	104	3.2%	707	10.2%	1,379	12.4%
Total	3,217	100.0%	6,964	100.0%	11,131	100.0%

Note. As detailed in the *Method Section* counts for children refer to perpetrator-child pairs, a small number of children were maltreated by more than one perpetrator in the cohort. The total number of distinct children was 6,464.

Harm types of maltreatment across perpetrators

Harm types are classified by the DCCSDS as neglect, emotional abuse, physical and sexual abuse. The 3,217 perpetrators in this cohort were responsible for a total of 15,772 harm type flags across the 11,131 distinct substantiations in the dataset (M = 4.9 harm type flags *per perpetrator*, SD = 5.93; range = 1 – 57; i.e., a perpetrator with two substantiations with two neglect harm type flags and one emotional abuse harm type flag = 3)

Importantly, as indicated in Table 6, most *distinct substantiations* (63.8 %) involved only one harm type flag, and very few substantiations (n=13) involved all four harm types flags. Nonetheless, multi-type maltreatment was common with over 35 percent of *distinct substantiations* including more than one harm type flag. When harm is examined at the perpetrator level, there is evidence of greater multi-type maltreatment, whereby 48.3 percent of perpetrators were responsible for one harm type (n = 1554), 34.1 percent of perpetrators were responsible for two harm types (n = 1096), 16.8 percent of perpetrators were responsible for three harm types (n = 540) and 0.8 percent of perpetrators were responsible for all four harm types (n = 27) within the observation period.

Table 6: Harm type flags per distinct substantiation

Number of harm type flags	N	%	Total harm
1	7104	63.8%	7,104
2	3,426	30.8%	6,852
3	588	5.3%	1,764
4	13	0.1%	52
Total	11,131	100.0%	15,772

Note: Harm type flags include physical abuse, sexual abuse, emotional abuse and neglect. Distinct substantiations with four harm type flags indicate the simultaneous presence of all four harm types.

As demonstrated in Table 7, based on the total harm type flags for the overall cohort (N=15,772), neglect (38.5%) and emotional abuse (38%) were the most common harm types followed by physical abuse (20.9%) and sexual abuse (2.6%). Importantly, there were differences noted across gender and Indigenous status. Across substantiations by females, neglect was the most common harm type followed by emotional abuse and physical abuse, with sexual abuse being the least common and rare. Though exact proportions varied across Indigenous and non-Indigenous females, patterns were consistent. Comparatively, across substantiations by male perpetrators, emotional abuse was most common, followed by physical abuse and neglect, with sexual abuse again being the least common harm type. Again, though exact proportions varied across Indigenous and non-Indigenous males, patterns were consistent. Though sexual abuse was the least common harm type across all subgroups, the proportion of substantiations including sexual abuse were higher for both groups of males (Indigenous and non-Indigenous) than females (Indigenous and non-Indigenous). Differences in harm types at the perpetrator level of analysis are reported in the second subsection alongside discussions of the trajectory groups.

Table 7: Harm types across substantiations by sex and Indigenous status

	Female				Male				Total harm type flags	
Harm type	Indigenous		Non-Indigenous		Indigenous		Non-Indigenous			
	N	%	N	%	N	%	N	%	N	%
Physical abuse	542	25.6%	1,155	23.2%	417	42.1%	1,183	38.8%	3,297	20.9%
Neglect	1,392	65.8%	3,263	65.6%	331	33.4%	1,082	35.5%	6,068	38.5%
Sexual abuse	17	0.8%	49	1.0%	62	6.3%	278	9.1%	406	2.6%
Emotional abuse	1,034	48.9%	2,510	50.5%	654	66.0%	1,803	59.1%	6,001	38.0%
Total harm type flags (N)	2985		6977		1464		4346		15,772	100%
Total substantiations (N)		2,115		4,974		991		3,051		

Note: 1. The percentage columns for each subgroup represent the percentage of total substantiations for that subgroup that included each harm type (N Total substantiations for cohort = 11,131; N Substantiations for each subgroup reported in "Total Substantiations (N)" row); When summed these subgroup percentages exceed 100% as each substantiation could include more than one harm type. 2. The "Total harm type flags" column indicates the percentage of total harm type flags for the cohort (N=15,772) attributable to each harm type.

Relationships of perpetrators to victims

Since perpetrators may have more than one victim (i.e., across different substantiations), individual perpetrators may also have multiple perpetrator-victim relationships. As illustrated in Table 8, the clear majority of perpetrators (83%) had a single perpetrator-victim relationship type across their substantiations, though 17 percent of perpetrators had two or more. The most commonly identified relationship across all substantiations for the cohort was biological parent (Table 9). This was the case across gender and Indigenous status subgroups, although there were some notable gender differences. Over 90 percent of Indigenous and non-Indigenous female perpetrators were biological parents of their victims. There was more variation in perpetrator-victim relationships for male perpetrators (both Indigenous and non-Indigenous). Compared to substantiations involving female perpetrators, a larger proportion of substantiations involving males occurred when the perpetrator-victim relationship was non-biological parent, other child or other adult. Notably, males were also over represented in matters where the relationship was unknown/not recorded. Males are far more likely than females to have victims who are their *non-biological* children. Differences in relationships at the perpetrator level of analysis are reported in the second subsection alongside discussions of the trajectory groups.

