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Published

2024

Journal Title

Children and Youth Services Review

Version

Version of Record (VoR)

DOI

[10.1016/j.chilyouth.2024.107705](https://doi.org/10.1016/j.chilyouth.2024.107705)

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PII: S0190-7409(24)00277-9
DOI: <https://doi.org/10.1016/j.chilyouth.2024.107705>
Reference: CYSR 107705

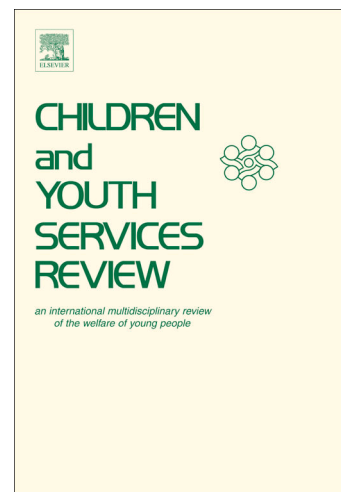
To appear in: *Children and Youth Services Review*

Received Date: 6 February 2023
Revised Date: 22 May 2024
Accepted Date: 24 May 2024

Please cite this article as: U. Athanassiou, T. Whitten, S. Tzoumakis, K.R. Laurens, F. Harris, V.J. Carr, M.J. Green, K. Dean, Contact with child protection services and subsequent rates of first police contact as a person of interest, victim or witness in early life, *Children and Youth Services Review* (2024), doi: <https://doi.org/10.1016/j.chilyouth.2024.107705>

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Highlights

- Longitudinal, population-based school-entry cohort of 91,631 children
- Half of children with police contact had prior contact with the child protection system
- Prior contact with the child protection system was associated with contact as a person of interest, victim and/or witness
- Children's early police contact may flag the need for early intervention

Ulrika Athanassiou: Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Writing - Review & Editing, Visualization

Tyson Whitten: Conceptualization, Methodology, Formal analysis, Writing - Review & Editing, Supervision

Stacy Tzoumakis: Conceptualization, Methodology, Writing - Review & Editing, Supervision, Funding acquisition

Kristin R. Laurens: Writing - Review & Editing, Funding acquisition

Felicity Harris: Data Curation, Writing - Review & Editing, Project administration, Funding acquisition

Vaughan J. Carr: Conceptualization, Writing - Review & Editing, Supervision, Funding acquisition

Melissa J. Green: Conceptualization, Methodology, Writing - Review & Editing, Supervision, Funding acquisition

Kimberlie Dean: Conceptualization, Methodology, Writing - Review & Editing, Supervision, Funding acquisition

Abstract

Purpose: Child maltreatment is known to be associated with risk of later offending and victimisation in adolescence and adulthood, but only a few studies have examined justice system contact in childhood and none have focused on police contact. This study investigated the time to first contact with police in childhood

(aged 13 years and younger) among children with prior child protection services contact.

Methods: Using administrative data for 91,631 children from the New South Wales Child Development Study, Cox proportional hazards regression analyses were used to investigate the time to first contact with the police (for any reason, and specifically as a 'person of interest', 'victim' or 'witness') associated with prior child protection contact, during the observation period from birth to age 13 years. Multivariate models controlled for sex, Aboriginal and/or Torres Strait Islander background, and socioeconomic disadvantage. Subgroup analyses were also conducted for boys and girls separately.

Results: Among the 14,323 children with any police contact by age 13 years, around half (52.3%) had prior contact with the child protection system. Higher rates of police contact for any reason (HR=4.45 [95% CI = 4.08-4.86]), and as a person of interest (HR=9.57 [95% CI=6.85-13.38]), victim (HR=4.49 [95% CI=4.18-5.05]), or witness (HR=9.56 [95% CI=7.19-12.69]) were associated with child protection services contact. Effect sizes were similar for boys and girls.

Conclusions: Early interventions that specifically aim to prevent early contact with the justice system among vulnerable children and their families involved with child protection services are required.

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Keywords: child protection services, maltreatment, early police contact, antisocial behaviour/offending, victimisation

1. Introduction

Child maltreatment (physical abuse, sexual abuse, emotional abuse, neglect, and witnessing violence) is an established risk factor for subsequent involvement in the criminal justice system (Braga, et al., 2017). However, research on the link between child maltreatment and subsequent justice system contact has predominantly focused on offending behaviour in adolescence and adulthood (e.g., Abajobir et al., 2017; Baldawi & Sheehan, 2020; Hurren, Stewart & Dennison, 2017; Maas, Herrenkohl, & Sousa, 2008; Malvaso, Delfabbro & Day, 2017; Mersky, Topitzes & Reynolds, 2012), such that studies of justice system contact among younger children are scarce. There is also limited research examining justice system contact with police, including as a victim (e.g., either a direct victim, or as an indirect victim such as someone who witnesses a crime). Using a large representative population sample of over 91,000 children, the current study thus set out to examine

the time to first contact with the police (in relation to three types of police contact: 'person of interest', 'victim' and 'witness') among children aged 13 years and younger who had prior contact with child protection services.

