

Suicidal Behaviour in Young Aboriginal and Non-Aboriginal Men under Youth Justice  
Supervision in Detention: Understanding the Role of Adverse Childhood Experiences (ACEs)

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Author Note

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**List of Abbreviations**

ACEs	Adverse Childhood Experiences
CEA	Childhood Emotional Abuse
CPA	Childhood Physical Abuse
CSA	Childhood Sexual Abuse
OOHC	Out-of-Home Care
RCIADIC	Royal Commission into Aboriginal Deaths in Custody

### Abstract

**Objectives:** Young people involved in the justice system have higher rates of suicidal behaviour and a higher prevalence of Adverse Childhood Experiences (ACEs) compared to the general population. However, the association between ACEs and suicidal behaviour in Australian youth justice populations has not been examined, nor how this association may differ among Aboriginal and Torres Strait Islander young people.

**Method:** The sample included 1,726 young men in detention in South Australia. Nine ACEs (physical, sexual, and emotional abuse, neglect, parental death, separation, family conflict, family problem with the law, and family substance use problem) and their association with suicidal behaviour (ideation and attempts) were examined. Logistic regression was used to examine whether ACEs were associated with suicidal behaviour after controlling for other known correlates (substance use, aggression, and placement in out-of-home care).

**Results:** Aboriginal and Torres Strait Islander young men had a higher prevalence and a higher average score of ACEs; however, minimal differences were found in the prevalence of suicidal behaviour. In the full sample, a higher ACEs score and specific maltreatment types (i.e., physical and sexual abuse) were associated with suicidal behaviour ( $OR = 2.01, 1.59, 1.60$ , respectively). The effect of high ACEs on suicidal behaviour was attenuated after controlling for established correlates of suicidal behaviour.

**Conclusions:** ACEs remained associated with suicidal behaviour after controlling for other established correlates of suicidal behaviour. Understanding the impact of ACEs on suicidal risk for young people in detention is crucial for informing the development of effective suicide prevention initiatives.

*Keywords:* Adverse Childhood Experiences, Suicidal Behaviour, Youth Justice, Aboriginal



### **Declaration Statement**

“This thesis contains no material which has been accepted for the award of any other degree or diploma in any University, and, to the best of my knowledge, this thesis contains no material previously published except where due reference is made. I give permission for the digital version of this thesis to be made available on the web, via the University of Adelaide’s digital thesis repository, the Library Search and through web search engines, unless permission has been granted by the School to restrict access for a period of time”.

**Matilda Nelly D’Antoine**

**September 2020**

### **Contribution Statement**

In writing this thesis, my supervisors and I collaborated to generate research questions and to select the appropriate statistical analyses. The dataset had already been compiled by my supervisor, Dr Catia Malvaso, as part of her PhD. With the assistance of my supervisors (Dr Malvaso and Professor Paul Delfabbro) we wrote to Youth Justice to seek approval for use of the dataset for re-analysis for the purpose of this thesis and to amend the ethics application to reflect my involvement in the project. Amendments were then sought and approved by an ethics application that I submitted to the School of Psychology's Human Research Ethics Subcommittee. With the encouragement and guidance of my supervisors I conducted the literature review and wrote the thesis. Particular support was provided around the section pertaining to the summary of the CPYJ project and the original data linkage. Coding and analyses were conducted with input from my supervisors who also provided feedback on each section of the thesis. Input and cultural advice was also sought from an Aboriginal mentor, Uncle Rod O'Brien and Senior Psychologist at Youth Justice Assessment and Intervention Services, Joanne O'Connor.

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## **Chapter 1 - Introduction**

### **1.1 Overview**

In Australia, there have been numerous calls for more effective responses to young people who offend (Armytage & Ogloff, 2017; Commonwealth of Australia, 2017). There is growing recognition that young people who offend often come from backgrounds of social and economic disadvantage and many have experienced maltreatment and other adversities during childhood (Baglivio et al., 2016; Braga, Goncalves, Basto-Pereira, & Maia, 2017; Dong et al., 2004; Malvaso, Delfabbro, & Day, 2016; Wilson, Stover, & Berkowitz, 2009; Perez, Jennings, Piquero, & Baglivio, 2016).

There is significant evidence that demonstrates how adversity during childhood can disrupt and alter biological, psychological and social development (Anda, Felitti, Walker, Whitfield, Bremner, Perry, Dube, & Giles, 2006; Hambrick, Brawner, Perry, Brandt, Hofmeister, & Collins, 2019; Perry, 2002). Children who have experienced disruptions of this nature are also more likely to be exposed to environments that increase the likelihood of engagement in risky behaviours, including anti-social behaviours that may contribute to infractions of the law (Braga, Goncalves, Basto-Pereira, & Maia, 2017; Malvaso, Delfabbro, & Day, 2016). These associations have led to greater recognition of the complex issues presented by young people in youth justice, but also the need for greater attention on the longer-term developmental causes of youth offending (Braga, Goncalves, Basto-Pereira, & Maia, 2017; Malvaso, Delfabbro, & Day, 2016). The review which follows examines the current status of youth justice in Australia; the role of early trauma and child protection as a risk factor for youth justice involvement; and the challenges faced by young Aboriginal and Torres Strait Islander people who are significantly over-represented in youth justice populations.

## 1.2 Youth Justice in Australia

Youth justice populations are defined by age. While recently there has been a push to raise the age of criminal responsibility to age 14 in line with recommendations of the United Nations, the age of criminal responsibility in all Australian States and Territories remains between 10 and 17 years old at the time of the alleged offence (AIHW, 2020; Law Council of Australia, 2020).

The Australian youth justice system can be described as a “set of processes and practices for managing children and young people who have committed, or allegedly committed, an offence” (AIHW, 2020). The system provides supervision of young people aged 10 and older in the community or in detention facilities. In line with the United Nations Standard Minimum Rules of the Administration of Youth Justice and the Guidelines for the Prevention of Juvenile Delinquency, detention is considered the last resort option for the most serious offences and for the minimum necessary period (United Nations, 1985; United Nations, 1990). These rules and guidelines were developed to promote a shift from punitive responses to crime, and to emphasise the need for more holistic and social welfare-based responses.

