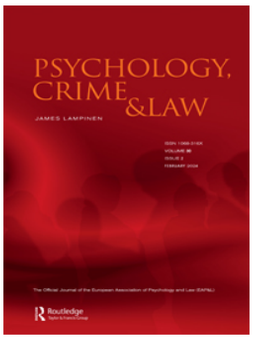

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Exploring factors associated with chronic and serious offending in detained dual system youth

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ABSTRACT

Young people who have both child protection and youth justice contact have been termed 'dual system youth'. Dual system youth have been found to engage in more frequent and serious offending than justice-involved youth without child protection histories. It is unclear which psychological factors contribute to offending amongst dual-system youth. This study aimed to examine associations between child protection involvement, psychological/behavioural factors, and justice system involvement. The sample comprised 192 young people detained in juvenile correctional centres across two sites in Victoria, Australia between July 2011 and June 2012. Instruments were administered to gauge psychopathology and behaviour, while information regarding demographic details, child protection history, and offence data were obtained from client files. Results indicated that having a child protection history was associated with having both a violent index offence and a higher number of previous orders. Sensitivity to anger was also associated with having a violent index offence, while being male and aged 17–18 were associated with a higher number of previous orders. Child protection history moderated the relationship between Indigenous status and the number of prior orders, and between externalising symptoms and prior orders. Implications for clinical practice and future research are discussed.

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Juvenile offending; youth justice; child protection; crossover youth; child maltreatment; dual system youth

Introduction

Young people who have involvement with both the child welfare and youth justice systems are often termed 'dual system youth' (Herz et al., 2010). These young people fall under the broader category of 'crossover youth' – young people who experience maltreatment and engage in criminal behaviours but may or may not have involvement in one or both systems (Herz et al., 2010). Within Australia, a national review that canvased seven jurisdictions found that 54% of youth under justice supervision had

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received child protection services in the foregoing five years (Australian Institute of Health and Welfare [AIHW], 2020). In the Australian state of Victoria specifically, the rate of youth sentenced or diverted in the Children's Court who have also been the subject of a child protection report is 38% (Sentencing Advisory Council, 2019). Males are significantly over-represented in the youth justice system at 80%, and in youth detention at 90% (AIHW, 2021) and they comprise the majority of crossover youth in Australia (Baidawi & Sheehan, 2019). Additionally, male crossover children are generally more likely to subsequently offend (Stewart et al., 2002), and to have more convictions (Malvaso et al., 2017) than female crossover children (Stewart et al., 2002). Conversely, amongst youth justice populations, females are more likely to have experienced child protection involvement than their male counterparts (Baidawi et al., 2021; Malvaso et al., 2017).

Young people who identify as Aboriginal and/or Torres Strait Islander (referred to hereafter as Indigenous Australians) are significantly over-represented in crossover youth populations, having been found 17 times as likely to be involved in both child protection and youth justice systems than non-Indigenous Australian youth (AIHW, 2019). Additionally, Malvaso et al. (2017) found that the likelihood of being convicted in a sample of maltreated youths was higher among Indigenous children than non-Indigenous children. Similarly, Ferrante (2013) found that Indigenous youths were over-represented in a sample of justice-involved young people who exhibited high frequency and serious offending patterns, while Malvaso et al. (2018) found that a higher proportion of Indigenous justice-involved youth had convictions for violent crimes compared to non-Indigenous justice-involved youth. Conversely, there is a dearth of information regarding crossover youth from culturally and linguistically diverse (CALD; born overseas/parent born overseas and speaks a language other than English) backgrounds, particularly within Australia. The reasons for such over-representation of Indigenous youth in the youth justice and child protection systems, as well as the increased rates of violent convictions amongst Indigenous young people are complex and multifaceted. Such reasons include the ongoing disadvantage of Indigenous communities stemming from Australia's devastating colonial history (Broidy et al., 2015) as well as biases and discrimination against Indigenous youth within the child protection and criminal justice systems (See, for example, Papalia et al., 2019). Other explanations focus on differences in offending behaviour and note a disproportionate involvement of Indigenous Australians in serious crime (Weatherburn et al., 2003). This disparity can be attributed to Indigenous Australians possessing a greater number of key risk factors associated with offending including exposure to family violence, limited formal education, employment difficulties, compromised family situations, and disadvantaged neighbourhoods (Weatherburn et al., 2003). These factors also place Indigenous children at a greater risk for child protection involvement (O'Donnell et al., 2019). In addition to offending, these risk factors that span the individual, family, and neighbourhood/community domain are also likely to underpin disparities in victimisation rates. This is supported by broader research demonstrating that offenders and victims share sociodemographic features. For instance, those who are male, experience socioeconomic hardship, and are Indigenous are at a greater risk of offending and being victimised (Athanassiou et al., 2021).

Drawing on her taxonomy, Moffitt theorised *why* differences in offending emerge across racial groups – particular in the U.S. Moffitt posited that race differences in offending may reflect relatively higher presence of Life-course-persistent (LCP) and Adolescent-limited (AL) sub-types[1] (Moffitt, 1994) among Black Americans than Whites. For instance, there may be greater rates of LCP individuals among Black Americans because the root causes of this offender group are magnified by systemic prejudice and poverty. Disadvantaged Black Americans have less access to prenatal care, nutritious diets for infants, and may be exposed to greater levels of toxic agents which place infants at greater risk for nervous system issues that can hinder prosocial child development. Moreover, given that their family environments – including familial bonds – may be compromised, parents may experience elevated stress and their children may be unable to access quality schooling. With respect to AL offenders, Moffitt suggests that the implications of offending are greater for young Black Americans compared to White Americans. If disadvantaged communities provide greater access to LCP role models, even for youth with no prior history of anti-social behaviour, then there may be greater opportunity for youth to mimic more delinquent behaviours. Only a small number of studies have empirically tested these hypotheses and their findings lend tentative support for how Moffitt's taxonomy explains race-based differences in offending patterns (see Piquero, 2015).