While there is a dearth of studies investigating criminal justice system contact outcomes among younger children (aged 13 years and younger), one exception is a longitudinal population-based study of around 8,000 men and women from the UK (Degli Esposti et al., 2020). That study followed participants up to 50 years of age to examine the relationship between childhood maltreatment and antisocial behaviour, and found that childhood maltreatment (reported by parents and/or teachers) was associated with an increased risk of antisocial behaviour (reported by parents and/or by self-report) evident at 7 and 11 years of age. This suggests that the maltreatment-offending relationship may emerge in early life. Other studies examining the timing of maltreatment in relation to subsequent youth and adult offending report that maltreatment beginning in adolescence, or continuing from childhood into adolescence, has a stronger association with offending behaviour than childhood-limited maltreatment (Hurren et al., 2017; Malvaso et al., 2017; Thornberry et al., 2010). Several explanations have been proposed to account for this finding. The effect of childhood maltreatment may fade over time (Thornberry, Ireland, & Smith, 2001) or, alternatively, children may be more resilient, or prioritised for more effective intervention, than adolescents (Smith, Ireland & Thornberry, 2005). However, as these studies measured offending outcomes in adolescence or adulthood, rather than earlier in childhood, it is not clear whether child protection services contact influences antisocial/offending behaviour in childhood, including the age of first police involvement. Studies that have examined 'dual system' youth (i.e., those involved in both the child protection and justice systems) have noted that they have a younger age at first contact with the criminal justice system compared to youth involved with the justice system only (Baidawi & Ball, 2023; Herz et al., 2021).

The association between child maltreatment and later offending behaviour is likely to reflect a complex relationship between individual (e.g., sex), familial (e.g., parental adversity) and broader social risk factors (Malvaso, Delfabbro & Day, 2016). For instance, maltreated males are more likely to engage in offending behaviour than maltreated females, despite evidence of an association between maltreatment and offending in both male and female adolescents and adults (Lantos et al., 2019; Widom et al., 2018). Moreover, low socioeconomic status and living in a disadvantaged neighbourhood are associated with an increased risk of offending among adolescents and adults with a history of maltreatment (Schuck & Widom, 2005; Vidal et al. 2017). Shared risk factors and vulnerabilities may also be a potential explanation why offending behaviour may occur more often amongst maltreated children and young people. Socioeconomic disadvantage, for example, is associated both with offending behaviour and an increased risk of child maltreatment (e.g., Farrington, Loeber & Ttofi, 2012; Doidge, Higgins, Delfabbro & Segal, 2017). Beyond having such confounding or mediating factors in common, there may be a more direct impact of maltreatment on the risk of subsequent offending behaviour. The maltreatment experiences may have an impact on the developing young person such that they are at increased risk of engaging in offending behaviour (Toth & Cicchetti, 2013).

It is important to note that in Australia, Aboriginal and/or Torres Strait Islander people experience high levels of disadvantage across many domains, including

overrepresentation in the child protection and criminal justice systems (Cunneen, Russell, & Schwartz, 2021; Doidge et al., 2017). Maltreated Aboriginal and/or Torres Strait Islander youth are also more likely to engage in offending compared to non-Aboriginal and/or Torres Strait Islander youth (Malvaso et al. 2017); there are multiple and complex reasons for this, including the impact of forced child removals, institutional racism, lack of self-determination, and persistent social inequality, all of which can lead to intergenerational trauma and social disadvantage (Cunneen & Porter, 2017; Tilbury, 2009).

Finally, there are relatively few studies that examine childhood maltreatment and the risk of subsequent direct or indirect victimisation in childhood. Existing research has focused predominantly on childhood maltreatment and subsequent experience of intimate partner violence and/or sexual re-victimisation in adulthood (e.g., Brassard et al., 2020; Shields et al., 2020; Werner et al., 2016), or on a specific type of maltreatment, such as sexual abuse and re-victimisation (Papalia, Mann, Ogloff, 2021; Papalia et al., 2017). Research on poly-victimisation (i.e., experiences of multiple types of victimisation) indicates that childhood maltreatment is associated with an increased risk of other types of victimisation (e.g., peer violence, assaults and witnessing violence) among children and adolescents (Cyr et al. 2012; Finkelhor, Ormond & Turner, 2007). A cross-sectional UK population-based survey of 4,036 individuals found that childhood maltreatment was associated with an increased risk of further victimisation from peers and intimate partners, as well as witnessing domestic violence (Radford et al., 2013). This research suggests that maltreatment is not only associated with offending outcomes, but also with direct and indirect victimisation. While these authors (Radford et al., 2013) did not report whether maltreated males or females were more likely to experience further victimisation, some studies suggest boys are more likely to experience poly-victimisation (Finkelhor et al., 2007).

Consistent with the association between maltreatment and offending, the relationships with direct and indirect victimisation are likely to be underpinned by complex associations with a range of factors, including overlapping social risk factors. For instance, the occurrence of child abuse, maltreatment and the witnessing of domestic violence is known to occur more often in socioeconomic disadvantaged areas (Australian Institute of Health and Welfare, 2019; Doidge et al., 2017). Similarly, indirect and direct victimisation risk is also associated with socioeconomic disadvantage (Foster, Brooks-Gunn, & Martin, 2012; Gibson, Morris, & Beaver, 2009; Zimmerman & Posick, 2016). Maltreatment experienced in early life might also affect child development leading to an increased risk of engaging in behaviour and social relationships that result in repeated victimisation experiences (Shields, & Cicchetti, 2001; Toth & Cicchetti, 2013). Hence, it is important to understand early criminal justice contact among children with prior child protection contact in order to support vulnerable children and their families.

Considering the limited research on maltreatment and subsequent antisocial/offending behaviour along with victimisation experiences in childhood, the current study set out to investigate the time to first police contact in childhood (0 to 13 years of age) among children with prior child protection service contact, using a large representative population sample. Police contact related to both offending and victimisation (direct and indirect), and analyses accounting for several

sociodemographic factors linked to youth criminal justice contact were conducted, along with separate analyses for boys and girls.