These principles are embedded in state and territory legislation (e.g., see Youth Justice Administration Act 2016 and Young Offenders Act 1993 in South Australia). Despite the guiding legislation, government and societies often struggle to find a balance between justice and welfare approaches in responding to young people (Armytage & Ogloff, 2017). However, in comparison to some of the more punitive systems seen in other parts of the world, Australian youth justice systems tend to be informed by a welfare model which considers the best interests of the young person (Day, 2011). At the heart of this approach is

the idea that young people who offend often need care and protection; however, elements of justice approaches are also evident, with punishment being used as a means of deterrence.

According to the Australian Institute of Health and Welfare (AIHW, 2020), 5,694 young people were supervised by youth justice in 2018-19 on an average day. Most were supervised in the community (84%) and a smaller number in detention (17%). The AIHW (2020) has shown a decrease in the rates of young people under youth justice supervision over the last decade. Most young people (79%) are aged between 14-17 when they enter youth justice supervision. Similar patterns in age profile were found across all jurisdictions, although there were slight variations due to legislative and procedural differences (e.g., Victoria's dual track system under the Sentencing Act 1991). Representing 80% of all young people under justice supervision, young men are highly over-represented. This proportion is even higher in detention where young men comprise of 90% of the population under supervision (AIHW, 2020).

### **1.3 Aboriginal and Torres Strait Islander over-representation in the Youth Justice system**

Aboriginal and Torres Strait Islander people<sup>1</sup> are over-represented in Australian justice systems. According to the most recent AIHW report, Aboriginal young people are 16 times more likely than non-Aboriginal young people to be under youth supervision (AIHW, 2020). Whilst representing approximately 6% of young people in Australia, Aboriginal young people comprised of half (50%) of all young people under supervision in 2018-19. This proportion is even higher in detention where Aboriginal young people represent more than half (58%) of the population and are 22 times more likely than non-Aboriginal young people

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<sup>1</sup> 'Aboriginal' will be used hereafter as an inclusive term for all First Nations peoples in Australia, including Torres Strait Islanders. I respectfully acknowledge the vast diversity and autonomy of all First Nations peoples, language groups and clans, that are encompassed within this term.

to be in detention. Furthermore, Aboriginal people are younger than non-Aboriginal people when they first enter youth justice. Over one third (38%) of Aboriginal young people first entered youth justice supervision between the ages of 10-13 compared to only 15% of non-Aboriginal people. Furthermore, the most common age of first entry is 14 for Aboriginal people and 15 for non-Aboriginal people (AIHW, 2020).

Many factors have been advanced to explain the over-representation of Aboriginal young people in detention, including longer-term erosion of traditional culture and family structures due to the legacy of colonisation (Cunneen, 2011; White & Perrone, 2015). The 1991 Royal Commission into Aboriginal Deaths in Custody (RCIADIC) examined these issues in detail, finding that “inherent bias” and “social, economic and cultural disadvantage” are contributory factors in the overrepresentation of Aboriginal people in justice systems (Johnston, 1991). Some of the principal sources of bias include over-policing of Aboriginal young people (also known as ‘net-widening’) whereby minor offences give rise to criminal records, and the stereotyping and racial profiling of Aboriginal young people which then increases the likelihood of police and criminal justice involvement (Gale, Bailey-Harris, & Wundersitz, 1990). Gale et al., (1990) argued that the differential treatment of Aboriginal people by decision makers throughout all levels of the justice system leads to their overrepresentation, especially at the punitive end of the system.

Since the RCIADIC, a number of other national and jurisdictional inquiries have highlighted the intergenerational effects of historical policies of forced assimilation and removal of children that continue to impact Aboriginal families today (e.g., Blagg 2000; Wilson, 1997). The 1997 Bringing Them Home report was pivotal to the recognition of the long-term effects of the removal of Aboriginal Children from their families (Wilson, 1997). It highlighted how contemporary separations of Aboriginal people through child welfare responses and youth justice increases the likelihood of inequitable outcomes for young people

in the future (e.g., poor health, unemployment, substance use, future incarceration). Furthermore, it outlined the need for Aboriginal people to have greater influence and control over matters that affect their young people, and indeed, there have been a number of initiatives that have since been implemented with the aim of empowering communities (Wilson, 1997). For example, the emergence of various Aboriginal Courts and Sentencing Circles across Australia which aim to increase Aboriginal people's involvement in court sentencing processes (Marchetti & Daly, 2008; Marchetti & Downey, 2014). Whilst a step in the right direction, evaluations of such initiatives highlight that they do little to address recidivism and the disproportionate rates of Aboriginal people in the justice system (Marchetti & Downey, 2014).

More recently, the new National Agreement on Closing the Gap came into effect on 30<sup>th</sup> July 2020 and includes targets for youth justice (Australian Government, 2020). Objective 11 is of particular importance, outlining the commitment to reduce the disproportionate rates of Aboriginal young people in detention by at least 30% by 2031.

Despite policy and community attention, little research is generated in Australia that focuses on the needs of Aboriginal young people who come into contact with the justice system (Malvaso et al., 2018). By better understanding the needs of Aboriginal young people in the justice system, a more informed approach can be taken to develop, tailor, and implement interventions that are culturally appropriate and respond to the needs of young people who offend.

#### **1.4 Characteristics and Needs of Young People under Youth Justice Supervision**

Young people under youth justice supervision often present with a range of complex social and psychological needs (Malvaso et al., 2018). While more criminogenic approaches have tended to focus on the causes of problematic behaviour in this population, studying the



factors which may influence the psychological health and wellbeing of young people who offend is also important because this information can be used to inform criminogenic interventions. Conventional criminogenic approaches and service models may be ineffective or inappropriate for some young people under youth justice supervision if they are not responsive to their particular vulnerabilities and needs. Two areas that have received independent attention include the higher prevalence of suicidal behaviour in youth justice populations, and their experiences of adversity and maltreatment during childhood. However, only a small number of studies have investigated the potential associations between childhood adversity and suicidal behaviour among young involved in the justice system, especially within subgroups such as Aboriginal young people (Malvaso et al., 2019). Understanding how childhood adversity may be associated with suicidal behaviour may provide further insight into understanding and addressing the mental health needs of young people who offend.

### **1.5 Suicidal Behaviour**

Suicidal behaviour is a highly complex and multifaceted construct that can be used to describe: 1) thoughts or plans to deliberately engage in behaviour to end one's life (suicidal ideation); 2) the non-lethal act to intentionally harm oneself with an intent to end one's life (suicidal attempt); 3) the lethal act to purposely harm oneself with an intent to end one's life (completed suicide), and; 4) the act to deliberately harm one-self without the intent to die (non-suicidal self-injury or NSSI) (Cha et al., 2018). International research has shown that young people involved in the justice system have higher rates of contemplating, attempting and completing suicide than young people in the general population (Borschmann et al., 2020; Fazel, Benning, & Danesh, 2005; Morgan & Hawton, 2004; Penn, Esposito, Schaeffer, Fritz, & Spirito, 2003; Suk, Mill, Vermeiren, Richkin, Schwab-Stone, Doreleijers, & Deboutte, 2009).