Crossover youth generally enter the justice system at a younger age than youth who offend but do not have a history of child welfare involvement (Halemba & Seigel, 2011; Lee & Villagrana, 2015; Malvaso et al., 2019). This early age of offending onset for crossover youth is concerning as being charged prior to the age of 14 is correlated with a recidivism rate of over 80% (Sentencing Advisory Council, 2016), and an increase of 47 charges on average (Baidawi & Sheehan, 2019). Indeed, crossover youth have significantly more arrests (Lee & Villagrana, 2015) and convictions (Malvaso et al., 2019), and spend more time in detention (Halemba & Seigel, 2011) than youth who offend but do not have a history of child protection involvement. Crossover youth who are convicted for the first time also have significantly higher recidivism rates than youth without dual-system involvement (Halemba & Seigel, 2011). Moreover, crossover youth are also more likely to be convicted of a violent offence than justice-involved young people without a child protection history (Malvaso et al., 2019).

Numerous studies spanning multiple decades have examined the relationship between childhood maltreatment and youth justice involvement, and it appears that crossover youth are a heterogenous group with complex and multifaceted drivers for offending. The extant literature suggests that such drivers span individual, social, and systemic levels. Individual drivers behind offending behaviours in crossover youth include the type, timing, and chronicity of maltreatment experienced (Baglivio et al., 2016; Malvaso et al., 2017). Social drivers include socioeconomic status (Malvaso et al., 2017) and neighbourhood disadvantage (Schuck & Widom, 2005). Finally, systemic drivers include placement into out-of-home care (Baglivio et al., 2016; Malvaso et al., 2017; Stewart et al., 2002), placement instability (Goodkind et al., 2013), and the criminalisation of challenging behaviours exhibited in residential care (Baidawi & Sheehan, 2019). While recognising that drivers behind the relationship between maltreatment and offending spans multiple domains, below we consider a number of potential individual factors that may mediate this relationship.

Psychopathology

Mental health concerns are significant sequelae of childhood maltreatment (Green et al., 2020) as well as prominent conditions among crossover youth (Baidawi & Sheehan, 2019; Young et al., 2015). The mechanisms driving this association are unclear, however Bender et al. (2011) proposed that the General Strain Theory may provide an explanation. They hypothesised that childhood maltreatment can be considered a *Strain* that leads to internalising mental health conditions in young people. These young people then engage in offending behaviours in order to cope with or alleviate their negative emotional states, such as depressive and Post-Traumatic Stress Disorder (PTSD) symptoms. Indeed, Bender et al. (2011) found that internalising mental health symptoms mediated the relationship between childhood maltreatment and youth offending. PTSD has also been found to contribute to the prediction of juvenile delinquency in a sample of maltreated youths (Elklit et al., 2013), and mental health service utilisation as a whole has additionally been found to be a strong predictor of youth justice involvement in maltreated young people (Goodkind et al., 2013). Moreover, mental health disorders are correlated with a higher number of offences (Thompson & Morris, 2016) and are associated with an increased risk of recidivism amongst justice-involved youth (Schubert et al., 2011). Finally, mental health conditions have been associated with severe, persistent, and serious delinquency and violence (Baglivio et al., 2020; DeLisi et al., 2021).

Emotion recognition & impulsive aggression

Another potential sequela of childhood maltreatment that may account for the association with juvenile offending and the chronic and violent nature of such offending is the incorrectly labelling others' emotions as anger and their intent as hostile, which in turn leads to impulsive aggression. This association is captured in Anderson's (1999) 'code of the street' thesis which suggests that socioeconomically disadvantaged youth live by two basic orientations: 'decent' and 'street'. Anderson focuses on the latter and argues that street culture fuels levels of violence to gain or lose respect based on how one responds to confrontation. Responding with (greater levels of) violence without consideration for consequences earns respect which is deemed critical in the street subculture. Anderson suggests that although most youth from disadvantaged communities are 'decent' and are not committed to the street subculture, they are nevertheless aware of the behavioural norms associated with it. These youth understand that following these norms reduces their risk of victimisation. This is achieved by being vigilant of highly charged negative emotions such as anger which signify that one is ready to engage in violence.

While there is a paucity of empirical research testing this theory, available research lends support to Anderson's thesis. For instance, Wolff et al. (2023) found that among a sample of justice involved youth, those who held values consistent with the 'code of the street' demonstrated behaviours associated with impulsive aggression (i.e. negative emotions and low self-control). Although no comparable studies with maltreated youth exist, broader research indicates that this group can develop information-processing biases towards emotions that may give rise to danger (Jaffee, 2017; Sentencing Advisory Council, 2020). For example, Pollak and Kistler (2002) found that compared to a non-

abused control sample of children, maltreated children displayed heightened sensitivity to angry facial expressions on a task where computerised faces morphed between different emotional states. These children were also more likely to label ambiguous facial expressions as angry, compared to the control group. Such sensitivity to anger may contribute to maltreated youths developing a hostile attribution bias, erroneously attributing hostile intent to others' actions (Jaffee, 2017).

Moreover, this sensitivity towards anger and hostile attribution bias may precipitate reactive aggression in maltreated youths. Philipp-Wiegmann et al. (2017) found that reactively violent offenders erroneously interpret non-angry emotions in other people as anger, while other studies have reported that hostile attribution bias in youth correlates strongly to reactive aggression (Gagnon & Rochat, 2017), more consistently than proactive aggression (Martinelli et al., 2018). Additionally, Silvern and Griese (2012) found that being exposed to childhood maltreatment predicts reactive aggression. This may partly account for the higher rate of crimes against the person perpetrated by maltreated youth (Sentencing Advisory Council, 2020). Whether this sensitivity towards anger and subsequent impulsive aggression accounts for the higher propensity for violent crime and chronic nature of offending that we see in maltreated youths is unclear. Adult males who have committed violent crimes have been found to demonstrate more hostile attribution biases compared to adult males who have committed non-violent offences in one study (Lim et al., 2011). A systematic review that included both adults and children found that aggressive individuals tend to have a bias toward perceiving others as angry and hostile when processing facial expressions in others (Mellentin et al., 2015).