2. Methods

2.1. Participants and procedures

The study sample comprised 91,631 children born between 2002-2005, from the New South Wales Child Development Study (NSW-CDS; <https://nsw-cds.com.au>; Carr et al., 2016; Green et al., 2018), among whom 51.8% ($n=47,422$) were boys and 7.5% ($n=6,899$) were of Aboriginal and/or Torres Strait Islander background. The NSW-CDS is an Australian multi-agency, population-based, intergenerational record linkage study that is demographically representative of the broader Australian population in terms of sex, socioeconomic status, and Aboriginal and/or Torres Strait Islander background (Green et al., 2018). Data linkage was carried out by the Centre of Health Record Linkage using probabilistic linkage methods across a set of minimal identifiers (i.e., name, date of birth, residential address, and sex) with ethical approval obtained from the NSW Population and Health Services Research Ethics Committee (PHSREC AU/1/289807 and PHSREC AU/1/1AFE112), with relevant data custodian approvals. Researchers obtained de-identified records only.

2.2. Measures

2.2.1. Police contact

Police contact data were obtained from the NSW Police Force Computerised Operational Policing System (COPS), available from the time of the child's birth (2002-2005) until May 2018 (child mean age 14.7 years; SD 0.37; range 13-16 years). Data were right censored at age 13 years to ensure that all children were followed for the same period of time. There was no significant difference in the average age of first police contact between children born in 2002-2003 ($n=62,636$) and 2004-2005 ($n=28,995$) (mean 7.92 vs. mean 7.98 years; $t=-.775$, $p=.439$; Whitten et al., 2020).

The COPS records include data on all criminal (e.g., assault, theft, drug offences) and non-criminal (e.g., traffic checks, bail checks, antisocial behaviour) incidents reported to or detected by the NSW Police Force (NSW Bureau of Crime Statistics and Research, 2018), including information concerning the date and detailed reasons for the contact. Police contact is categorised by involvement type as a 'person of interest', 'victim' or 'witness'. In this context a *person of interest* is defined as an individual who has not necessarily been formally accused of a crime but is of interest to the police during the investigation of a criminal or non-criminal incident, a *victim* is a person who suffers harm as a direct result of a criminal or non-criminal incident investigated by police, and a *witness* is a person who sees, hears or experiences a criminal or non-criminal incident investigated by police (Whitten et al., 2020).

The COPS data do not include other categories of police contact such as

children “at-risk” (i.e., where there is risk of harm such as children present at domestic violence incidents, mandatory reporting) or other positive police contacts. Mandatory reporting protocols require that police refer all children they identify as “at risk of significant harm” to child protection services. In the COPS data set, these children are designated as “at-risk”, in addition to any other involvement type. The “at-risk” indicator was not included in the current data. Therefore, children who were not involved in an incident as a ‘person of interest’, ‘victim’, or ‘witness’, but were identified as “at-risk” during the course of police duties, were not included in the COPS data. However, the mandatory reporting records for these children were included in data provided by the NSW Department of Communities and Justice (see below).

Using information about the child’s birth month and year obtained from the NSW Ministry of Health Perinatal Data Collection, the time to any first contact with the police was calculated in terms of months from birth. In addition, the times from birth to the date of each ‘first police contact type’ were derived for an individual’s first contact with police as a ‘person of interest’, ‘victim’ or ‘witness’. These categories were not mutually exclusive (i.e., a child could be recorded as having more than one first contact type in relation to a single contact event, for example, contact as both a ‘person of interest’ and ‘victim’).

2.2.2. Contact with child protection services

Contact with the child protection system data was obtained from the NSW Department of Communities and Justice (DCJ) Case Management System - Key Information Directory System (data available from January 2001 to December 2016; Green et al., 2018). These data contain the dates for all types of contact with child protection services, including concern reports that do not meet the threshold for ‘risk of significant harm’ (ROSH), as well as those reports which do meet the ROSH threshold for follow-up (whether or not they are ultimately followed up or substantiated), as well as out-of-home care (OOHC) placements. Based on the dates of any type of child protection service contact, children were categorised as those who had been the subject of any child protection contact before their first police contact (by age 13 years; coded 1=yes), versus those who had no child protection contact, or whose first child protection contact was *after* their first police contact (coded 0=no). The date of the first child protection contact was also used to estimate the time from first child protection contact to first police contact (among the group with child protection contact before police contact).

2.2.3 Covariates

Three covariates known to be associated with youth criminal justice contact were accounted for in multivariable analyses: the child’s sex, Aboriginal and/or Torres Strait Islander background, and socioeconomic disadvantage. The child’s sex and Aboriginal and/or Torres Strait Islander background were obtained from data derived from all available records (according to the majority designation where any discrepancy across datasets was apparent). Socioeconomic disadvantage was derived using the Socio-Economic Index for Areas (SEIFA) Index of Relative Socio-

Economic Disadvantage that is based on the average income and employment status for each residential postcode in Australia (Australian Government, 2011). SEIFA quintiles, available from the Australian Early Development Census records (based on child's home postcode at the time of school entry; approximate age 5 years), ranged from the most disadvantaged (quintile 1) to the least disadvantaged (quintile 5). SEIFA data were missing for 5.2% (n=4,764) of the children in the total sample (n=91,631).