Table 8: Number of perpetrator-victim relationships across distinct perpetrators

Number of relationship types	Perpetrators	
	N	%
1	2,671	83.0%
2	496	15.4%
3	49	1.5%
4	1	0.0%
Total	3,217	100.0%

Note. Relationship types include: biological parent, non-biological parent, other child, other adult, and unknown/not recorded.

Table 9: Perpetrator-victim relationships across substantiations

Perpetrator-victim relationship	Female				Male				Total substantiations	
	Indigenous		Non-Indigenous		Indigenous		Non-Indigenous			
	N	%	N	%	N	%	N	%	N	%
Biological parent	1,958	92.6%	4,531	91.1%	584	58.9%	1,668	54.7%	8,741	78.5%
Non-biological parent	11	0.5%	75	1.5%	155	15.6%	594	19.5%	835	7.5%
Other child	1	0.0%	9	0.2%	22	2.2%	76	2.5%	108	1.0%
Other adult	25	1.2%	39	0.8%	33	3.3%	166	5.4%	263	2.4%
Unknown/ Not recorded	120	5.7%	320	6.4%	197	19.9%	547	17.9%	1,184	10.6%
Total	2,115	100.0%	4,974	100.0%	991	100.0%	3,051	100.0%	11,131	100%

Distinct events and recidivist perpetrators

The preceding analyses explored maltreatment perpetration with a primary focus on distinct substantiations. As detailed in the *Method* section, multiple substantiations may represent either a single event (if multiple children are harmed) or multiple events. In this subsection, data are explored in relation to distinct "events" to examine contact with the Department over time, irrespective of the number of children harmed.

The 3,217 distinct perpetrators in the cohort were responsible for 6,377 separate events. The maximum number of events for an individual perpetrator was 20 (M = 1.98; SD= 1.70). As illustrated in Table 10, nearly 60 percent of perpetrators had only one event to age 30 years. Collectively, these single-contact perpetrators accounted for just under 30 percent of all events and substantiations for the cohort. Just 4.6 percent of perpetrators had six or more events, yet these perpetrators accounted for 19.1 percent of events and 18.9 percent of substantiations. Clearly, these figures indicate that a small proportion of perpetrators are responsible for a disproportionate amount of harm. At the same time, more than 40 percent of all perpetrators were recidivists and 22.6% of all perpetrators had 3 or more events. As these data are censored at age 30 this is likely an underestimation of the number of maltreatment perpetrators who recidivate. Importantly, this high proportion of recidivist perpetrators indicates multiple points for intervention and prevention and also illustrates the persistent nature of much child maltreatment.

Table 10: Perpetrators by events by substantiations

Number of events	No. of perpetrators	% of perpetrators	Total no. of events	% of total events	Total no. of substantiations	% of total substantiations
1	1,848	57.4%	1,848	29.0%	3,109	27.9%
2	645	20.0%	1,290	20.2%	2,294	20.6%
3	307	9.5%	921	14.4%	1,594	14.3%
4	174	5.4%	696	10.9%	1,224	11.0%
5	94	2.9%	470	7.4%	806	7.2%
6+	149	4.6%	1,152	18.1%	2,104	18.9%
Total	3,217	100.0%	6,377	100.0%	11,131	100.0%

Group-based trajectory modelling: Perpetrators across the life-course

To address the four primary research questions, the dataset was subjected to Nagin's semi-parametric group-based method of trajectory analysis (SPGM; Nagin, 2005). This method enables the identification of distinct groups of individuals not previously recognised or predicted within longitudinal data. When applied to the current data, distinct groups of perpetrators are identified based on the timing and frequency of maltreatment perpetrated across the life-course (i.e., ages 10 to 30 years). In this study, trajectories are estimated using substantiated *events* to (a) describe patterns of persistence or desistance subsequent to departmental involvement (i.e., recidivism) and (b) identify potential time-points for intervention and prevention strategies. For each perpetrator, 21 new variables were created representing an annual count of their perpetration events between ages 10 and 30 years. Since single events are only counted once, regardless of the number of children involved, variations in the number of children (i.e., substantiations) nested within the broader event-based patterns are explored in detail below.

Model selection: Identifying distinct groups of perpetrators

Using Nagin's (2005) trajectory analysis process, the data were modelled seven times. This allows for the possibility of between one and seven distinct perpetrator groups. All trajectories were modelled as cubic functions to enable group trajectories to change direction more than once across the life-course. A zero-inflated Poisson model was used to compensate for the large frequency of zeros in the dataset (resulting from a large proportion of perpetrators with just one maltreatment event across the life-course).

The Bayesian Information Criterion (BIC) was recorded for each of the seven models (Table 11) and the posterior probability of group membership was recorded for each trajectory (Table 12). The BIC increased with each additional trajectory group up to five groups and declined after the addition of the sixth group (Table 11). The average posterior probability of group membership decreased with the addition of each new trajectory group until the four-group model, which yielded the highest average posterior probability of group membership (Ave.PP; Table 12), followed by a declining Ave.PP with the addition of a fifth, sixth, and seventh trajectory group. Consistent with Nagin's (2005) recommendations, on the balance of these observations the four group model (Figure 2) was selected as the best model of distinct maltreatment perpetrator groups as it yielded an appropriately high BIC, alongside posterior probabilities of group membership that exceeded .70 for each trajectory group.