Impulsivity

Impulsivity is an additional factor that may contribute to the care-to-custody pipeline of crossover youth and may be associated with the violent and chronic offending that is prevalent in this cohort. It is defined as, 'a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of these reactions to the impulsive individual or others' (Moeller et al., 2001, p. 1784). Research on self-control – the effortful control of reactions, ability to delay gratification, and deliberate weighing up of consequences – has been associated with delinquency, conduct disorder, maltreatment, and violence among youth (Eriksson et al., 2023; Hallowell et al., 2019; Pechorro et al., 2021). Furthermore, impulsivity has been linked with violence in both forensic and community samples, and in adolescents and adults (Alford et al., 2020). The correlation between impulsivity and violence is so robust that impulsivity has been included in several violence risk assessment tools including the Structured Assessment of Violence Risk in Youth (SAVRY; Borum et al., 2006). Justice-involved boys with violent offending have been found to have higher levels of impulsivity than justice-involved boys with non-violent offending (Zhou et al., 2014). Impulsivity has also been found to predict juveniles who have committed serious offences (Leverso et al., 2015), and young people residing in an Australian youth justice facility (Goulter et al., 2018). Impulsivity can further predict serious, violent, and chronic delinquency (Perez et al., 2018). While research has established that impulsivity is linked to maltreatment, violent behaviour, and recidivism, it is unclear whether impulsivity plays a role in the relationship between maltreatment and chronic or violent offending.

Aims of the current study

While there is an abundance of research linking childhood maltreatment with chronic and violent juvenile offending, the precise factors driving these relationships are yet to be confirmed. The theories above outline how some maltreatment sequelae may be contributing to this chronic and violent offending in juveniles, however further examination is required to test these theories. Additionally, while there are studies demonstrating that impulsivity, impulsive aggression, psychopathology, anger sensitivity, gender, and ethnocultural background are correlated with offending outcomes in juvenile and crossover populations, it is not known whether having a child protection history might moderate the relationship between these variables and juvenile offending outcomes.

This study, therefore, sought to examine whether child protection history, impulsivity, psychopathology, impulsive aggression, anger sensitivity, gender, and ethnocultural background are associated with the number of previous youth justice orders and a violent index offence in justice-involved youth in Victoria, Australia. It was hypothesised that having a child protection history, impulsivity, impulsive aggression, psychopathology, and sensitivity to anger would be positively associated with a violent index offence and a higher number of previous orders. In line with previous findings outlined above, it was further anticipated that being male and identifying as Indigenous would also be positively associated with a violent index offence and a higher number of previous orders. Additionally, this study sought to examine whether child protection history moderated the relationships between the aforementioned psychological/behavioural factors and demographic characteristics and offending outcomes. It was hypothesised that child protection history would indeed moderate these relationships.

Materials & methods

Sample

This study utilised an existing dataset (see Shepherd et al., 2018). While the original sample comprised 215 participants, due to missing data the sample used in this study consisted of 192 participants. Participants were detained in two youth justice centres in Victoria, Australia; Parkville Youth Justice Precinct and Malmsbury Youth Justice Centre. The age of participants ranged between 12 and 21 years of age at the time of data collection, with participants aged 18–21 years included in the sample due to Victoria's 'Dual Track scheme', which provides youth in this age range the opportunity to be sentenced to a youth justice custodial order (See Section 32 of the Sentencing Act, 1991 [Vic]). This scheme is intended for youth who have been deemed to be markedly impressionable, immature, or at heightened risk of being subjected to undesirable influences in an adult correctional facility, and who have displayed reasonable prospects for rehabilitation.

Participants in this sample included those identifying as either male or female, and participants also self-identified as belonging to one of three ethnocultural groups: English Speaking Background (those who identified as 'White Anglo Saxon' or 'Caucasian'), Culturally and Linguistically Diverse (those who identified a non-English speaking heritage or belonging to an 'ethnic minority group'), or Aboriginal and Torres Strait Islander (those who self-identified as Australian Aboriginal and/or Torres Strait Islander).

Measures

Psychopathology

Participants' psychopathology was based on self-report and measured by the Youth Self Report (YSR; Achenbach & Rescorla, 2001). This tool has been designed to be utilised with youths aged 11–18 years. It measures emotional and behavioural issues that have been present in the past six months across eight scales that are divided into internalising (anxious/depressed; withdrawn/depressed; somatic symptoms) and externalising (rule-breaking behaviour; aggressive behaviour) symptoms. The YSR is made up of 112 items that are rated on a 3-point Likert scale (0 = not true; 2 = often true/very true) across the eight scales, with higher scores on each scale indicating higher levels of psychopathology in that domain. These 8 scales of the YSR have been found to have adequate test-retest reliability (mean *r* scores = .82) and internal consistency (α = .71 – .95; Achenbach & Rescorla, 2001). A large body of evidence also supports the content validity, criterion-related validity, and construct validity of the YSR (See Achenbach & Rescorla, 2001 for details).

Sensitivity to anger

Sensitivity to anger was measured utilising a computer-based instrument named AFFECT (Gagliardi et al., 2003). This tool is based on Ekman and Friesen's (1976) standardised battery of expressive faces and is used to measure the recognition of six universal facial emotional expressions at various intensities as computer-animated faces morph from a neutral face to expressions of anger, disgust, fear, happiness, sadness, and surprise. As they morph, these emotional expressions are displayed at intensities ranging from 25% to 100% and participants are instructed to identify each expression accurately as quickly as possible, with recognition recorded at 25%, 50%, 75%, and 100% for this study. Consistent with previous research, emotion intensity was collapsed to form low intensity (25% and 50%) and high intensity (75% and 100%) categories, in order to allow for simpler interpretation of the data (See Fullam & Dolan, 2006). The number of correct responses participants scored for each emotion at each intensity were recorded, and participants were able to achieve a score between 0 and 8 for each emotion at high and low intensities. Due to this study's focus on sensitivity to anger, only the low intensity response to anger recognition scores were utilised, as this response is indicative of an awareness of anger in others when it is displayed at low emotional intensity.

Impulsivity

Impulsivity was measured using the Barratt Impulsivity Scale (BIS-11; Patton et al., 1995), which is a 30-item self-report tool that measures various facets of impulsivity: attentional, motor, and non-planning impulsiveness. Responses are given on a 4-point Likert scale, ranging from 1 to 4 (1 = rarely/never; 4 = almost always/always). This tool has been found to have sound internal consistency across community, clinical, and forensic settings (Patton et al., 1995) as well as convergent validity (Stanford et al., 2009). It has also been found to be a valid and reliable measure of impulsivity in adolescents (Lilian & Andrea, 2013). Total scores over 71 indicate high levels of impulsivity (Stanford et al., 2009).