2.3 Statistical analyses

Children were followed from birth until the date of their first contact with police (1) for any contact type, (2) as a 'person of interest', (3) 'victim' and (4) 'witness', or until the end of the observation period (age 13 years) in cases of no police contact. A series of univariate and multivariate Cox proportional hazards regression analyses were conducted to investigate rates of children's first contact with the police for any reason, and 'person of interest', 'victim', or 'witness' among children with any previous child protection contact (relative to those without child protection service contact, or whose first child protection contact occurred after their first contact with police). The multivariate Cox regression analyses were adjusted for any child protection service contact before police contact, child's sex and Aboriginal and/or Torres Strait Islander background and SEIFA.

The 'time to event' was right censored (entered as the final date of the follow-up at age 13 years) for children in the reference group for whom no police contact had occurred (Tabachnick & Fidell, 2019). In all Cox regression analyses, child protection contact was treated as a time-varying covariate. The covariate 'Aboriginal and/or Torres Strait Islander background' violated the assumption of proportionality of hazards and so its effect was treated as time-varying and computed with time-dependant interaction terms (Zhang et al., 2018). The Cox regression analyses produced Hazard Ratios (HR) and their 95% confidence intervals as measures of effect and the precision of estimated associations between child protection contact and incidence of police contact (Norman & Streiner, 2012). Results were considered statistically significant if the 95% CI did not cross 1.00, with HR of 1.00 to 1.86 (or 1.00 to 0.54) interpreted as small in magnitude, 1.86 to 3.00 (or 0.54 to 0.33) as medium, and >3.00 (or <0.33) as large (Olivier et al., 2017). All analyses (i.e., descriptive statistics and Cox regressions) were computed to examine boys (total sample n=47,422; subsample with police contact n=7,688) and girls (total sample n=44,209; subsample with police contact n=6,635) separately. Formal tests of interaction for sex were also completed (Altman & Bland, 2003). Data analysis was conducted using IBM Statistics version 26 (IBM, 2019).

3. Results

3.1. Descriptive statistics

Among the 91,631 children in the cohort, 15.6% (n=14,323) had been in contact with the police at least once for any reason. The most common type of first

contact with police was as a 'victim' (72.5%; n=10,391), followed by 'person of interest' (16.6%; n=2,371) and 'witness' (12.4%; n=1,774). The prevalence of child protection contact and key covariates (i.e., sex, Aboriginal and/or Torres Strait Islander background, SEIFA) are presented according to first police contact status in Table 1, for the total sample (n=91,631) and separately for the subsample of children with any police contact (n=14,323), according to type of contact (i.e. 'person of interest', 'victim' or 'witness').

XXX INSERT TABLE 1 XXX

Almost one quarter (23.6%; n=21,609) of the total sample had at least one child protection contact from birth to 13 years of age. Among the 14,323 children with any police contact, around half (52.3%; n=7,484) had contact with the child protection system before first contact with police. Children with prior child protection contact had a younger median age at their first police contact ('any' contact 9.2 years [range 0.0-13.9 years]) compared to those with no child protection contact or a first child protection contact after police contact ('any' contact 10.9 years [range 0.0-13.9 years]).

Amongst those with police contact and prior child protection contact, the median time from first child protection contact to the first contact with police was shortest for those children with 'victim' contact (4.2 years; range 0-13.8 years), followed by those with a 'witness' contact (5.1 years; range 0-13.9 years) and as a 'person of interest' (7.8 years; range 0-13.9 years). The proportion of children with child protection service involvement was highest among those with a first contact as a 'person of interest' or 'witness' (56.0% and 55.2% respectively), relative to those with first police contact as a 'victim' (50.9%).

More boys (53.7%; n=7,688) than girls (46.3%; n=6,635) had contact with the police for any reason. Among those with police contact, slightly more girls had prior contact with child protection services (53.8%; n=3,572) compared to boys (50.8%; n=3,912). Table 2 presents the prevalence of contact with child protection services and covariates, by first police contact types, for boys and girls separately. The most common first police contact type for both boys (67.8%; n=5,213) and girls (78.0%; n=5,178) was 'victim', followed by 'witness' for girls (13.1%; n=866) and as a 'person of interest' for boys (21.8%; n=1,676). Boys and girls had similar median times from child protection contact to first police contact.

XXX INSERT TABLE 2 XXX

3.2 Incidence of first police contact

Results of the unadjusted Cox proportional hazard regression analyses for the full sample are presented in Table 3. The incidence of first police contact for any reason was higher among children with prior contact with child protection services than those without or whose first child protection contact was after their first police

contact (HR 5.72, CI 5.27-6.20). Higher incidence rate ratios for police contact were seen in those identified as a 'person of interest' (HR=16.93 [95% CI=12.41-23.08]) or 'witness' (HR=11.98 [95% CI=9.21-15.58]) than those in contact as a 'victim' (HR=5.94 [95% CI=5.43-6.49]). Incidence rates of police contact for children of Aboriginal and/or Torres Strait Islander background were significantly higher than for children who were not of Aboriginal and/or Torres Strait Islander backgrounds across all types of police contact, with strong magnitudes of association seen for 'person of interest' contact (HR=16.72 [95% CI=12.51-22.34]). Boys had greater rates of first police contact as a 'person of interest' (HR=2.26 [95% CI=2.06-2.47]) than girls, but not as a 'witness' (HR=0.99 [95% CI=0.90-1.09]) or 'victim' contact (HR=0.96 [95% CI=0.92-0.99]). Children living in more socioeconomically disadvantaged areas at the time of school entry (~age 5 years) had higher incidence rate ratios of first police contact of each type, compared to those living in the least disadvantaged areas. Medium magnitudes of association were seen for 'witness' contact (HR=2.69 [95% CI=2.30-3.16]), 'person of interest' contact (HR=2.64 [95% CI=2.31-3.02]) and 'victim' contact (HR=2.10 [95% CI=1.97-2.23]).