Table 11: BICs for each model

	BIC Observations 67557	BIC Individuals 3217	AIC
One group	-19736.06	-19728.45	-19713.26
Two groups	-19411.56	-19396.34	-19365.96
Three groups	-19320.72	-19297.88	-19252.31
Four groups	**-19160.79**	**-19130.34**	**-19069.58**
Five groups	-19150.16	-19112.10	-19036.15
Six groups	-19152.04	-19106.37	-19015.23
Seven groups	-19161.94	-19108.66	-19002.32

Table 12: Posterior probabilities for each trajectory group, and average posterior probabilities of group membership (Ave.PP) for each model.

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Ave.PP
7-groups	0.70	0.84	0.66	0.61	0.67	0.87	0.73	0.73
6-groups	0.87	0.68	0.73	0.61	0.73	0.83		0.74
5-groups	0.85	0.63	0.87	0.75	0.85			0.79
4-groups	**0.75**	**0.77**	**0.88**	**0.84**				**0.81**
3-groups	0.75	0.82	0.80					0.79
2-groups	0.83	0.79						0.81
1-group	1							1.00

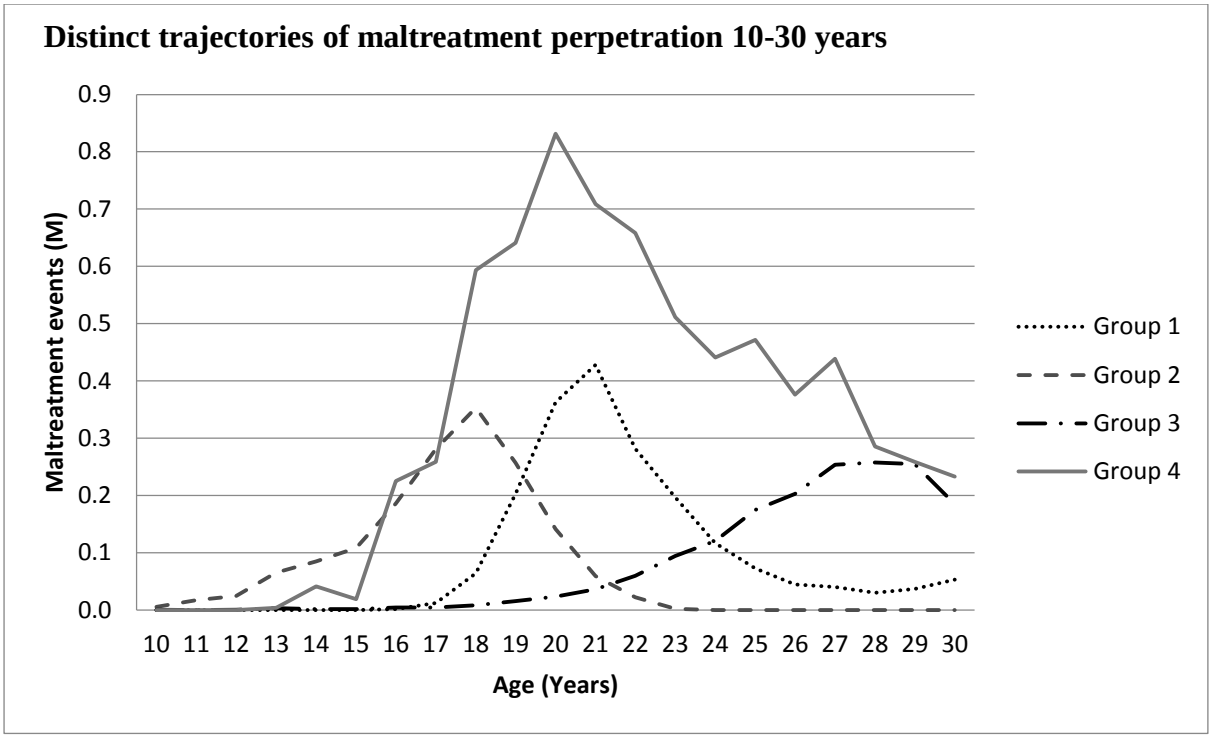

Figure 2. Maltreatment perpetration trajectories for the four-group model.

Research Question 1: Comparison of the four distinct maltreatment trajectory groups

The 3,217 distinct perpetrators in this study were distributed across four distinct trajectory groups (Figure 2). Group 1 (N= 1,151, 35.8%) is characterised by a relatively short trajectory of perpetration beginning in late adolescence, peaking shortly after age 20, with average desistance before the age of 30 years. Group 2 (N= 275, 8.5%) had an early onset of maltreatment perpetration which peaks and seemingly desists in adolescence. Group 3 (N= 1,689, 52.5%) had an onset of maltreatment perpetration after 20 years of age, peaking shortly before age 30. It appears this group may continue to perpetrate beyond age 30, but right censoring prevents certainty. Finally, Group 4 (N= 101, 3.1%) had a chronic trajectory of perpetration beginning in adolescence, peaking at a comparatively high frequency around 20 years of age, followed by declining events with possible continuation beyond 30 years of age. This group is characterised by both greater persistence and higher frequencies of maltreatment than the other groups (though recall Group 3 is also right censored; see Table 13).

Across the four trajectory groups, the percentage of distinct events, substantiations and victims attributable to the group were generally proportionate to the percentage of perpetrators contained in the group (see Table 13). For example, the larger trajectory groups (Groups 1 and 3) accounted for the largest percentage of events, substantiations and victims. Group 4 was an exception to this pattern. Despite including a very small percentage of perpetrators (3.1%), Group 4 was responsible for a disproportionally high percentage of total events (12.5%), substantiations (12.6%), and victims (6.4%).