Whilst rates are elevated within this population, the literature on suicidal behaviour in Australian youth justice populations is limited, with the majority of studies simply reporting prevalence estimates (Borschmann et al., 2014; Dickson, Cruise, Mccall, & Taylor, 2020; Indig et al., 2009; Kenny, Lennings, & Munn., 2008; Putnins, 2005; Shepherd, Spivak, Borschmann, Kinner, & Hatchel., 2018). For example, Kenny et al. (2008) identified the recent (less than 12 months) and lifetime prevalence of suicidal behaviour in a sample of 242 young people aged 14-22 in custody in New South Wales. This study found that 21.9% of young people reported recent self-harm or attempted suicide, 14.6% reported recent suicidal ideation, and 19.2% reported lifetime suicidal behaviour. Similarly, Indig et al. (2009) found that for 361 young people in detention in NSW the lifetime prevalence of self-harm was 16.2% and lifetime suicide attempt was 9.5%. Similar results have been found in other Australian jurisdictions. In South Australia, Putnins (2005) reported that 27% of young people in detention had reported attempting suicide. In Victoria, both Borschmann et al. (2014) and Shepherd et al. (2018) found that suicide was prevalent among young people in detention, with 16.1% and 12% having attempted suicide, respectively. However, less is known about the correlates or risk factors associated with suicidal behaviour in detention settings. This gap in the literature is surprising given the results of a recent report produced by the Australian Institute of Criminology, which indicated that suicide is the leading cause of death for young people in detention facilities (Gannoni & Bricknell, 2019).

Aboriginal people have higher rates of suicidal ideation and attempts relative to the non-Aboriginal population (Dickson et al., 2020; Indig et al., 2009; Putnins, 2005). Further, the RCIADIC has highlighted a high prevalence rate of suicide in custody (Johnston, 1991). In a systematic review, Dickson et al. (2020) found that Aboriginal people had a higher prevalence of suicidal behaviour compared to non-Aboriginal people. However, only three studies in their review included justice-involved young people (Fasher Dunbar, Rothenbury,

Bebb, & Young., 1997; Sawyer et al., 2010; Stathis et al., 2012) and these studies indicated mixed results. According to Stathis et al. (2012), suicidal ideation was higher in young Aboriginal people in the youth justice system compared to Aboriginal young people living in the general population. Interestingly, the other two studies reported no difference in suicidal behaviour (Fasher et al., 1997; Sawyer et al., 2010). Similarly, Putnins (2005) also reported little difference between Aboriginal and non-Aboriginal people for suicidal ideation (28.5% versus 26.7%, respectively) and suicidal attempt (29.4% versus 24.7%, respectively). However, more recently Indig et al. (2009) found that, compared to non-Aboriginal young people in custody, Aboriginal young people were slightly more likely to report suicidal ideation (17.1% versus 14.8%) and suicidal attempts (10.5% versus 8.6%).

A number of factors may explain these mixed findings. For example, Dickson et al. (2020) noted that the minimal differences between the two groups could be due to ceiling effects given that young people in detention are a high-risk population and are likely to have accumulated more risk factors for suicidal behaviour regardless of cultural background. However, it is also possible that Aboriginal people are less likely to report experiences of suicidal thoughts or behaviour when screened using assessment tools that have not been culturally validated or adapted for use in Aboriginal youth populations and that have not been administered by practitioners with an understanding of cultural differences (Balaratnasingam et al., 2015; Dudgeon, Milroy & Walker, 2014). Interestingly, the study conducted by Stathis et al. (2012) which found a higher prevalence of suicidal ideation among Aboriginal young people utilised the Westerman Aboriginal Symptom Checklist for Youth (WASC-Y). This is a tool that has been both psychometrically and culturally validated for use in Aboriginal youth populations.

## **1.6 Adverse Childhood Experiences (ACEs)**

Another line of inquiry that has gained strong scientific and policy interest is the effect of Adverse Childhood Experiences (ACEs) on later health and social outcomes, including offending behaviour. This line of research was instigated by Felitti and colleagues (1998) in their landmark study that demonstrated that the cumulative experience of ACEs in childhood resulted in poor health outcomes in adulthood. The experiences identified by Felitti and colleagues (1998) included seven forms of maltreatment and household dysfunction.

However, this has since been expanded to include 10 forms (Felitti & Anda, 2010), including:

1. physical abuse,
2. sexual abuse,
3. emotional abuse,
4. physical neglect,
5. emotional neglect,
6. household substance abuse,
7. household mental illness,
8. witnessing domestic violence,
9. history of incarceration within the household, and
10. parental separation or divorce.

While many studies have utilised a count distribution of ACE exposures to assess the dose-response effect of ACEs on various outcomes, the Centers for Disease Control and Prevention (2015) suggested that those with four or more ACEs are particularly at risk for poor health and wellbeing in adulthood. Indeed, studies have found that compared to individuals with no ACEs exposure, those with four or more ACEs are up to 12 times more likely to attempt suicide, have a higher prevalence of alcoholism and illicit drug use, and are more likely to have poorer health outcomes (Felitti et al., 1998).

Whilst it is not uncommon for a young person to be exposed to at least one ACE throughout their childhood (Anda et al., 2006; Copeland et al., 2007; Felitti et al., 1998), the number of ACEs has been found to be significantly higher in young people in detention (Baglivio et al., 2014; Craig et al., 2017; Fox et al., 2015; Malvaso et al., 2019). Baglivio et al. (2014) conceptually replicated the original ACEs study in a sample of over 64,000 young people involved in the juvenile justice system in Florida. Compared to the original ACE study, justice involved young people were four times more likely to report four or more ACEs and 13 times less likely to report zero ACEs.

Building on the work of Baglivio et al. (2014), Fox et al. (2015) compared the prevalence of ACEs among serious, violent, and chronic offenders (SVC) with one-time non-violent offenders (O&D) as the reference group. Compared to O&D offenders, SVC offenders were almost twice as likely to report four or more ACEs, indicating that ACEs are associated with more serious and chronic involvement in the justice system. This is an important finding, as research has shown that there is an association between serious crimes in youth and recidivism in later life (Farrington, 2007).