XXX INSERT TABLE 3 XXX

The inclusion of all covariates in the same multivariable model (Table 4) revealed a similar pattern of statistically significant results, albeit with somewhat reduced magnitudes of association. A similar pattern of results was also observed when analyses were stratified by sex (Table 5). The incidence rate ratios of police contact were, however, higher for boys who had a prior child protection contact, for contact with police 'person of interest' and 'witness', relative to the strength of these associations for girls. Formal testing of a potential interaction by sex was not significant for any of the police contact types (analyses not shown).

XXX INSERT TABLE 4 & 5 XXX

4. Discussion

In a large longitudinal sample of children (n= 91,631) representative of the NSW population, we found that prior contact with child protection services was associated with a higher incidence of first police contact for any reason, with the strongest effects evident for contact with police as a 'person of interest' or 'witness'. These findings extend previous research to demonstrate that children in contact with the child protection system are more likely to experience early justice system contact, in the form of police contact, for a range of reasons.

Our findings in relation to earlier police contact as a 'person of interest' among children known to child protection services are consistent with evidence of the higher likelihood of offending behaviour occurring in childhood (Degli Esposti et al., 2020),

and from early adolescence to adulthood (e.g., Braga et al; 2017; Malvaso et al., 2017; Mersky et al., 2012; Smith et al., 2005), following maltreatment, and studies reporting a younger age of first contact with the criminal justice system among dual system youth relative to those involved with the justice system only (Baidawi & Ball, 2023; Herz et al., 2012). We also found that prior contact with child protection services was associated with higher incidence of contact with police as a 'victim' or 'witness'. While there are no directly comparable studies of this type of contact with the justice system in children, these findings are broadly consistent with the few prior studies reporting a relationship between child maltreatment and other indicators of victimisation (Radford et al., 2013; Tillyer, 2015) and poly-victimisation (Cyr et al., 2012; Finkelhor et al., 2009). It is also important to note that contact with the criminal justice system as an offender or victim prior to adolescence is known to be associated with an increased risk of various adverse outcomes such as mental illness, substance use problems, poor academic achievement, and further offending and victimisation (Ahmad & Mazlan, 2014; Athanassiou et al. 2021; Blomberg et al. 2011; Casswell, French, & Rogers, 2012; Loeber & Farrington, 2000). There is thus a need for intervention programs with maltreated children to consider strategies to prevent adverse outcomes such as offending behaviour and the risk of further victimisation experiences, including early contact with police.

That boys were more likely to be involved with police as a 'person of interest' accords with the evidence for a 'gender gap' in relation to offending behaviour (Gartner, 2011; Moffit et al., 2001); that is, males are more likely to engage in offending behaviour and have related contact with the justice system than females. However, formal testing showed that the child's sex did not moderate the relationship between prior contact with child protection services and time to 'person of interest' contact in this study. While a recent scoping review of 180 studies on sex differences in the youth maltreatment-offending relationship suggested that maltreated boys tend to be more likely to offend than girls, published findings of the potential moderation of the maltreatment-offending relationship by sex were inconsistent (Baidawi, Papalia & Featherston, 2021). It may be that these inconsistent findings are due to differences in sample characteristics and measurement across studies. It is important to note that the present sample is younger than in most reported studies (13 years and younger), prior to the peak age of offending during adolescence. Moreover, police contact provided a broader index of criminal justice system contact that included both criminal and non-criminal contact (i.e., was not limited to criminal offending, unlike the majority of literature on this topic). There is thus a lack of research with which to directly compare our findings on child maltreatment and subsequent victimisation directly, but some studies suggest that boys are more likely to experience poly-victimisation (Finkelhor et al. 2007). Important sex differences may reveal themselves as the children in the NSW-CDS cohort age into adolescence.

Finally, our results showed that a number of key sociodemographic indicators (Aboriginal and/or Torres Strait Islander background and living in a socioeconomic disadvantaged area) were strongly associated with higher incidence of police contact, for all three police contact types. This is consistent with previous evidence of social disadvantage and Aboriginal and/or Torres Strait Islander background influencing the association between maltreatment and later offending behaviour (Malvaso et al., 2017; Schuck & Widom, 2005; Vidal et al., 2017). Child maltreatment, offending, victimisation, and contact with statutory services have

consistently been found to be associated with living in socioeconomically disadvantaged communities (AIHWJ 2019; Newburn, 2016). A range of underlying explanatory factors are likely to underpin this association, including those acting at a community-level and those related to familial circumstances (e.g. single-parenthood, young maternal age at birth and domains of parental adversity such as criminal justice system contact and mental illness; Austin, 2016; Farrington et al., 2012; Kuluk, Allard & Stewart, 2021; Manning & Gregoire, 2006). The higher incidence of police contacts among children with Aboriginal and/or Torres Strait Islander background is most likely a reflection of the economic, social and health adversity experienced by Aboriginal and/or Torres Strait Islander peoples in Australia, arising from the persistent effects of colonisation, systematic racism and forced child removals which has led to intergenerational cycles of trauma (Cunneen et al., 2021; Bryant & Willis, 2008). It is important to consider that differential treatment of particular groups in the community by statutory services might also be a factor influencing study findings given the reliance on administrative data. Future studies should consider examining differences in the profile of risk factors, as well as any differences in the strength of associations, between Aboriginal and/or Torres Strait Islander children and non-Aboriginal and/or Torres Strait Islander children in regard to child protection involvement and later police contact to inform culturally appropriate evidence-based early prevention and intervention programs.