Table 13: Trajectory groups by number of events, substantiations and distinct children.

Group	N	%	Number of events per perpetrator		Total events per group		Number of substantiations per perpetrator		Total substantiations per group		Distinct children per perpetrator		Total children per group	
			M	SD	N	%	M	SD	N	%	M	SD	N	%
1	1,152	35.8%	1.92	1.34	2,213	34.7%	3.01	2.84	3,473	31.2%	1.90	1.22	2,184	31.4%
2	275	8.5%	1.59	1.08	438	6.9%	1.94	1.47	533	4.8%	1.40	0.74	384	5.5%
3	1,689	52.5%	1.73	1.20	2,926	45.9%	3.39	3.29	5,723	51.4%	2.34	1.47	3,951	56.7%
4	101	3.1%	7.92	2.74	800	12.5%	13.88	7.45	1,402	12.6%	4.41	1.77	445	6.4%
Total	3,217	100.0%	1.98	1.70	6,377	100.0%	3.46	3.77	11,131	100.0%	2.16	1.44	6,964	100.0%

Research Question 2: Variations in event trajectories across gender and Indigenous status

The average number of events varied across gender and Indigenous status subgroups. Mirroring patterns previously identified for substantiations, Indigenous females had the highest event rates (M = 2.78; SD= 2.42), followed by non-Indigenous females (M = 2.10; SD= 1.80), Indigenous males (M = 1.79; SD= 1.23) and lastly, non-Indigenous males (M = 1.59; SD= 1.14). However, as discussed in the *Method section*, relative to estimated resident population data, both male and female Indigenous Australians are overrepresented in the cohort. Consistent with these overall patterns, Indigenous Australians were overrepresented across all trajectory groups (relative to estimated resident population rates; Table 14 and see population figures reported in the *Method section* in Table 1), however, there was considerable overrepresentation of Indigenous females in Group 4. By comparison, non-Indigenous females had a slightly higher representation in Group 4 compared to the remaining groups, and lower representation in Group 2. Non-Indigenous males were overrepresented in Group 2 compared with the remaining groups. Both Indigenous and non-Indigenous males were underrepresented in Group 4. Importantly, when trajectory groups are disaggregated by gender and Indigenous status, the number of individuals in some groups are very small. Consequently, the ability to make generalisations in relation to gender-race intersectionality across trajectory groups is limited.

Table 14: Distribution of gender and Indigenous status across groups.

Group	N	Female				Male			
		Indigenous		Non-Indigenous		Indigenous		Non-Indigenous	
		n	%	N	%	n	%	n	%
1	1,152	141	12.2%	503	43.7%	109	9.5%	399	34.6%
2	275	28	10.2%	88	32.0%	25	9.1%	134	48.7%
3	1,689	214	12.7%	724	42.9%	174	10.3%	577	34.2%
4	101	39	38.6%	49	48.5%	4	4.0%	9	8.9%
Total	3,217	422	13.1%	1,364	42.4%	312	9.7%	1,119	34.8%

Research Question 3: Harm profiles and maltreatment characteristics

In this subsection, variations in harm types attributable to perpetrators in each group are explored in two ways: Mean proportions (see *Method* section) and "ever-never" percentages (percentage of individuals in the group who have ever perpetrated the harm type). To provide some context for interpretation, these variables are first reported for the cohort as a whole. As indicated by Table 15 and Table 16, most perpetrators were responsible for neglect (57.7%) and emotional abuse (62.5%) at least once and a two fifths (42.6%) were responsible for physical abuse at least once (i.e., ever-never classifications). The minority of perpetrators were responsible sexual abuse at least once (7.3%). When contextualised by the frequency of all harm perpetrated by the cohort, a broadly similar pattern emerges. An average of 38% of all harm attributed to the cohort is neglect, 38% is emotional abuse, 20% is physical abuse and 5% is sexual abuse.

However, there are important differences in these patterns across trajectory groups. There are three main differences that are apparent. First, Group 4 has a high involvement in physical

abuse, emotional abuse and neglect. When contextualised by the frequency of all harm perpetrated by this group, an average of 45% of harm is neglect and 32% is emotional abuse. Second, Group 2 has far more involvement in sexual abuse than any other group as well as far greater mean proportions of sexual harm. Third, Groups 1 and 3 have fairly similar patterns of harm, whereby both neglect and emotional abuse are dominant, yet still around 40% have at least one substantiation for physical abuse.

There were also notable gender differences in harm types across trajectory groups. As shown in Table 17, the greatest mean proportion of harm by male perpetrators was attributable to emotional abuse in Group 1 (42%), Group 3 (41%), and Group 4 (32%), and to sexual abuse (46%) in Group 2. The mean proportion of sexual abuse in Group 2 is considerably higher than in any other group. Similar patterns emerge using the ever-never approach (see Table 18). In comparison, as shown in Table 19, the greatest mean proportion of harm by female perpetrators was attributable to neglect in all four perpetrator groups: Group 1 (47%), Group 2 (54%), Group 3 (52%), and Group 4 (48%). This pattern is also reflected in the ever-never approach (see Table 20). Among females, Group 4 had a higher rate of multi-type maltreatment when compared with the remaining groups (see Table 20). Across both males and females, Group 4 had a higher average number of maltreatment types than the remaining three groups. Importantly, there were considerably more females than males in Group 4. Across all groups the mean proportion of harm attributable to sexual abuse and physical abuse was typically higher for males than females. The highest mean proportion of sexual abuse by males was noted for Group 2.