Impulsive aggression

Impulsive aggression was measured utilising the Impulsive/Premeditated Aggression Scale (IPAS; Stanford et al., 2003), a 30-item self-report instrument that has been validated in adolescent and adult samples (Stanford et al., 2003). Participants rate the degree to which they agree with a number of statements regarding aggressive acts they have committed over the preceding 6-month period. These responses are recorded using a 5-point Likert Scale (1 = strongly disagree; 5 = strongly agree). While the IPAS measures both impulsive and premeditated aggression, this study was only concerned with impulsive aggression and thus the results of the *Impulsive Aggression* scale were utilised. The IPAS has been found to have sound internal consistency ($\alpha = .82$), while the IPAS scales have been found to have strong construct validity when examining how they correlated with multiple standard aggression and personality measures. Concurrent validity has also been found to be strong when examining the level of concordance between the IPAS and an aggression interview (Stanford et al., 2003). Additionally, the *Impulsive Aggression* scale has been found to accurately identify 96% of a sample who were independently characterised as predominantly impulsively aggressive in a semi-structured interview regarding aggression (Stanford et al., 2003).

Child protection history

Participants' child protection histories were obtained from their Youth Justice files. Specifically, data was extracted from a single dichotomous item in their file which asked, 'Has the young person been placed on a Child Protection Order?'. Within Victoria, Australia, a Child Protection Order is a legal directive that is made regarding the wellbeing and/or placement of a young person under the age of 18 years (Children, Youth and Family Act, 2005).

Nature of index offence & number of previous orders

Information regarding the number of previous community and custodial orders that participants had received was also obtained from their Youth Justice files. Due to missing data within the files, information regarding the total number of previous orders was only available for 139 participants.

Information regarding the participants' index offences were extracted from the Victoria Police Law Enforcement Assistance Programme (LEAP) database. The violent or non-violent nature of index offences was determined by researchers, based on the general definition of a violent crime being described as an act intended to cause, or threaten to cause, physical harm to another person (Borum et al., 2006). Such offences include homicide, assault and robbery.

Procedure

The initial data collection procedures have been detailed previously (see Shepherd et al., 2018). Briefly, youths detained at Victoria's two youth justice facilities between July 2011 and June 2012 were invited to participate in this study if they spoke English and were able to understand the participatory explanation form. Written informed consent was obtained from all participants, with those aged under 18 years falling into the 'mature minor' regulation in which underage participants who are able to understand the

nature of the study and requirements of participation were able to provide informed consent.

Participants completed a battery of psychometric tests in a private room at the detention facility in order to facilitate confidentiality, and also consented to their records being accessed. Offending data was provided by Victoria Police, while child protection history information was obtained from the then Victorian Department of Human Services. The initial study was granted ethics approval by the Victorian Department of Human Services, Department of Justice and Community Safety Human Research Ethics, and Monash University Human Research Ethics Committees. Approval to utilise the data in the current study was provided by Swinburne University Human Research Ethics Committee and the Department of Justice and Community Safety Human Research Ethics Committee.

Statistical analyses

Statistical analyses were undertaken using RStudio and the statistical packages dplyr (Wickham et al., 2020), Hmisc (Harrell & Dupont, 2020), MASS (Venables & Ripley, 2002), modEVA (Barbosa et al., 2015), psych (Revelle, 2020), rms (Harrell, 2020), sjmisc (Lüdecke, 2018), sjPlot (Lüdecke, 2021), and splines. Descriptive statistics for demographic information, child protection history, and each psychometric variable were reported for the overall sample, as well as those with a violent index offence and those with a non-violent index offence. The mean number of offences was also reported for participants in each ethnocultural group, both genders, and with and without child protection histories. The presence of multicollinearity was evaluated utilising a correlation matrix including each of the variables. Utilising a threshold of $r > .8$, this did not indicate any presence of multicollinearity.

The association between covariates and having a violent or non-violent index offence was examined using logistic regression. Due to logistic regression assuming a linear relationship between independent variables and the log odds of the dependent variable, linearity was assessed visually. A linear relationship was observed between the *Anger Recognition – Low Intensity* variable and the log odds of the outcome variable, while non-linear relationships were observed between the remaining independent variables and the log odds of the outcome variable. In order to address this nonlinearity, we fitted restricted cubic splines to the relevant variables as they were entered into the model. A cubic spline is a piecewise cubic function that is utilised to analyze non-linear relationships in regression analyses. Piecewise functions such as restricted cubic splines employ separate slopes, which are fitted to model different areas of the relationship between an independent variable and an outcome variable. The points of separation for each slope in a piecewise function are labelled 'knots'. The number of knots can differ and in these analyses, we employed three knots due to the small sample sizes used in our models.

Once we ran the logistic regression analysis, odds ratios, Wald statistics, and significance values were obtained in order to determine the contribution of each term to the model. We then re-ran the model with the addition of interaction terms between child protection history and gender, ethnocultural group, psychopathology, impulsive aggression, impulsivity, and anger recognition. Wald statistics and significance values were obtained, and we found that none of the interaction terms significantly contributed to the model, so we did not explore the data any further.

The association between covariates and the number of prior orders was examined utilising a negative binomial model. As negative binomial models also assume a linear relationship between independent variables and the dependent variable, linearity was again assessed visually. Linear relationships were observed between all the independent variables and the outcome variable except for age. As such, we fitted restricted cubic splines to this variable as it was entered into the model. Having run the model, we exponentiated the coefficients to find the incidence rate ratios for this model. Incidence rate ratios compare the rate at which an event occurs between different groups. The larger the value of the incidence rate ratio, the larger the discrepancy is between the rate of an event occurring in one group compared to another. An incidence rate ratio of 3.0 for example, would indicate that something occurs in one group at a rate 3 times as high as in another group.

We then re-ran the model with the addition of interaction terms between child protection history and each independent variable, and exponentiated the coefficients to report the incident rate ratios for this additional model. The significant interactions were then explored further by producing visual plots of the interactions.

Results

Descriptive analyses

Table 1 displays demographic information, sample characteristics, and psychometric testing scores for the overall sample, as well as by whether their index offence was violent or not. The mean age of the sample was 16.84 years ($SD = 1.86$). The majority of

Table 1. Demographic Information, Sample Characteristics, and Psychometric Test Scores for Participants.