The implications of the findings of the current study are important since the early onset of offending and/or justice contact is a risk factor of further and more serious offending (Farrington, 2003; Piquero, 2008) and children who are victimised are at increased risk of re-victimisation (Athanassiou et al., 2021; Ellonen & Salmi, 2011). The presence of early police contact may thus flag the need for early intervention to prevent compounding adversities and poor long-term trajectories. Interventions such as early life home-visiting programs have been shown to be effective in reducing child maltreatment in vulnerable families, as well as reducing offending among at-risk children (Olds, Sadler & Kitzman, 2007). Indeed, the Australian 'Nurse Family Partnership Program' supports Aboriginal and/or Torres Strait Islander mothers via culturally appropriate services and has been associated with a decrease in child protection system involvement (Segal et al., 2018). Another evidence-based behavioural family intervention program is the 'Triple P Program', with proven success in reducing child maltreatment and improving children's behavioural outcomes (Turner & Sandler, 2006). Of course, the association between child maltreatment and justice system contacts is complex and influenced by broader social disadvantage. Therefore, a whole-of-government approach to prevention is vital, involving not only child protection and justice system services, but agencies concerned with health, education, housing, and employment.

5. Strengths and limitations

The present study has the advantage of being nested within a larger longitudinal record-linkage cohort that is representative of the Australian population (Green et al., 2018). The use of administrative data diminishes the impact of potential sampling (selection and attrition) and information (recall and observer)

biases. Police contact is the earliest form of justice system contact and the inclusion of informal police contacts (i.e., that may not lead to formal charges or other criminal justice sanctions) avoids the need to limit the examination of criminal justice contacts occurring only from the age of criminal responsibility (age 10 years in all Australian jurisdictions). Although the inclusion of non-criminal incidents may be seen as a limitation, we consider this a strength, as we suspect that all types of police contact may indicate vulnerability for further adversity. Limitations of the study include that the administrative data were not originally collected for research purposes and may be subject to minor classification errors. Furthermore, potentially important variables not available in these linked data sets (e.g., individual measures of socioeconomic status, parenting practices and parental police contact) may contribute to earlier police contact among children with prior child protection notifications. Notably, the current study likely underestimates children's offending behaviour and victimisation experiences, because not all events that come to the attention of police were included in the data obtained from the police; specifically, incidents representing 'children at-risk' and contacts resulting from inter-agency mandatory reporting requirements were unavailable to the research team. Finally, cultural biases in child protection system reporting and over-policing of Aboriginal and/or Torres Strait Islander children may lead to these children being more likely to come to the attention of child protection services and the police (Cunneen, Goldson & Russell, 2016; Malvaso et al., 2018).

6. Conclusion

Contact with child protection services was associated with a higher incidence of first contact with the police in this large population-based study, highlighting the need for early intervention for children known to child protection services and the police, to avert further victimisation and/or antisocial/offending behaviour. Other broader factors, such as socioeconomic disadvantage appear to influence the rate of justice system contact among children known to child protection services, suggesting that cross-agency responses are required. While first police contact may provide an opportunity to provide targeted services and/or intervention programs for vulnerable children and their families, potential stigmatisation and discrimination must be mitigated. It is therefore important that the implementation of any targeted responses carefully consider these issues, especially in relation to Aboriginal and/or Torres Strait Islander children and their families for whom support programs must be holistic and culturally appropriate (Hunt, 2013). Future studies should investigate risk factors in other domains, such as the family, as it is likely that parental adversities (e.g., offending and mental illness) and parenting skills influence the association between contact with child protection services and justice system contacts in early life.

Acknowledgements

This research used population data owned by NSW Department of Communities and Justice; NSW Ministry of Health; NSW Registry of Births, Deaths and Marriages; and the NSW Police Force. This paper uses data from the Australian Early Development Census (AEDC). The AEDC is funded by the Australian Government Department of

Education. The findings and views reported are those of the authors and should not be attributed to these Departments or the NSW and Australian Government. The record linkage was conducted by the Centre for Health and Record Linkage.

Funding

This research was conducted by the University of New South Wales with financial support from the Australian Research Council (ARC) Linkage Project (LP110100150, with the NSW Ministry of Health, NSW Department of Education, and the NSW Department of Communities and Justice representing the Linkage Project Partners), Discovery Project (DP170101403), Future Fellowship (FT170100294 awarded to KRL), and Discovery Early Career Researcher Award (DE210100113 awarded to ST) as well as the National Health and Medical Research Council (NHMRC) Project Grants (APP1058652 and APP1148055), Partnership Project (APP1133833) and Investigator Grant (APP1175408 awarded to KD), and; the Australian Government Research Training Program Scholarship awarded to UA.