Table 15: Perpetrator harm profiles by perpetrator groups (mean proportions)

Group	N	Proportion Physical abuse		Proportion Neglect		Proportion Sexual abuse		Proportion Emotional abuse		Number of maltreatment types		Total harm per perpetrator	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
1	1,152	0.20	0.29	0.36	0.39	0.04	0.19	0.40	0.37	1.70	0.76	4.30	4.54
2	275	0.18	0.33	0.31	0.40	0.27	0.43	0.23	0.33	1.44	0.64	2.63	2.61
3	1,689	0.19	0.28	0.41	0.41	0.03	0.15	0.37	0.36	1.68	0.75	4.71	5.04
4	101	0.20	0.15	0.45	0.22	0.03	0.12	0.32	0.18	2.82	0.57	21.14	12.72
Total	3,217	0.20	0.29	0.38	0.40	0.05	0.21	0.37	0.36	1.70	0.77	4.90	5.93

Table 16: The percentage of perpetrators in each group who have ever perpetrated physical abuse, neglect, sexual abuse and emotional abuse (ever-never percentages).

Group	N	Ever Physical abuse (%)	Ever Neglect (%)	Ever Sexual abuse (%)	Ever Emotional abuse (%)
1	1,152	43.3	55.8	5.8	65.5
2	275	30.5	44.4	29.8	38.9
3	1,689	41.6	58.8	4.6	62.6
4	101	84.2	97.0	9.9	91.1
Total	3,217	42.6	57.7	7.3	62.5

Table 17: Male perpetrator harm profiles by perpetrator groups (mean proportions)

Group	N	Proportion Physical abuse		Proportion Neglect		Proportion Sexual abuse		Proportion Emotional abuse		Number of maltreatment types	
		M	SD	M	SD	M	SD	M	SD	M	SD
1	508	0.27	0.34	0.22	0.34	0.09	0.27	0.42	0.38	1.63	0.75
2	159	0.22	0.37	0.14	0.30	0.46	0.48	0.19	0.32	1.31	0.54
3	751	0.26	0.31	0.28	0.38	0.05	0.20	0.41	0.37	1.68	0.74
4	13	0.28	0.23	0.24	0.17	0.16	0.31	0.32	0.21	2.69	0.75
Total	1,431	0.26	0.33	0.24	0.36	0.11	0.30	0.39	0.37	1.63	0.74

Table 18: The percentage of male perpetrators in each group who have ever perpetrated physical abuse, neglect, sexual abuse and emotional abuse (ever-never percentages).

Group	*N*	Ever Physical abuse		Ever Neglect		Ever Sexual abuse		Ever Emotional abuse	
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1	508	252	49.6	189	37.2	59	11.6	331	65.2
2	159	49	30.8	32	20.1	79	49.7	48	30.2
3	751	398	53.0	327	43.5	58	7.7	496	66.0
4	13	10	76.9	11	84.6	4	30.8	10	76.9
Total	1,431	709	49.5	559	39.1	200	14.0	885	61.8

Table 19: Female perpetrator harm profiles by perpetrator groups (mean proportions)

Group	N	Proportion Physical abuse		Proportion Neglect		Proportion Sexual abuse		Proportion Emotional abuse		Number of maltreatment types	
		M	SD	M	SD	M	SD	M	SD	M	SD
1	644	0.15	0.23	0.47	0.38	0.01	0.05	0.38	0.35	1.76	0.76
2	116	0.14	0.26	0.54	0.39	0.02	0.14	0.30	0.35	1.61	0.73
3	938	0.14	0.24	0.52	0.40	0.01	0.08	0.34	0.35	1.67	0.76
4	88	0.19	0.14	0.48	0.22	0.01	0.03	0.33	0.18	2.84	0.54
Total	1,786	0.14	0.24	0.50	0.39	0.01	0.08	0.35	0.35	1.76	0.79

Table 20: The percentage of female perpetrators in each group who have ever perpetrated physical abuse, neglect, sexual abuse and emotional abuse (ever-never percentages).

Group	*N*	Ever Physical abuse		Ever Neglect		Ever Sexual abuse		Ever Emotional abuse	
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
1	644	248	38.5	458	71.1	8	1.2	425	66.0
2	116	35	30.2	90	77.6	3	2.6	59	50.9
3	938	312	33.3	675	72.0	22	2.3	567	60.4
4	88	75	85.2	87	98.9	6	6.8	82	93.2
Total	1,786	670	37.5	1310	73.3	39	2.2	1133	63.3

Research Question 4: Relationships between perpetrators and victims across trajectory groups

Distinctions between perpetrator trajectory groups become more meaningful with consideration of the relationships between the perpetrators and their victims (perpetrator-victim relationships). As shown in Table 22, across all trajectory groups, female perpetrators were overwhelmingly biological parents, with the most variation in perpetrator relationships noted for Group 2. Importantly, the larger variation in perpetrator relationships in Group 2 is largely attributable to a comparatively high mean proportion of "unknown" relationship, thereby preventing exploration of the importance of this variation. As shown in Table 21, on average the majority of males' maltreatment related to their own biological children in all trajectory groups except Group 2, but there was greater variety in relationship types among males than was noted for female perpetrators. In Group 2, the largest mean proportion of male perpetration (41%) related to "other child relationships", which is considerably different from the other groups. Group 3 had a slightly higher mean proportion of non-biological parent relationships than other male trajectory groups.