Craig et al. (2017) sought to increase the generalisability of the findings from the previous studies conducted in Florida using the 'Cambridge Study in Delinquent Development', a prospective longitudinal study of 411 London males from age 8 through to 56. . However, given that the study (which commenced in 1961) predated the conceptualisation of ACEs, Craig et al. (2017) were only able to measure seven of the ten ACEs. It was found that 75% of young people had experienced at least one ACE and 50% of young people had experienced two or more ACEs before age 10. This proportion was slightly lower than those reported in Florida, where 97.5% of young people had experienced at least one ACE, but higher than the 64% of people who experienced one ACE as reported in the original ACEs study (Felitti et al., 1998). However, these studies both measured ACEs up to

age 18, whereas Craig et al. (2017) only measured ACEs up to age 10, thus there was a shorter window of opportunity to capture ACEs in the British sample. Nonetheless, Craig et al. (2017) demonstrated that, compared to those with no ACEs, boys with at least one ACE were more likely to have a higher number of criminal convictions in adulthood.

There is only one known study that reported the prevalence of ACEs among justice-involved youth in Australia. Malvaso et al. (2019) examined the prevalence and interrelatedness of ACEs in young people in detention in South Australia between 1995 and 2012. Similar to Craig et al. (2017), this study could only measure 8 out of the 10 original ACEs because the development of the assessment tool used predated the Felitti (1998) study. Malvaso et al. (2019) also included an additional ACE, parental death, in their study. ACEs were highly prevalent in this population, with 84% of young people in detention experiencing more than one ACE and only 5% of young people experiencing no ACEs. Furthermore, differences were reported by cultural background and gender. Aboriginal young people reported more ACEs than non-Aboriginal young people, in particular the ACEs related to family criminality and substance use problems. Aboriginal young men were also more likely than non-Aboriginal men to report six or more ACEs (21.3% versus 14.6%, respectively).

### **1.7 Child Maltreatment**

Although there has been an increasing focus on ACEs, one important line of inquiry that has existed for decades has demonstrated that young people with histories of child maltreatment are at an increased risk of offending (Malvaso et al., 2016). However, these studies clearly show that most young people that experience maltreatment do not offend. Rather, maltreatment-offending pathways appear to be influenced by a complex interaction between individual (e.g., temperament, personality), social (e.g., family functioning) and contextual risk (e.g., neighbourhood poverty) and protective factors (e.g., completing

education) (Braga et al., 2017). Maltreatment also often coincides with other social and economic disadvantages (Finkelhor et al., 2013), which makes it difficult to isolate which factor, or combination of factors exerts the greatest influence on offending behaviour. This is what led to Felitti and Anda (2010) to argue that it is the cumulative impact of maltreatment and other childhood adversities that leads to poor outcomes later in life.

### **1.8 ACEs and Suicidal Behaviour**

The link between ACEs and suicidal behaviour in young people has been investigated previously using a variety of samples and methodologies (Bhatta et al., 2014; Dube et al., 2001; Flaherty et al., 2013; Hawton, Saunders, & O'Connor, 2012; Johnson, 2017; Miller, Esposito-Smythers, Weismore, & Renshaw, 2013; Perez et al., 2016; Serafini et al., 2015; Thompson et al., 2019). A review conducted by Serafini et al. (2015) found that there was a dose-response relationship between ACEs and suicidal behaviour among young people aged 10-25. This means that the more ACEs a young person is exposed to, the higher their risk of engaging in suicidal behaviours. It was also found that the relationship between ACEs and suicidal behaviour was different by the type of suicidal behaviour reported (i.e., ACEs more strongly correlated to suicidal attempts than suicidal ideation). Furthermore, the associations differed according to the type of ACE experienced (Serafini et al., 2015). The maltreatment types in particular (e.g., physical and sexual abuse), were shown to be the most strongly associated with suicidal behaviour.

### **1.9 The Link between ACEs and Suicidal Behaviour among Young People who Offend**

There is a small but expanding body of research which suggests that suicidal behaviour among young people involved in youth detention facilities is associated with the exposure to Adverse Childhood Experiences (ACEs) (Bhatta et al., 2014; Johnson, 2017; Perez et al., 2016; Thompson et al., 2019) Perez et al., (2016) examined the effects of nine

ACEs on suicidal attempts in a sample of 64,329 young people from the Florida Department of Juvenile Justice from 2007 to 2012. Utilising a generalised structural equation model, Perez et al. (2016) examined the effect that ACEs had on suicidal behaviour after accounting for personality factors (aggression and impulsivity) and adolescent problem behaviours (school difficulties and substance use). It was found that a higher ACEs score significantly increased the odds of suicidal behaviour. A higher ACEs score was also significantly associated with aggression, impulsivity, and substance abuse. Initially, school difficulties and substance abuse were found to be significant predictors of suicide; however, the effect of these factors were reduced when aggression and impulsivity were added into the model.

Bhatta et al. (2014) examined the influence of four ACEs ('sexual abuse, drug/alcohol abuse by family member, running away from home, and homelessness') on suicidal ideation and attempts in 3,156 young people in an Ohio juvenile detention facility between 2003 and 2007. These researchers also controlled for other related risk factors for suicidal ideation and attempts in their model, including substance abuse, physical health, medical problems, family support and risky sexual risk behaviour. Just under half of the sample (42.7%) reported at least one ACE, 19% reported suicidal ideation, and 11.9% reported attempting suicide. Higher ACEs scores had a dose-response relationship with suicidal behaviour, with young people who experienced four ACEs having a 7.81 times greater likelihood of reporting suicide attempts compared to young people who experienced no ACEs. Further, it was found that the type of ACE mattered. Sexual abuse had a stronger association with both suicidal ideation and suicidal attempts compared to physical abuse or neglect.

Johnson (2017) examined the effect of 11 types of ACEs on suicidal behaviour in a sample of 2,367 young people (age 12 -16) from the Florida Department of Juvenile Justice. The study found that approximately 97% of young people had reported one or more ACEs, and an average of four. Furthermore, nine out of the 11 ACEs increased the risk for



psychological distress, with sexual abuse and physical abuse most strongly correlated with psychological distress. However, two of the ACEs (emotional abuse and household substance) were not significantly correlated with psychological distress (Johnson, 2017). ACEs also had a cumulative impact on psychological distress, with the likelihood of experiencing psychological distress increasing by 25% for each additional type of ACE. Young people that had an ACEs score of five or more were two to five times more likely to experience psychological distress compared to young people who reported only one ACE (Johnson, 2017).