Declaration of interest: None

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Journal Pre-proofs

Table 1. Prevalence of contact with child protection services and covariates, by first police contact types

	Total Sample			Children with police contact*		
	N=91,631			N=14,323		
	Total Sample	No Police Contact	Any Police Contact	Person of Interest Contact	Victim Contact	Witness Contact
	(N=91,631)	(n=77,308)	(n=14,323)	(n=2,371)	(n=10,391)	(n=1,774)
Contact with child protection services						
Yes	21,609 (23.6%)	12,715 (16.4%)	8,894 (62.1%)	1,426 (60.1%)	6,440 (62.0%)	1,161 (65.4%)
No	70,002 (76.4%)	64,593 (83.6%)	5,429 (37.9%)	945 (39.9%)	3,951 (38.0%)	613 (34.6%)
Child protection contact before any police contact						
Yes	n/a	n/a	7,484 (52.3%)	1,328 (56.0%)	5,293 (50.9%)	979 (55.2%)
No	n/a	n/a	6,839 (47.7%)	1,043 (44.0%)	5,098 (49.1%)	795 (44.8%)
Sex						
Male	47,422 (51.8%)	39,734 (51.4%)	7,688 (53.7%)	1,676 (70.7%)	5,213 (50.2%)	908 (51.2%)
Female	44,209 (48.2%)	37,574 (48.6%)	6,635 (46.3%)	695 (29.3%)	5,178 (49.8%)	866 (48.8%)
Aboriginal and/or Torres Strait Islander						
Yes	6,899 (7.5%)	4,013 (5.2%)	2,886 (20.1%)	673 (28.4%)	1,892 (18.2%)	368 (20.7%)

No	84,732 (92.5%)	73,295 (94.8%)	11,437 (79.9%)	1,698 (71.6%)	8,499 (81.8%)	1,406 (79.3%)
Socioeconomic Status (SEIFA)						
Quintile 1 (most disadvantaged)	21,486 (23.4%)	17,054 (22.1%)	4,432 (30.9%)	779 (32.9%)	3,156 (30.4%)	564 (31.8%)
Quintile 2	16,804 (18.3%)	13,794 (17.8%)	3,010 (21.0%)	490 (20.7%)	2,185 (21.0%)	381(21.5%)
Quintile 3	14,957 (16.3%)	12,643 (16.4%)	2,314 (16.2%)	373 (15.7%)	1,687 (16.2%)	288 (16.2%)
Quintile 4	14,588 (15.9%)	12,645 (16.4%)	1,943 (13.6%)	318 (13.4%)	1,417 (13.6%)	238 (13.4%)
Quintile 5 (least disadvantaged)	19,032 (20.8%)	17,104 (22.1%)	1,928 (13.5%)	293 (12.4%)	1,452 (14.0%)	208 (11.7%)
Missing	4,764 (5.2%)	4,068 (5.3%)	696 (4.9%)	118 (5.0%)	494 (4.8%)	95 (5.4%)

*Groups defined by type of first police contact are not mutually distinct (i.e. some children may have more than one single contact type in a contact event)
 Note: SEIFA= Socio-Economic Indexes for Areas.

Table 2. Prevalence of contact with child protection services and covariates, by first police contact types for boys and girls

	Boys with police contact*			Girls with police contact*		
	n=7,688			n=6,635		
	Person of Interest Contact	Victim Contact	Witness Contact	Person of Interest Contact	Victim Contact	Witness Contact
	(n=1,676)	(n=5,213)	(n=908)	(n=695)	(n=5,178)	(n=866)
Contact with child protection services						
Yes	975 (58.2%)	3,175 (60.9%)	567 (62.4%)	451 (64.9%)	3,265 (63.1%)	594 (68.6%)
No	701 (41.8%)	2,038 (39.1%)	341 (37.6%)	244 (35.1%)	1,913 (36.9%)	272 (31.4%)
Child protection contact before any police contact						
Yes	911 (54.4%)	2,585 (49.6%)	476 (52.4%)	417 (60.0%)	2,708 (52.3%)	503 (58.1%)
No	765 (45.6%)	2,628 (50.4%)	432 (47.6%)	278 (40.0%)	2,470 (47.7%)	363 (41.9%)
Aboriginal and/or Torres Strait Islander						
Yes	467 (27.9%)	928 (17.8%)	183 (20.2%)	206 (29.6%)	964 (18.6%)	185 (21.4%)
No	1,209 (72.1%)	4,285 (82.2%)	725 (79.8%)	489 (70.4%)	4,214 (81.4%)	681 (78.6%)
Socioeconomic Status (SEIFA)						
Quintile 1 (most disadvantaged)	551 (32.9%)	1,561 (29.9%)	294 (32.4%)	228 (32.89%)	1,595 (30.8%)	270 (31.2%)

Quintile 2	351 (20.9%)	1,084 (20.8%)	168 (18.5%)	139 (20.0%)	1,101 (21.3%)	213 (24.6%)
Quintile 3	269 (16.1%)	829 (15.9%)	155 (17.1%)	104 (15.0%)	858 (16.6%)	133 (15.4%)
Quintile 4	225 (13.4%)	723 (13.9%)	122 (13.4%)	93 (13.4%)	694 (13.4%)	116 (13.4%)
Quintile 5 (least disadvantaged)	195 (11.6%)	742 (14.2%)	115 (12.7%)	98 (14.1%)	710 (13.7%)	93 (10.7%)
Missing	85 (5.1%)	274 (5.3%)	54 (5.9%)	33 (4.7%)	220 (4.2%)	41 (4.7%)

*Groups defined by type of first police contact are not mutually distinct (i.e. some children may have more than one contact type in a single contact event)

Note: SEIFA= Socio-Economic Indexes for Areas

Table 3. Unadjusted Hazard Ratios (HR; with 95% Confidence Intervals [CI]) for first contact with police according to child protection contact and covariates

Covariates	Any Police Contact	Person of Interest	Victim	Witness
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Child protection contact before any police contact				
Yes	5.72 (5.27-6.20) ^a	16.93 (12.41-23.08) ^a	5.94 (5.43-6.49) ^a	11.98 (9.21-15.58) ^a