Summary of maltreatment perpetrator groups

The SPGM identified four distinct maltreatment perpetrator groups based on the timing and frequency of maltreatment events across the life-course (10-30 years). Groups 1 and 3 contained the largest proportion of perpetrators and accounted for a proportionately large percentage of events and substantiations. On average perpetrators in Group 1 had contact with the child protection system during their early 20s. Female perpetrators in this group overwhelmingly perpetrated against their own biological children, and their harms were predominately attributable to neglect and emotional abuse. Male perpetrator harms were largely attributable to emotional abuse, followed by physical abuse and neglect. In this group, on average, over half of each male's perpetration related to their own biological children.

On average, perpetrators in Group 3 had contact with the child protection system across their mid-to-late 20s, and had a higher average number of victims compared to Groups 1 and 2. Largely consistent with the overall cohort of perpetrators, there were more females than males in this trajectory group. Harms by female perpetrators in Group 3 were predominately attributable to neglect and emotional abuse, and overwhelmingly perpetrated against their own biological children. Harms by male perpetrators were predominately attributable to emotional abuse, followed by physical abuse and neglect, and predominately perpetrated against their own biological children followed by their non-biological children.

Groups 2 and 4 were notably different from the general cohort. Group 2 was typically characterised by adolescents who perpetrated maltreatment for a short period of time and were responsible for a relatively small proportion of substantiations and events in the dataset. Non-Indigenous males were mildly overrepresented in this group. A particularly high mean proportion of harm by males in this group was attributable to sexual abuse compared to other groups, followed by physical and emotional abuse. For male perpetrators in this group, perpetrators were most often another child, with the next largest mean proportion relating to an "unknown" relationship with their victim. Just 20 percent were biological parents. Female perpetrators in this group were predominately biological parents of their victims, and similar to other female trajectories predominately perpetrated neglect, followed by emotional abuse.

Group 4 was characterised by a “chronic” maltreatment trajectory, meaning perpetration spanned a considerably longer period for this group compared to the other groups. On average, perpetrators in this group onset during adolescence and continued throughout young adulthood. Females, especially Indigenous Australian females, were overrepresented in Group 4. Harms by female perpetrators in Group 4 were predominately attributable to neglect and emotional abuse, though the majority were also responsible for at least one substantiation of physical abuse. Harms by male perpetrators in Group 4 were attributable to all harm types, with the largest mean proportion attributable to emotional abuse, followed by physical abuse, neglect and sexual abuse. However, just 13 males were classified into this trajectory group.

Table 21: Relationship profile by trajectory group for male perpetrators

		Biological parent		Non- biological parent		Other child relationship		Other adult relationship		Unknown/not recorded	
Group	N	M	SD	M	SD	M	SD	M	SD	M	SD
1	508	0.58	0.46	0.14	0.32	0.00	0.01	0.09	0.27	0.19	0.35
2	159	0.18	0.37	0.03	0.16	0.41	0.48	0.10	0.29	0.28	0.44
3	751	0.62	0.42	0.20	0.34	0.00	0.02	0.03	0.15	0.16	0.31
4	13	0.63	0.32	0.15	0.22	0.08	0.15	0.00	0.00	0.15	0.21
Total	1,431	0.56	0.45	0.16	0.32	0.05	0.21	0.06	0.22	0.18	0.34

Table 22: Relationship profile by trajectory group for female perpetrators.

		Biological parent		Non- biological parent		Other child relationship		Other adult relationship		Unknown/not recorded	
Group	N	M	SD	M	SD	M	SD	M	SD	M	SD
1	644	0.91	0.26	0.01	0.08	0.00	0.00	0.02	0.12	0.07	0.22
2	116	0.79	0.39	0.02	0.13	0.02	0.14	0.02	0.11	0.16	0.35
3	938	0.92	0.23	0.02	0.12	0.00	0.00	0.01	0.08	0.05	0.19
4	88	0.91	0.21	0.00	0.02	0.00	0.01	0.01	0.03	0.08	0.21
Total	1,786	0.91	0.26	0.02	0.11	0.00	0.04	0.01	0.10	0.07	0.22

Summary

Taken together the results of our analyses indicate considerable heterogeneity across maltreatment perpetrators and their patterns of maltreatment across the life-course. There do appear to be differences between distinct subgroups of Indigenous and non-Indigenous males and Indigenous and non-Indigenous females with regards to maltreatment perpetration. Multi-type maltreatment was common, as was recidivism. Overall, it appears that a relatively small percentage of perpetrators are responsible for a disproportionately high percentage of maltreatment substantiations, events and victims. The high rate of recidivism within the overall cohort of perpetrators indicates multiple opportunities for intervention efforts to be directed to the perpetrators of maltreatment, which may in turn benefit a greater number of distinct victims. Effective intervention with maltreatment perpetrators can contribute to prevention of child maltreatment and a reduction in distinct victims. The next section (*Discussion*) considers these issues in more depth.

Discussion

This is the first large longitudinal study in Australia focused on the perpetrators of child maltreatment. Ongoing maltreatment and child protection involvement for children is inextricably linked to the life-courses of others around them. Unfortunately, most research in this field has been cross-sectional and focused on children rather than perpetrators. This child focus may obscure trajectories that maltreatment perpetrators may have been on before a particular child was born and which may impact on multiple children. By extension, knowledge of perpetrator risk/protective factors, and their interaction and accumulation over time, has been limited. In this section, an overview of the findings is provided and implications for policy and practice are considered. Directions for future research are suggested and the limitations of the research are reported.