Variable	Total Sample ($N = 192$) *n* (%) / *M* (*SD*)	Violent Index Offence ($n = 134$) *n* (%) / *M* (*SD*)	No Violent Index Offence ($n = 58$) *n* (%) / *M* (*SD*)	Comparison of Means / Proportions
Age	16.84 (1.86)	16.84 (1.86)	16.84 (1.86)	$t_{108.18} = 0.005$, $p = 1.0$
Gender				$\chi^2_1 = 0.18$, $p = .66$
Male	159 (83%)	112 (84%)	47 (81%)	
Female	33 (17%)	22 (16%)	11 (19%)	
Ethnocultural Group				$\chi^2_2 = 1.29$, $p = .52$
ESB	97 (51%)	69 (51%)	28 (48%)	
CALD	58 (30%)	42 (31%)	16 (28%)	
ATSI	37 (19%)	23 (17%)	14 (24%)	
Child Protection History				$\chi^2_1 = 3.1$, $p = .08$
No	104 (54%)	67 (50%)	37 (64%)	
Yes	88 (46%)	67 (50%)	21 (36%)	
YSR Internalising score	16.5 (10.2)	16.91 (10.86)	15.55 (8.47)	$t_{137.22} = -0.93$, $p = .35$
YSR Externalising score	31.06 (11.62)	31 (11.94)	31.19 (10.96)	$t_{117.36} = 0.11$, $p = .91$
Anger recognition – LI	2.74 (1.72)	2.98 (1.77)	2.19 (1.47)	$t_{129.35} = -3.20$, $p = .002$
BIS-11 total score	78.04 (11.86)	77.36 (12.13)	79.6 (11.14)	$t_{117.27} = 1.25$, $p = .21$
IPAS Impulsive Aggression score	34.71 (7.93)	35.25 (7.57)	33.48 (8.66)	$t_{96.44} = -1.35$, $p = .18$

Note. YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; ESB = English Speaking Background.

Table 2. Comparison of Mean Number of Previous Orders.

Variable	Mean number of Previous Orders *M* (*SD*)	Comparison of Means
Gender		$t_{41.41} = 2.70$, $p = .01$
Male	3.94 (4.08)	
Female	2.2 (2.35)	
Ethnocultural Group		F (2, 136) = 1.12, $p = .33$
ESB	3.83 (3.54)	
CALD	2.98 (4.1)	
ATSI	4.37 (4.57)	
Child Protection History		$t_{124.18} = -1.87$, $p = .06$
No	3.08 (3.31)	
Yes	4.32 (4.41)	

Note. YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; ESB = English Speaking Background.

participants were male (83%; $n = 159$), with females in the minority (17%; $n = 33$). This mirrored the ratio of juveniles in custody in Australia who identified as male at the time of data collection, which was approximately 90% (AIHW, 2021). Of the total sample, 70% ($n = 134$) had a violent index offence, while the remaining 30% ($n = 58$) had an index offence that was not of a violent nature. Additionally, English Speaking Background participants made up 51% of the sample, CALD participants accounted for 30% of the sample, and those identifying as Aboriginal and Torres Strait Islander made up the remaining 19%. A significant difference in anger recognition at low intensity was found between those with violent and non-violent index offences, with participants who had a violent index offence scoring higher on anger recognition at low intensity, indicating they were better able to accurately identify low levels of anger in others than participants without a violent index offence. All other variables were not significant at the univariate level.

Table 2 displays participants' mean number of previous orders, broken down by ethnocultural group, gender, and child protection history status. The mean number of previous orders for the sample was 3.69 ($SD = 3.92$). There was no significant difference in the mean number of previous orders across ethnocultural groups, however, males accumulated significantly more previous orders than females. There was a non-significant trend ($p = .06$) for child protection-involved participants to have accrued a higher mean number of prior orders than those without such a history.

Table 3. Odds Ratios for Effects for Logistic Regression Model Examining Violent Index Offence.

	B (*SE*)	OR	95% CI
Age	0.09(0.21)	1.09	[0.72, 1.65]
Gender Female:Male	−0.67(0.46)	0.51	[0.21, 1.28]
Ethnocultural Group CALD:ESB	−0.07(0.42)	0.93	[0.41, 2.10]
Ethnocultural Group ATSI:ESB	−0.97(0.48)	0.38	[0.15, 0.98]
Child Protection History Yes:No	1.01(0.40)*	2.74	[1.24, 6.05]
YSR Externalising score	−0.11(0.31)	0.90	[0.49, 1.64]
YSR Internalising score	−0.0(0.35)	0.96	[0.48, 1.93]
BIS-11 total score	−0.47(0.28)	0.63	[0.36, 1.09]
IPAS Impulsive aggression score	0.18(0.27)	1.20	[0.71, 2.04]
Anger recognition – LI	0.87(0.26)**	2.38	[1.43, 3.96]

Note. OR = odds ratio; CI = confidence interval; YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; ESB = English Speaking Background.* = $p < .05$, ** = $p < .01$

Table 4. Wald statistics for Logistic Regression Model Interaction Terms examining Violent Index Offence.

Interaction Terms	Wald's χ^2	*p*
Gender*Child Protection	1.5	.21
Ethnocultural Group*Child Protection	2.6	.27
YSR Externalising score*Child Protection	0.8	.68
YSR Internalising score*Child Protection	0.4	.82
IPAS Impulsive aggression score*Child Protection	0.7	.72
BIS-11 total score*Child Protection	2.4	.30
Anger recognition – LI*Child Protection	1.3	.26

Note. YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity.

Table 5. Incidence Rate Ratios for Previous Number of Orders.

	Incidence Rate Ratio	95% CI	*p*
Age	0.52	[0.37, 0.73]	<.001
Gender (female)	0.55	[0.33, 0.91]	.02
Ethnocultural Group (ATSI)	1.09	[0.71, 1.68]	.68
Ethnocultural Group (CALD)	0.76	[0.51, 1.12]	.15
Child Protection History (yes)	1.60	[1.13, 2.27]	.008
YSR Externalising score	1.01	[0.99, 1.02]	.58
YSR Internalising score	1.00	[0.98, 1.02]	.93
BIS-11 total score	1.00	[0.99, 1.02]	.82
IPAS Impulsive aggression score	0.98	[0.96, 1.01]	.18
Anger recognition – LI	1.04	[0.94, 1.15]	.45

Note. CI = confidence interval; YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; Model Nagelkerke $R^2 = .22$.