One potential factor that also needs to be considered when understanding the association between ACEs and suicidal behaviour is the experiences of placement in out-of-home care (OOHC). Young people who have experienced serious and chronic maltreatment are often placed into OOHC and young people with a history of OOHC are overrepresented in youth detention, with Aboriginal young people overrepresented in both OOHC and youth detention (AIHW, 2019; Malvaso, Delfabbro, & Day, 2017). A recent review conducted by Evans et al. (2017), which identified only five studies on this topic, found that compared to young people without an OOHC history, young people with an OOHC were more likely to report suicidal ideation (24.7% vs 11.4%) and attempts (3.6% vs 0.8%).

### **1.10 The Present Study**

To the best of our knowledge, no studies in Australia have specifically examined the association between ACEs and suicidal behaviour among young people in detention. Given this gap in the literature, this thesis aims to better understand the association between ACEs and suicidal behaviour in a sample of young people who entered detention in South Australia. Due to the over-representation of both young men and Aboriginal young people in the youth

justice system, this thesis focuses on understanding the ACEs-suicide association in this population. It aims to address four main research questions:

1. What is the prevalence of ACEs and suicidal behaviour among Aboriginal young men and non-Aboriginal young men in youth detention in South Australia?
2. To what extent is a high ACE score correlated with suicidal behaviour among Aboriginal and non-Aboriginal young men in youth detention in South Australia?
3. To what extent are different types of ACEs (specifically physical abuse and sexual abuse) correlated with suicidal behaviour among Aboriginal and non-Aboriginal young men in youth detention in South Australia?
4. To what extent are ACEs associated with suicidal behaviour among Aboriginal and non-Aboriginal young men after controlling for, substance use, aggression, and OOHC placement?

Based on the previous literature, it is hypothesised that Aboriginal young men will have a higher prevalence of ACEs and suicidal behaviour (ideation and attempts) than non-Aboriginal men. It is anticipated that a higher ACEs score will be strongly associated with suicidal behaviour and that particular ACEs (specifically, physical and sexual abuse) will be also be associated with suicidal behaviour. Finally, it is hypothesised that the association between ACEs and suicidal behaviour will be attenuated when controlling for other risk factors, such as substance use, aggression, and OOHC placement among both Aboriginal and non-Aboriginal men.

## **Chapter 2 - Method**

### **2.1 Data Source**

Secondary data was utilised from an existing South Australian data linkage study known as the Child Protection Youth Justice (CPYJ) project. This includes data from the

South Australian Department for Child Protection and the Department for Human Services Youth Justice Directorate (formerly the Department for Communities and Social Inclusion).

A summary of the data sources used in the CPYJ project is provided below, but further detail can be found in Malvaso (2017).

### **2.1.1 Youth Justice data.**

Over a 17-year period between 1995 and 2012, young people (aged 10 to 18) who entered custody, or secure care, under the supervision of Youth Justice were assessed using the Secure Care Psychosocial Screening Assessment (SECAPS; Putnins, 1999). SECAPS is a comprehensive self-report screening tool used to assess the risk of recidivism and the intervention needs of young people in secure care. It contains demographic and family background information and comprises detail on a range of factors relating to criminogenic needs and risks. A total of 2,854 young people were assessed using SECAPS. More information on SECAPS can be found in Putnins (1999).

### **2.1.2 Child Protection data.**

The child protection data includes information obtained from the Department for Child Protection's Client Information System (CIS). This includes information for every person born between 1982 and 1997 that were recorded as being subject to any child protection matters. Data relating to notifications of child abuse and neglect and any subsequent investigations and substantiations were extracted. Details of placement in out-of-home care arrangements were also extracted.

### **2.1.3 Sampling strategy and linkage method.**

Every young person who entered the child protection or youth justice systems in South Australia were given a unique numerical identification number. These numbers were the same for both systems as both organisations were located within the same government

department (Department for Families and Communities) at the time this data was recorded.

This number was subsequently used by Malvaso (2017) to link both child protection records with youth justice records.

The sampling strategy utilised by Malvaso (2017) was based on a historical birth cohorts design. This was to allow for longitudinal analysis of data. As the earliest child protection records dated back to 1982, the sample was restricted to those born after 1982 for whom child protection records were available. Child protection records were available for every young person born from 1982 to 1997 to ensure that the individuals selected and assessed by SECAPS would have, at the time of extraction, reached their 18<sup>th</sup> birthday (the full exposure window for contact with Youth Justice). As a result, for all young people included, the risk of maltreatment and the potential to come into contact with youth justice was captured up to age 18. After exclusions were made, the final sample included 2,045 young people. Further detail regarding differences between included and excluded groups can be found in Malvaso (2017), with the major differences being that those excluded were older in age compared to the included group, as expected.

#### **2.1.4 Data used in this thesis.**

This thesis utilises data from the CPYJ project to examine the association between ACEs and suicidal behaviour. Data relating to 2,045 young people (1,726 males and 319 females) were available for analysis. Given the disproportionate rates of young men in detention, and the different needs of male and female youth involved in the Youth Justice system, only young men were included in this study (n = 1,726).

## **2.2 Measures**

### **2.2.1 Exposure: Adverse Childhood Experiences (ACEs)**

The SECAPS assessment was developed prior to the conceptualisation of ACEs and thus does not contain all ten measures identified in the original ACE framework. However, when combined with official child protection records, which includes substantiated and unsubstantiated reports of maltreatment, there are eight measures which are comparable to the original ten outlined in the Felitti et al. (1998) study. Further, one additional ACE (i.e. parental death) as identified by Malvaso et al. (2019) will also be included for examination, bringing the total number of ACEs included in this study to nine:

1. Family history of crime (self-reported that a parent or sibling had been in trouble with the law),
2. Parental separation (self-reported that their parents who were not living together),
3. Family member with substance use problem (self-reported that a parent or sibling had substance use problems),
4. Household conflict (self-reported living in a household characterised by lots of fights/arguments),
5. Parental death (self-reported that their biological father or mother had died),
6. Physical abuse (substantiated or unsubstantiated report made to child protection),
7. Sexual abuse (substantiated or unsubstantiated report made to child protection),
8. Emotional abuse (substantiated or unsubstantiated report made to child protection),  
and
9. Neglect (substantiated or unsubstantiated report made to child protection).