Overview of the Findings

There are three important findings from this study. First, this is the only study that has estimated the prevalence of officially recorded child maltreatment perpetration in Australia, which was estimated as 23 perpetrators per 1,000 people in the population. Previous international estimates based on community samples suggested that up to 150 per 1,000 people in the population are perpetrators of child maltreatment (Straus & Gelles, 1986; Thornberry et al., 2014). While the prevalence found in this study is lower than international findings, they are difficult to compare because studies use different methodologies, examine different systems and cover different timeframes (AIHW, 2013).

Second, there is a significant degree of heterogeneity in maltreatment perpetration over time. Longitudinal research is essential because time is an important dimension to consider. Indeed, perpetrators may look identical when viewed on the basis of cross-sectional data, but very different when their maltreatment is explored over time. In the current study, four trajectory groups were identified that differed in important ways. Groups 1 and 3 accounted for most perpetrators (88.3%) and maltreatment events (80.6%), although individuals in these groups had few recorded maltreatment events. Individuals in group 1 had an adult onset of maltreatment perpetration that peaked shortly after age 20, and was called ‘early adulthood limited perpetrators’. Group 3 had an adult onset of child maltreatment perpetration after age 20, peaking at age 30 when the data were right censored, and was called ‘adult onset perpetrators’.

The two groups that had an earlier onset were different. Group 2 had an early onset of child maltreatment perpetration that peaked in adolescence, so was called ‘early onset adolescent limited perpetrators’. This was the only group with more males than females (57.8% vs 42.2%). Males in this group more likely to have ever sexually abused their victim/s while females were more likely to have ever neglected their victim/s. Males were also more likely to have had a relationship status as an ‘other child’ or ‘other adult’ than the other groups. Group 4 had early onset maltreatment perpetration, at high levels, and was called ‘early onset chronic perpetrators’. Individuals in this group represented 3.1% of all perpetrators but 12.5% of maltreatment events, with each perpetrator responsible for an average 7.9 maltreatment events. This group was overwhelmingly female, with Indigenous females particularly over-represented. Males and females in this group perpetrated multiple types of maltreatment, including physical and emotional abuse as well as neglect. Individuals in group 4 also perpetrated maltreatment against twice as many distinct children.

The third important finding from this study is that Indigenous Australians are over-represented as perpetrators of child maltreatment. Prior research in Australia and overseas indicates that ethnic minorities are over-represented within the child protection system

(AIHW, 2016; Drake & Johnson-Reid, 2010; USHSS, 2016). In the current study, Indigenous Australians born in 1983 and 1984 were 7.6 times more likely to have perpetrated maltreatment than non-Indigenous people by age 30. Over one-tenth of Indigenous males (12.2%) and nearly two-fifths (16.3%) of Indigenous females had perpetrated child maltreatment. Indigenous females were found to have a larger number of substantiations and maltreatment events than the other groups. Examination of harm-types indicated that there were no differences in the types of harm perpetrated based on Indigenous status. Higher prevalence and frequency of child maltreatment perpetration by Indigenous Australians may be due to the ongoing effects of policies that involved the forced removal of Indigenous peoples, cultural differences in child rearing practices and increased likelihood of experiencing risk factors such as poverty and disadvantage, high levels of community and family violence, substance abuse, mental illness and overcrowded or inadequate housing (Australian Government, 2014; Watson, 2005).

Implications for Policy and Practice

There are two important implications for policy and practice arising from these findings. First, the heterogeneity of maltreatment pathways over time means that interventions could potentially be targeted based on the diverse characteristics of perpetrators and their maltreatment. While the prospective identification of individuals who are likely to maltreat based on risk factors would require additional research, the findings from this study indicate that different types of interventions are required. The existence of two adult onset groups, who accounted for most perpetrators but had low levels of recidivism, may indicate that the system responds adequately to these types of perpetrators. Nevertheless, there is always the possibility of using more effective universal services and interventions to prevent the onset of perpetration, which is necessary given the high proportion of child maltreatment events accounted for by these perpetrators. The need for more effective universal services and interventions is consistent with the National Framework and findings of recent inquiries that have been undertaken of the child protection system such as the *Queensland Child Protection Commission of Inquiry* (Carmody, 2013).

The existence of an adolescent onset group that had high proportions of sexual abuse and frequently involved a child perpetrator indicates that specific early interventions may be required to target potential male adolescent sexual abusers. Individuals in this group are less likely to be the parents of the child, and are therefore less likely to be supported by a tiered early referral model, such as the Family and Child Connect service. Although school based programs exist, these tend to view the child as the potential victim, rather than perpetrator (Walsh, Woolfenden & Shlonsky, 2016). School based programs should ensure that they also aim to reduce perpetration of sexual abuse. Additionally, support services and interventions should be available for young people and their families where sexualised behaviour is of concern. Unfortunately, there are few specialised therapeutic programs for adolescents that address the onset of problem sexual behaviours. Evidence does, however, indicate that interventions for young sexual offenders after court adjudication can reduce offending and can be equally effective for both Indigenous and non-Indigenous peoples (Allard et al., 2015).