Correlates of a violent index offence and the moderating role of child protection status

This first regression model that examined the relationship between the independent variables and violent index offending was significant (Nagelkerke $R^2 = .22$; Model χ^2 (15) = 32.30, $p = .006$), with the results presented in Tables 3 and 4. Of the psychometric variables included in the model, Anger Recognition – Low Intensity, and Child Protection History both significantly contributed to the model ($p < .05$), suggesting that recognising anger in others when it is displayed at low levels, and having a child protection history, were both associated with having a violent index offence amongst justice-involved youth. The addition of interaction terms produced a second model that was also significant (Nagelkerke $R^2 = .27$; Model χ^2 (27) = 40.80, $p = .04$), however, none of the interaction terms contributed significantly to the model. This indicates that there was no evidence that child protection history moderated the relationships between the independent variables examined and having a violent index offence. The results of the interaction terms for this model are presented in Table 5.

Correlates of the number of previous orders and the moderating role of child protection status

We then examined whether levels of psychopathology, impulsivity, sensitivity to anger, ethnocultural group, gender, age, and child protection history were associated with

Table 6. Incidence Rate Ratios for Variable Interactions and Previous Number of Orders.

	Incidence Rate Ratio	95% CI	*p*
Gender*Child Protection	0.45	[0.16, 1.26]	.12
Ethnocultural Group (ATSI) *Child Protection	0.36	[0.15, 0.86]	.02
Ethnocultural Group (CALD)*Child Protection	0.58	[0.26, 1.28]	.18
YSR Externalising score*Child Protection	0.96	[0.93, 0.99]	.02
YSR Internalising score*Child Protection	1.01	[0.97, 1.05]	.54
BIS-11 total score*Child Protection	1.00	[0.97, 1.03]	.88
IPAS Impulsive aggression score*Child Protection	1.03	[0.98, 1.08]	.27
Anger recognition – LI*Child Protection	1.03	[0.84, 1.25]	.80

Note. CI = confidence interval; YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; Model Nagelkerke $R^2 = .32$

Table 7. Incidence Rate Ratios for Variable Interactions and Previous Number of Orders.

	Incidence Rate Ratio	95% CI	*p*
Gender*Child Protection	0.45	[0.16, 1.26]	.12
Ethnocultural Group (ATSI) *Child Protection	0.36	[0.15, 0.86]	.02
Ethnocultural Group (CALD)*Child Protection	0.58	[0.26, 1.28]	.18
YSR Externalising score*Child Protection	0.96	[0.93, 0.99]	.02
YSR Internalising score*Child Protection	1.01	[0.97, 1.05]	.54
BIS-11 total score*Child Protection	1.00	[0.97, 1.03]	.88
IPAS Impulsive aggression score*Child Protection	1.03	[0.98, 1.08]	.27
Anger recognition – LI*Child Protection	1.03	[0.84, 1.25]	.80

Note. CI = confidence interval; YSR = Youth Self-Report; BIS-11 = Barratt Impulsiveness Scale; IPAS = Impulsive/Premeditated Aggression Scale; LI = low intensity; ATSI = Aboriginal and Torres Strait Islander; CALD = Culturally and Linguistically Diverse; Model Nagelkerke $R^2 = .32$

having a higher number of previous orders in justice-involved youth. Because of missing outcome data, there were 139 participants in this model. The results of this binomial model are presented in Table 6. Age, child protection history, and gender significantly contributed to the model ($p < .05$), suggesting that being male, and having a child protection history were associated with a higher number of previous orders. Examination of the age plot suggests being aged 17–18 years old is associated with a higher number of previous orders, while being younger than 17–18 or older than 17–18 is associated with fewer previous orders. Re-running the model with the addition of interaction terms produced results that suggested that child protection history moderated the relationship between externalising symptomatology and number of previous orders, as well as ethnocultural group and number of previous orders. Results of the interaction terms are presented in Table 7. To explore these interactions further, we produced visual plots of the results. These are presented in Figure 1 and Figure 2. Examination of the plots reveals that having a child protection history is associated with a higher number of previous orders for participants who identified as English Speaking Background and Culturally & Linguistically Diverse, though not to a statistically significant level. Conversely, having a child protection history predicts a statistically significantly lower number of previous orders for participants who identified as Aboriginal or Torres Strait Islander. However, these findings must be interpreted with caution due to the large confidence interval size (0.15, 0.86). Additionally, participants with a child protection history appeared to have decreasing numbers of previous orders as their total externalising

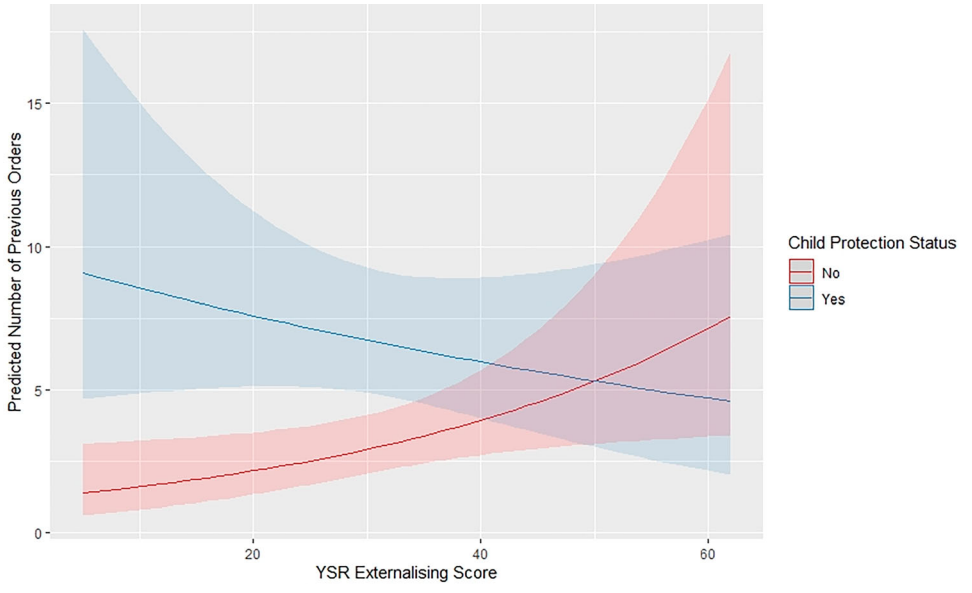

Figure 1. The Interaction Between Externalising Symptoms and Child Protection Status on Number of Previous Orders.