Each ACE was coded dichotomously with prevalence determined by an affirmative response (or child protection record) for each experience. A cumulative ACE score was then created by summing the nine types of ACEs. A categorical variable was also created to indicate a high ACEs score, which included young people who had experienced 3 or more

ACEs coded as having high ACEs, and individual who experience 2 ACEs or less coded as low ACEs.<sup>2</sup>

### **2.2.2 Outcome: Suicidal behaviour**

The primary outcome of interest in this study was suicidal behaviour. Two measures relating to suicide were included in the SECAPS assessment. This included: suicidal ideation (ascertained from the question “During the last week, have you had thoughts about killing yourself”), and suicide attempts (ascertained from the question “Have you ever tried to kill yourself?”). A dichotomous variable was also created to indicate whether a young person had ever reported suicidal behaviour (thoughts and/or attempts) by combining the responses to the two questions from the SECAPS assessment relating to recent suicidal thoughts and previous suicidal attempts.

### **2.2.3 Covariates**

To determine the extent to which ACEs were associated with suicidal behaviour, other established correlates for suicidal behaviour were controlled for in the analysis. This included: substance use, aggression, and placement in out-of-home-care history.

Substance use was classified according to National health and Medical Research council guidelines using measures of overall substance use (“had used alcohol, marijuana, hallucinogens, sedatives, narcotics, stimulants, inhalants, or other substances in the four weeks prior to assessment”), problematic alcohol use (“consumed three or more drinks on days when drinking”), and problematic marijuana use (“used one or more joints on days when using marijuana”). Aggression was classified according to affirmative responses to

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<sup>2</sup> The Centers for Disease Control and Prevention (2015) suggested that those with four or more ACEs are particularly at risk for adverse outcomes. This is based on the original 10-item ACEs framework. Because in this study we were only able to measure nine ACEs, we have classified high ACEs as young people who had three or more ACEs.

questions relating to getting into fights and having a bad temper. Out-of-home-care history was obtained from child protection records and was classified according to whether a young person had a record for a placement in out-of-home care which lasted more than three days.

All three covariates were coded dichotomously based on the presence or absence of each experience or behaviour.

#### **2.2.4 Cultural Background**

A dichotomous variable was created to differentiate Aboriginal men from non-Aboriginal men. This variable was created based on demographic information provided in the child protection and Youth Justice records. Young people were classified as Aboriginal if either record indicated that they were of Aboriginal or Torres Strait Islander background.

### **2.3 Data Analytic Strategy**

Analyses were conducted in several stages using IBM SPSS Statistics for Windows, Version 26.0. First, the prevalence of ACEs and suicidal behaviour were examined for the full male sample, and according to Aboriginal background. Second, Pearson's Chi-Squared Test for Independence and independent samples t-tests were used to test whether there are any differences between Aboriginal and non-Aboriginal men in terms of each individual ACE, high ACEs, and suicidal behaviour. Third, a hierarchal logistic regression analysis will be used to test if there was an interaction between high ACEs and Aboriginal background and its association with suicidal behaviour. Finally, multivariate logistic regression was used to test the association between high ACEs and suicidal behaviour after controlling for covariates. The models were built according to several steps. In Model 1, high ACEs was entered to establish the baseline effect on suicidal behaviour. In Model 2, aggression and substance use were added to ascertain, and in Model 3, placement in OOHC was added. Adding the covariates in stages enabled an examination of whether the effect of high ACEs on suicidal

behaviour was attenuated after controlling for other established correlates of the outcome. If an interaction between high ACEs and Aboriginal background is found, the multivariate analyses will be conducted separately for Aboriginal and non-Aboriginal men.

Given the evidence that suggests that child physical abuse and child sexual abuse are more strongly associated with suicidal behaviour compared to other types of maltreatment, the multivariate analysis will be repeated using these variables as the main exposures. Given that it is common for young people to experience more than one type of maltreatment and the issues that may then arise due to multi-collinearity, separate models were constructed to examine the association between physical abuse and suicidal behaviour and sexual abuse and suicidal behaviour.

## Chapter 3 - Results

### 3.1. Descriptive Statistics and Comparative Analyses

#### 3.1.1 Prevalence of ACEs in full sample of young men in detention.

Figure 1 displays the prevalence of each individual ACE in the full sample of young men in detention as well as by cultural background. As indicated, prevalence rates for each ACE ranged from 13.7% ('parental death') to 61.8% ('family history of crime'). Overall, 5.7% of the young men reported zero ACEs and only one young male reported all nine ACEs (0.1%). On average, young men reported more than two ACEs ( $M = 2.5$ ,  $SD = 2.0$ ).

An independent-samples t-test was run to determine if there were differences in the mean number of ACEs between Aboriginal and non-Aboriginal men. There was a significant difference in the mean number of ACEs between Aboriginal and non-Aboriginal men, with Aboriginal men reporting a higher average number of ACEs ( $M = 4.1$ ) compared to non-Aboriginal men ( $M = 3.3$ ),  $t(1, N = 1,724) = 8.12$ ,  $p < .001$ . Furthermore, differences in ACEs by cultural background was also examined using a high ACE score (i.e., reported three or



more ACEs, with 66.5% of the sample overall having three or more ACEs). Similar to the number of ACEs reported, a higher proportion of Aboriginal men had a higher number of ACEs (81.4%) compared with non-Aboriginal men (61.2%),  $\chi^2 (1) = 61.34, p < .001$ .

### **3.1.2 Prevalence of ACEs by type and cultural background.**

The number and column percentage of each ACE according to cultural background is displayed in Table 1. As shown, the prevalence rates of each individual ACE ranged from 11.6% ('parental death' for non-Aboriginal men) to 77.4% ('family history of crime' for Aboriginal men). Chi-square tests of independence were then utilised to compare differences in prevalence of each ACE by cultural background. Aboriginal and non-Aboriginal men were generally similar in relation to the presence of childhood physical abuse; childhood sexual abuse; and parental separation. In contrast, there were statistically significant group differences in the prevalence of the remaining six ACEs based on cultural background. As indicated, Aboriginal men had a higher prevalence of childhood emotional abuse, neglect, family history of crime, family member substance use problem and parental death compared to non-Aboriginal men. Non-Aboriginal men had a higher prevalence of household conflict compared to Aboriginal men. Figure 1 displays the prevalence of ACEs by type and cultural background as proportion of the full sample. Figure 2 displays the prevalence of ACEs by type and cultural background as proportion of their respective cultural backgrounds. Figure 2 is duplication of the information displayed in Table 1 and is included as a visual representation to aid the reader.