Finally, the existence of the early onset chronic group, who perpetrated multiple types of maltreatment at high levels and disproportionately includes Indigenous females, indicates a need for more effective intensive interventions that reduce child maltreatment perpetration. Perpetrators in this group had frequent contact with the child protection system, so there are many potential opportunities to intervene. Interventions that are used to prevent child maltreatment are ‘family focused’ and aim to meet concrete (e.g., housing, unemployment) as well as the therapeutic needs (Watson, 2005). While evidence is lacking about how effective

interventions are in Australia, available evidence suggests that family preservation programs (e.g., homebuilders model), parenting programs (e.g., Triple P), home visiting programs and a range of family interventions (e.g., functional family therapy, brief strategic family therapy, multi-dimension family therapy, and multi-systemic therapy) can reduce child maltreatment (Chen & Chan, 2016; Mikton & Butchart, 2009; Schmied & Tully, 2009; Tully, 2008). It is essential that these programs are accessible by and targeted towards those that have frequent contact with child protection authorities.

The second important implication for policy and practice is that there is a need to ensure that interventions are appropriate, accessible and effective for Indigenous Australians. Indigenous peoples were more likely to perpetrate child maltreatment, with females particularly over-represented in the early onset chronic perpetrator group. Indigenous Australians experience of poverty appears particularly related to their perpetration of child maltreatment, particularly neglect (Australian Government, 2014; Department of Communities, 2008; Jonson-Reid, Drake & Zhou, 2012). This highlights the need for government policies that aim to reduce poverty among Indigenous Australians, such as through community economic development programs. This is consistent with the government's emphasis on closing the gap on Indigenous disadvantage. Given the likely acute risks and needs of many Indigenous perpetrators, it has been recommended that intensive programs should also be available, which should be holistic and of sufficient duration (Watson, 2005). They should also be culturally sensitive, recognise Indigenous peoples' right to self-determination and aim to empower families (Hunter, 2008). In this respect, Family Group Conferencing has been found to be promising for resolving child protection matters in Indigenous communities (Australian Government, 2009; Huntsman, 2006).

Directions for Future Research

The findings from this study indicate the existence of different pathways for child maltreatment perpetration, including a small group of early onset chronic perpetrators. These diverse pathways indicate that different responses may be required for different types of perpetrators to improve their effectiveness. It is essential that future research explores the nature and characteristics of groups that have different perpetration pathways over time, the risk and protective factors for child maltreatment perpetration and how they are similar or different across groups. Given the findings from this study, variations should be explored across gender and Indigenous status to identify whether different risk and protective factors need to be targeted by interventions.

Ideally, this research will consider how both developmental (e.g., early experiences of violence and child maltreatment) and contemporaneous (e.g., mental illness, drug and alcohol abuse, offending, domestic violence, homelessness and disadvantage) risk factors are related to the different types of child maltreaters, and how they interact and accumulate over time. Examining risk factors longitudinally will provide an understanding of the broader developmental systems of perpetrators and assist with the efficient targeting of interventions.

It is also important that future research consider the appropriateness and effectiveness of the system response, whether out-of-home placement or provision of support and intervention to the family. Although out-of-home placement removes the child from potential or actual harm, there is a need to consider impacts over the life-course and whether other children are maltreated. Where supports and interventions are provided, these should be appropriately evaluated so that an evidence base develops that assists policymakers and practitioners to target interventions based on what works for who and how. In particular, there is a need to

understand whether the effectiveness of interventions varies for different types of perpetrators.

Limitations

Despite the many strengths of this large population-based study which explored maltreatment perpetration over 20 years of the life-course, the findings must be interpreted in light of five main limitations. First, the reliance on administrative data to assess maltreatment means that any perpetration that was not reported to child protection authorities, and subsequently substantiated, was not included. Second, all longitudinal data has the inherent limitation that systems and the data available can change over time, in response to legislative and policy requirements. Third, the SPGM used to identify the maltreatment perpetrator groups is essentially a classification tool. Individuals are allocated into groups based on their pattern of events over time, but there will still be some within-group variation in longitudinal patterns and the nature and type of their maltreatment. This was particularly apparent for group 2. Fourth, the study could not take attrition nor migration into account. Although care has been taken to use population figures that are current to estimate the prevalence of child maltreatment perpetration, attrition out of and migration into the cohort could not be accounted for when undertaking the trajectory modelling. Research focused on offending trajectories has found that the final model selected may vary depending on the extent and whether attrition has been taken into account (Eggleston, Laub & Sampson, 2014). Fifth, the data are right censored at age 30, though the study would capture a substantial proportion of maltreatment given that the average age of child maltreatment perpetrators is between 17.5 and 32 years old (Johnson-Reid et al., 2010; Thornberry et al., 2014; Way et al., 2001).

Conclusions

Despite limitations, the findings from this study indicate that there is a considerable heterogeneity in maltreatment perpetration over time. This study identified four groups, including two adult-onset groups that maltreated infrequently but accounted for a large proportion of perpetrators and maltreatment events, and two early onset groups. These findings highlight the need for effective universal programs that aim to prevent the onset of maltreatment perpetration, as well as effective intensive targeted programs. In particular, these interventions need to be appropriate, accessible and effective for Indigenous peoples (Australian Government, 2014). The appropriate targeting of interventions for child maltreatment perpetrators will be greatly assisted by future research that explores how risks and protective factors vary for different types of perpetrators. Importantly, there is a need for research to assess how effective interventions are for reducing child maltreatment perpetration so that an evidence base develops that can be used to inform policy and practice.

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