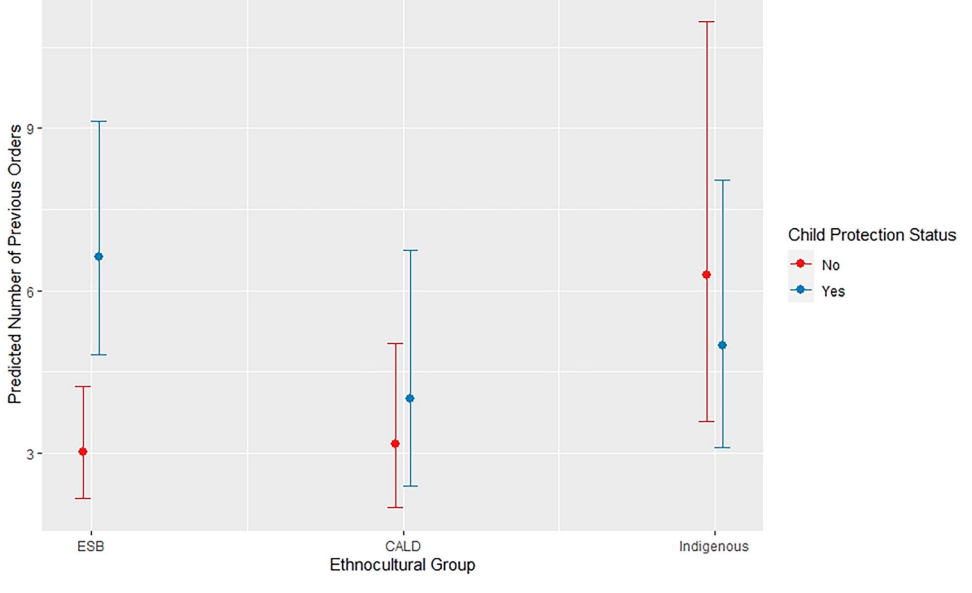

Figure 2. The Interaction Between Ethnocultural Group and Child Protection Status on Number of Previous Orders.

Note. ESB = English Speaking Background; CALD = Culturally and Linguistically Diverse.

symptom score increased. The reverse was true for participants without a child protection history; their number of previous orders increased as their externalising symptom score increased.

Discussion

This study aimed to examine whether higher levels of impulsivity, higher levels of psychopathology, higher levels of impulsive aggression, higher sensitivity to anger, and having a child protection history are associated with previous orders and violent index offences in a cohort of detained justice-involved young people in Australia. We also sought to explore whether child protection history moderates the relationship between the number of previous orders or having a violent index offence and levels of impulsivity, levels of psychopathology, levels of impulsive aggression, sensitivity to anger, gender, or ethnocultural group in this sample. Consistent with the hypotheses, having a child protection history was associated with both having a violent index offence and with higher numbers of previous orders. Additionally, sensitivity to anger was associated with having a violent index offence, while being male was associated with having a higher number of previous orders. Being aged 17–18 was also associated with accumulating a higher number of previous orders. Having a child protection history moderated the relationship between ethnocultural group and number of previous orders, as well as externalising psychopathology and number of previous orders. Notably, having a child protection history did not appear to moderate the relationship between participants' number of previous orders and impulsivity, impulsive aggression, internalising psychopathology, or gender. Having a child protection history also did not moderate the relationship between any independent variable (gender, ethnocultural group, impulsivity, impulsive aggression, psychopathology, anger recognition) and having a violent index offence.

It was anticipated that having a child protection history would be associated with both outcome variables, as it is crossover youth – those youths in the justice system who also have child protection involvement – who have been consistently found to offend at a higher frequency (Young et al., 2015) and severity (Halemba & Seigel, 2011) than youth without a history of child protection involvement. However, the fact that child protection history was independently associated with the outcome variables in the regression models over and above most of the psychological variables is noteworthy, as we anticipated that these psychological variables may have been driving the association between child protection involvement and offending behaviours. This finding further supports the extant conclusion that there are multiple drivers of the offending behaviours observed among the crossover youth cohort. It was also to be expected that youths aged 17–18 would have the highest number of orders as older youths have had a longer period of time in which to offend and accumulate orders. Those in the sample aged over 18 were included due to being eligible for the 'Dual Track' scheme. These young people, aged 19-21, would have been excluded from such a scheme if they were to have a chronic pattern of offending, explaining why their order history number was lower than the 17–18-year-olds. Finally, male participants having higher numbers of previous orders was also consistent with previous findings. Males have been found to be more likely than females to have chronic offending trajectories in their youth, accounting for a high proportion of crime (Broidy et al., 2015). In Victoria specifically, young males have been found to be more likely to belong to adolescent-limited, late-developing, and high offending trajectory groups than young females.

It is noteworthy that ethnocultural background was not associated with having a higher number of previous orders or a violent index offence in this study. Due to the

significant paucity of literature regarding CALD youth who offend, this finding adds to the limited existing knowledge base regarding this cohort. This is particularly salient as the proportion of CALD youth entering youth detention appears to be increasing. The Youth Parole Board recently noted an increase in the number of young people from Māori, Pasifika, and African communities appearing before them (State of Victoria, 2019). Additionally, the Youth Parole Board Annual Report 2018–2019 noted that 25% of detained youth in Victoria that year spoke English as a second language (State of Victoria, 2019), compared to just 12% in 2015–2016 (State of Victoria, 2016). While this statistic offers some indication of the increasing proportion of CALD children in the youth justice system, it may be an underestimation as not all CALD children will speak English as a second language.

While Indigenous Australians are over-represented in the youth justice system generally, and in youth detention specifically (AIHW, 2021), this study suggested that Indigenous youth in custody in Victoria were not more likely than non-Indigenous youth to have a violent index offence or have a higher number of previous orders when controlling for the additional variables included in this paper. This is in contrast to previous findings examining Indigenous justice-involved youth (Ferrante, 2013; Malvaso et al., 2018), and raises questions about the explanatory utility of Moffitt's taxonomy in understanding differences in offending patterns across racial groups in the Australian context. However, these findings may be specific to this sample of detained Victorian Indigenous youth. Interestingly, having a child protection history may moderate the relationship between identifying as Indigenous and the number of previous orders, in that those Indigenous participants who had a child protection history appeared to have a lower number of previous orders, while those without a child protection history had a higher number of previous orders. It should be noted, however, that the confidence intervals found for this relationship were quite large, so caution must be taken in interpreting these results. Additionally, it is not known what, if any, interventions were provided to these participants with child protection involvement that may have curtailed their offending histories.