No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Sex				
Male	1.08 (1.05- 1.12)	2.26 (2.06- 2.47)	0.96 (0.92- 0.99)	0.99 (0.90- 1.09)
Female	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Aboriginal and/or Torres Strait Islander				
Yes	5.05 (4.61- 5.54)	16.72 (12.51- 22.34)	5.71 (5.14- 6.34)	8.75 (6.59- 11.61)
No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Socioeconomic Status (SEIFA)				
Quintile 1; most disadvantaged	2.18 (2.07- 2.30)	2.64 (2.31- 3.02)	2.10 (1.97- 2.23)	2.69 (2.30- 3.16)
Quintile 2	1.86 (1.75- 1.97)	2.06 (1.78- 2.38)	1.81 (1.69- 1.94)	2.26 (1.90- 2.67)
Quintile 3	1.58 (1.49- 1.68)	1.71 (1.47- 2.00)	1.54 (1.44- 1.65)	1.86 (1.56- 2.23)
Quintile 4	1.34 (1.26- 1.43)	1.46 (1.25- 1.72)	1.31 (1.21- 1.40)	1.54 (1.28- 1.86)
Quintile 5; least disadvantaged	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)

^a Time-dependant variable.

Note: SEIFA= Socio-Economic Areas. Total sample: Any contact n= 86,867-91,631; Person of interest n=75,493-79,679; Victim n= 83,137-87,699; Witness n=74,919-79,082

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Table 4. Adjusted Hazard Ratios (HR; with 95% Confidence Intervals [CI]) for first contact with police according to child protection contact and covariates.

Covariates	Any Police Contact	Person of Interest	Victim	Witness
	HR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Child protection contact before any police contact				
Yes	4.45 (4.08-4.86) ^a	9.57 (6.85-13.38) ^a	4.49 (4.18-5.05) ^a	9.56 (7.19-12.69) ^a
No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Sex				
Male	1.05 (1.02-1.09)	2.17 (1.98-2.37)	0.94 (0.90-0.97)	0.96 (0.87-1.05)
Female	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Aboriginal and/or Torres Strait Islander				
Yes	2.54 (2.30-2.81)	5.50 (4.76-8.88)	2.95 (2.64-3.30)	3.48 (2.57-4.73)
No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Socioeconomic Status (SEIFA)				
Quintile 1; most disadvantaged	1.44 (1.36-1.52)	1.50 (1.30-1.72)	1.42 (1.33-1.51)	1.69 (1.44-1.99)

Quintile 2	1.36 (1.28-1.44)	1.36 (1.17-1.57)	1.35 (1.26-1.44)	1.58 (1.33-1.88)
Quintile 3	1.27 (1.20-1.35)	1.28 (1.10-1.49)	1.26 (1.17-1.35)	1.46 (1.22-1.75)
Quintile 4	1.16 (1.09-1.23)	1.21 (1.03-1.41)	1.14 (1.06-1.22)	1.30 (1.08-1.57)
Quintile 5; least disadvantaged	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)

^aTime-dependant variable.

Note: SEIFA= Socio-Economic Indexes for Areas. Total sample: Any contact n=86,867; Person of interest n=75,493; Victim n=83,137; Witness n=74,919.

Table 5. Adjusted Hazard Ratios (HR; with 95% Confidence Intervals [CI]) for first contact with police according to child protection contact and covariates, for boys and girls separately.

Covariates	Boys with police contact			Girls with police contact		
	Person of Interest	Victim	Witness	Person of Interest	Victim	Witness
	HR (95% CI)	HR (95% CI)	IR (95% CI)	HR (95% CI)	HR (95% CI)	HR (95% CI)
Child protection contact before any police contact						
Yes	11.01 (7.23-16.78) ^a	4.34 (3.79-4.97) ^a	10.25 (6.80-15.46) ^a	7.90 (4.54-13.75) ^a	4.87 (4.26-5.58) ^a	8.88 (5.99-13.17) ^a
No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Aboriginal and/or Torres Strait Islander						
Yes	7.98 (5.44-11.71)	3.08 (2.63-3.61)	4.84 (3.16-7.42)	4.49 (2.60-7.75)	2.83 (2.42-3.31)	2.51 (1.62-3.89)
No	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)
Socioeconomic Status (SEIFA)						
Quintile 1; most disadvantaged	1.61 (1.36-1.90)	1.39 (1.27-1.52)	1.62 (1.30-2.01)	1.27 (1.00-1.62)	1.45 (1.33-1.59)	1.79 (1.41-2.28)
Quintile 2	1.50 (1.25-1.79)	1.34 (1.22-1.47)	1.31 (1.03-1.66)	1.08 (0.83-1.51)	1.35 (1.23-1.49)	1.90 (1.49-2.44)

Quintile 3	1.38 (1.15-1.66)	1.21 (1.09-1.33)	1.42 (1.12-1.81)	1.07 (0.81-1.42)	1.31 (1.18-1.44)	1.51 (1.16-1.97)	^a Time-dependant variable. Note: SEIFA= Socio-Economic Indexes for Areas. Total sample for boys: n=38,494; Total sample for girls: n=36,262.
Quintile 4	1.31 (1.08-1.59)	1.16 (1.05-1.29)	1.25 (0.96-1.61)	0.97 (0.75-1.32)	1.11 (1.00-1.23)	1.37 (1.04-1.80)	
Quintile 5; least disadvantaged	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	1.00 (reference)	