Table 1

*Comparative Analysis: Prevalence of ACEs by Type and Cultural Background*

ACE type	Aboriginal men (n= 456)		Non-Aboriginal men (n – 1,270)		$\chi^2$ (df=1)
	N	(%)	N	(%)	
CPA	213	(46.7)	582	(45.8)	<1
CSA	99	(21.7)	286	(21.7)	<1
CEA	152	(33.3)	316	(24.9)	12.13***
Neglect	303	(66.4)	495	(39.0)	101.86***
Family history of crime	353	(77.4)	714	(56.2)	63.84***
Parental separation	161	(35.3)	503	(36.6)	2.62
Family member with substance use problem	283	(62.1)	585	(46.1)	34.35***
Household conflict	60	(13.2)	231	(18.2)	6.06**
Parental death	90	(19.7)	147	(11.6)	18.87***

Note. \*  $p < .05$ . \*\*\*  $p < .001$ .

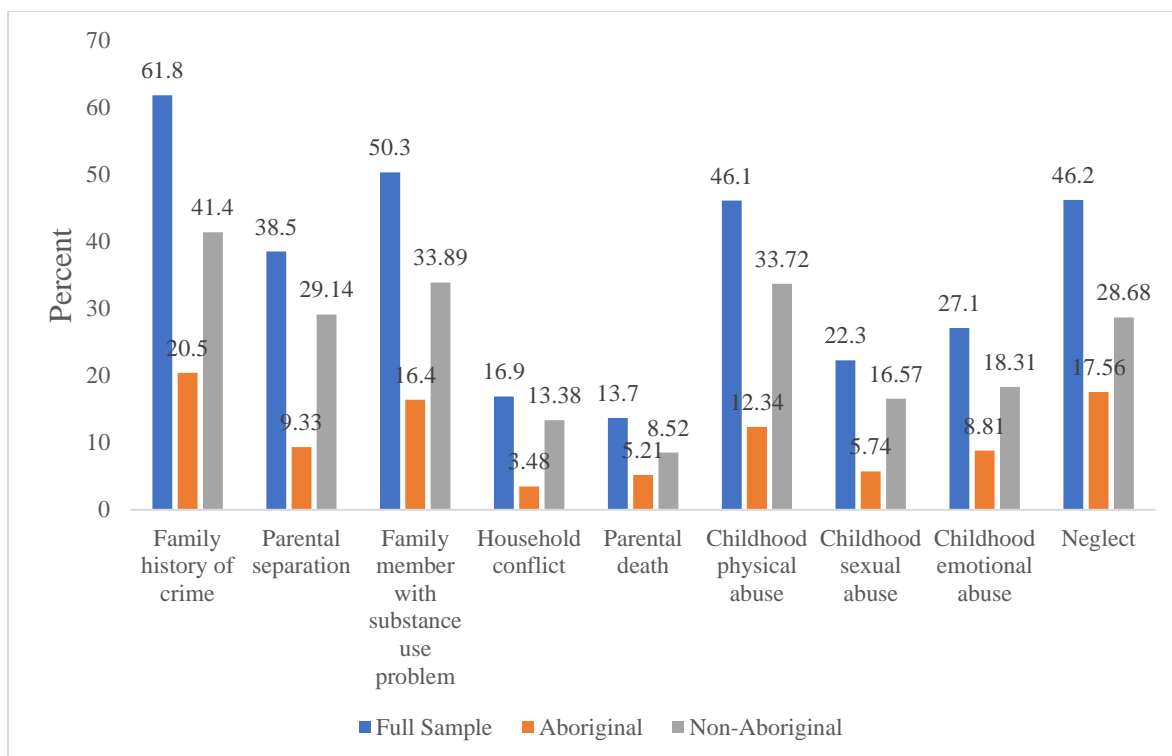


Figure 1. Prevalence of Individual ACEs for full sample, Aboriginal men and non-Aboriginal men as a proportion of the number of individuals reporting each ACE

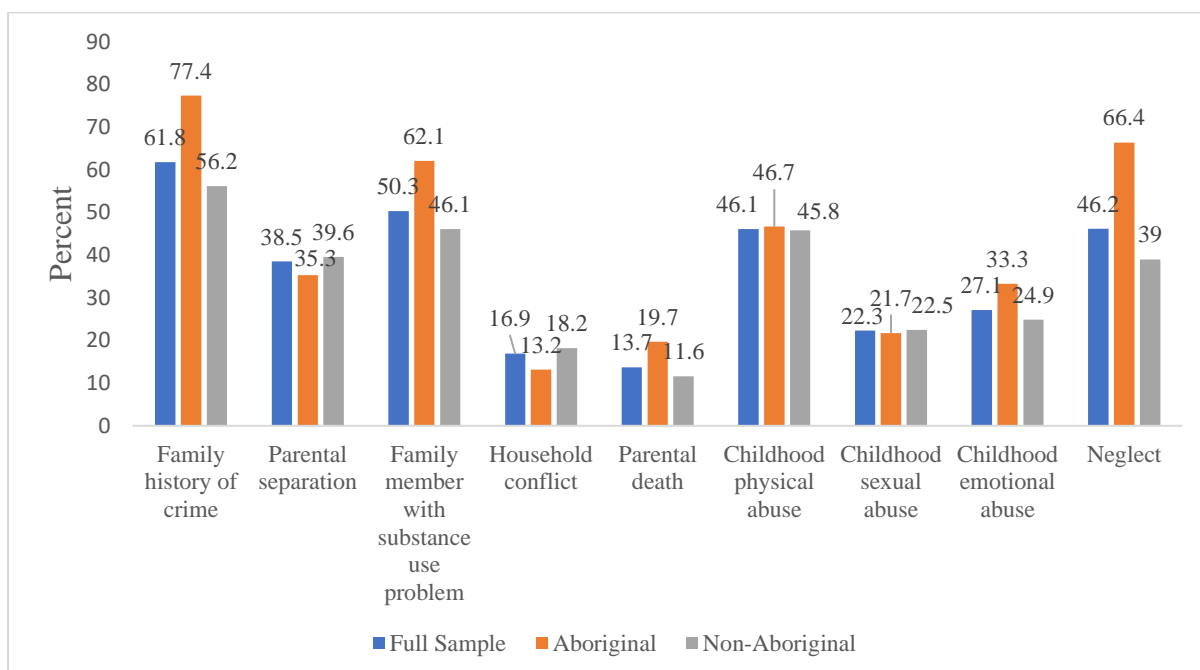


Figure 2. Prevalence of Individual ACEs for Full Sample, Aboriginal Men and non-Aboriginal Men as a proportion of all Aboriginal and non-Aboriginal Men

### **3.1.3 Prevalence of suicidal behaviour in full sample of young men in detention.**

Overall, 211 (12.2%) young men in detention reported experiencing suicidal thoughts (measured only as experiencing suicidal thoughts during the past week). A larger proportion ( $n = 334$ ; 19.4%) reported ever attempting suicide. A combined measure of suicidal thoughts and attempts indicated that just under a quarter of the sample ( $n = 412$ , 23.9%) had reported suicidal behaviour in their lifetime.