Similarly, it was noteworthy that participants who had a child protection history demonstrated a pattern whereby as their externalising psychopathology symptoms increased, their number of previous orders decreased. Conversely, participants without a child protection history appeared to have higher externalising psychopathology scores as their number of previous orders increased. This result also suggests there may have been some protective role of child protection involvement that curtailed the influence of high levels of externalising symptoms on offending rates.

That sensitivity to anger was associated with having a violent index offence, yet impulsive aggression showed no association and having a child protection history did not moderate this relationship is an interesting finding. It was posited that sensitivity towards anger – measured in this study by recognition of anger at low levels – might be a sequela of childhood maltreatment that in turn contributes to impulsive aggression and subsequent violent offending. However, impulsive aggression was not independently associated with a violent index offence in our sample, whereas child protection status and anger sensitivity were. Our finding on the association between sensitivity to anger and violent offending does support the findings of Mellentin et al. (2015) and Lim et al. (2011), however, the lack of a strong bivariate correlation between anger sensitivity and impulsive aggression ($r = .04$) contradicts previous findings (Martinelli et al., 2018; Philipp-Wiegmann et al., 2017). It is of note

that the measure of impulsive aggression was based on participants' self-report, while anger sensitivity was based on a direct measure. It is possible that relying on self-reported subjective experiences of impulsive aggression has resulted in unreliable data. Similarly, levels of impulsivity and psychopathology relied on self-report measures rather than direct measures, which may have contributed to their non-significant association with the outcome variables despite expectations to the contrary. For example, given the strength of the relationship between impulsivity and violent offending that has led to impulsivity being included as a risk factor in violence assessment tools, the lack of association found between impulsivity and having a violent index offence was quite contrary to previous findings. This may be accounted for by possible inaccuracies in the self-appraisal of impulsivity within the sample. Conversely, this finding may be due to the sample as a whole being highly impulsive, with little discrimination between violent and non-violent index offences. Alternatively, it is also possible that the participants who did not have a violent index offence nonetheless had a history of violent behaviours that were not captured in their index offending, as discussed below.

Implications

The results of this study indicate that crossover status – those children in the youth justice system who also have child protection involvement – is independently associated with having a violent index offence and a higher number of previous youth justice orders. This is consistent with the majority of the literature (e.g. Halemba & Seigel, 2011; Young et al., 2015). Accordingly, it may be of benefit to allocate additional resources to address youth violence and recidivism, particularly in the crossover youth sphere. While this study did not find evidence for the moderating role that dual system involvement might have on the relationship between several psychometric variables and violent or chronic offending, it has been proposed that in crossover youth, trauma and distress may be particular factors that contribute to a young person offending both chronically and seriously, and as such, early intervention to address childhood trauma is vital (Sentencing Advisory Council, 2020). It has also been contended that early intervention – before maltreated youth cross over to the justice system – is critical, as the more offences a juvenile has committed, the more likely they are to reoffend (Reil et al., 2021).

Once maltreated young people have crossed over to the youth justice system, there are a number of interventions that have been proposed to address their higher rates of serious crime and recidivism. Such interventions include improving the policies and practices of out-of-home care institutions, enhancing the communication and collaboration between agencies involved in the crossover youths' care, utilising conferencing and case managers, and increasing the youths' involvement in decision-making regarding their own case planning. Additionally, the Crossover Youth Practice Model (CYPM) is showing some promise in reducing recidivism in crossover youth across the United States (Haight et al., 2016). This model comprises three phases, which involve identifying crossover youth early in the youth justice system and diverting them away from system involvement where appropriate; case planning and management across both systems by multi-disciplinary teams, and preferably including the young person and appropriate family members; and ongoing case management and planning for case closure across

both systems that includes procuring the involvement of relevant support services in the realms of education, mental health, employment, and others. Analysis of this intervention programme found a significant reduction in recidivism for crossover youth relative to comparison groups (Haight et al., 2016).

Limitations & conclusion

There are a number of limitations to be considered with this study, the most significant of which is arguably the small sample size, as this creates some uncertainty regarding the findings presented. Future research utilising a larger sample size may produce more reliable results. Additionally, this study utilised only detained justice-involved young people and as such the findings may not be generalisable to the broader population of justice-involved young people. Further, this study examined violent offending based on whether the participant's current index offence was violent, though did not consider any previous violent offending. It is possible that participants who were incarcerated for non-violent offences at the time of data collection had a history of violent offending that was not accounted for in the analyses undertaken presently. It may be fruitful to conduct further research examining the impact of the included variables on any violent offending, rather than current offences. Similarly, the pre-existing data did not detail specific nuances around child protection histories such as whether there were resulting out-of-home care placements or whether there were any differences in the type, severity, or duration of maltreatment experienced. The interesting findings regarding child protection history moderating the relationship between both Indigenous background and externalising psychopathology and number of previous orders in a positive way also demonstrates that measuring child protection history alone may miss important information about interventions delivered as a result of child protection involvement, and their impact on offending outcomes. Further, as the research design was not longitudinal, no conclusions can be drawn regarding the temporal ordering of variables. Finally, as noted above, this study utilised a number of self-report measures for phenomena that may be more reliably measured directly, such as impulsivity and impulsive aggression, or utilising formal diagnostic information, such as mental health disorders.

Despite these limitations, the present study lends support to the established negative outcomes of violent and chronic offending arising in crossover youth populations. Further, it contributes modestly to the knowledge base regarding the factors associated with chronic and violent offending in crossover cohorts. Future studies that extend this research may aid in elucidating pathways to serious and chronic offending in youth cohorts in order to guide appropriate and effective interventions to assist this population. Additionally, more research is required to gain an understanding of the experience of CALD populations, both in relation to the youth justice and child protection systems.

Note

1. For a descriptive overview of the sub-types see Piquero (2015)

Data availability

The data is publicly unavailable due to ethical restrictions. Please contact the lead researcher for further information.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committees: Swinburne University Human Research Ethics Committee (20216072-8544) and the Department of Justice and Community Safety Human research Ethics Committee (CF/21/7675), and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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