### **3.1.4 Prevalence of suicidal behaviour by cultural background.**

Chi-square tests of independence were used to examine the association between suicidality and cultural background. The percentage of Aboriginal and non-Aboriginal men who reported suicidal ideation were similar (15.1% and 17.7%, respectively) and this difference was not significant ( $\chi^2 (1) = 1.29, p = .257$ ). Similar results were found for suicidal attempts, with 26.9% of Aboriginal men and 28.2% non-Aboriginal men reporting ever attempting suicide ( $\chi^2 (1) = 3.14, p = .077$ ). Likewise, there was non-significant association for suicidal behaviour when both ideation and behaviour were combined (Aboriginal = 24.1%, non-Aboriginal = 23.8%),  $\chi^2 (1) = .022, p = .883$ .

## **3.2 Associations between ACEs and suicidal behaviour**

Given that minimal differences were found between the proportion of Aboriginal and non-Aboriginal men who reported suicidal behaviour, a hierarchical logistic regression analysis was performed to test for a significant interaction between high ACE score and Aboriginal cultural background. The outcome was the combined suicidal behaviour measure. On step 1, the main effects were entered (High ACE score and Aboriginal cultural background). On step 2, the product term of the two variables were entered. The  $R^2$  for the first model was .28 and for the second model was .27. The interaction term was not significant, ( $OR = 1.51, p = .224, CI = 0.78, 2.91$ ). Given the lack of differences, it was

therefore appropriate to use the full sample for further analyses and not stratify the findings by cultural background.

Independent-samples t-tests were run to determine if there were differences in the number of ACEs among those who had reported suicidal behaviour. On average, young men who reported suicidal thoughts had a higher number of ACEs ( $M = 3.9$ ,  $SD = 1.85$ ) compared to those who did not report suicidal thoughts ( $M = 3.5$ ,  $SD = 1.93$ ),  $t(1, N = 1,249) = 2.45$ ,  $p = .014$ . Similarly, young men who reported suicide attempts had a higher number of ACEs ( $M = 4$ ,  $SD = 1.88$ ) compared to those who did not report suicide attempts ( $M = 3.4$ ,  $SD = 1.91$ ),  $t(1, N = 1249) = 5.37$ ,  $p < .001$ . Likewise, young men who reported suicidal behaviour (according to our combined measure) had a higher number of ACEs ( $M = 4.0$ ,  $SD = 1.88$ ) compared to those who did not report suicidal behaviour ( $M = 3.3$ ,  $SD = 1.95$ ). This difference was also significant,  $t(1, N = 1724) = 6.12$ ,  $p < .001$ .

Similarly, young people who reported 3 or more ACEs were also more likely to report suicidal thoughts (18.4%) compared to young people with fewer or zero ACEs (13.4%),  $\chi^2(1) = 4.85$ ,  $p = .028$ . Young people who had 3 or more ACEs were more likely to report that they had attempted suicide (30.5%) compared to young people with fewer or zero ACEs (18.0%),  $\chi^2(1) = 21.27$ ,  $p < .001$ . Young people who had 3 or more ACEs were more likely to report combined suicidal behaviour (thoughts and attempts; 27.8%) compared to young people with fewer ACEs (16.1%),  $\chi^2(1) = 28.95$ ,  $p < .001$ .

In terms of type of maltreatment, young people who reported suicidal behaviour were more likely to have experienced CPA and CSA (54.9% and 28.9%, respectively) compared to those without suicidal behaviour (43.3% and 20.2%, respectively),  $\chi^2(1) = 16.85$ ,  $p < .001$  and  $\chi^2(1) = 13.51$ ,  $p < .001$ . In contrast, a similar proportion of young people who reported

suicidal behaviour had experienced CEA (29.9%) compared to those who did not report suicidal behaviour (27.2%).

Given that proportion of those with three or more ACEs, CPA and CSA were higher among all three outcomes (thoughts, attempts, and combined), the following logistic regression analyses utilised the combined measure of suicidal behaviour.

### **3.4 Association between ACEs and suicidal behaviour among men in detention**

Multivariate logistic regression was used to test the association between high ACEs and suicidal behaviour after controlling for other established correlates of suicidal behaviour. As displayed in Table 4, the models were built according to several steps. In the baseline model, young people who reported 3 or more ACEs had a two times greater odds of reporting suicidal behaviour compared to young people who had fewer or zero ACEs.

In Model 2, the addition of aggression and substance abuse problems did not change the effect of ACEs on suicidal behaviour as young people with 3 or more ACEs still had approximately two times greater odds of reporting suicidal behaviour compared to those with fewer ACEs.

In Model 3, the addition of out-of-home care placement slightly attenuated the effect of ACEs on suicidal behaviour, with the odds of suicidal behaviour among those with 3 or more ACEs reducing from two (baseline model) to 1.6 when controlling for aggression, substance use and placement in OOHC.

Multivariate analysis was then repeated using CPA and CSA as the main exposures in separate models (Table 5 and Table 6). In each of the baseline models, young people who had notifications for CSA or CPA had approximately 1.6 times greater odds of reporting suicidal behaviour compared to young people who did not have notifications for these types of maltreatment.

In Model 2, the addition of aggression and substance abuse problems slightly increased the effect of CPA ( $OR = 1.66$ ) and CSA ( $OR = 1.73$ ) on suicidal behaviour, indicating a potential suppression effect. Finally, in Model 3, the addition of out-of-home care placement slightly attenuated the effect of CPA and CSA on suicidal behaviour, with the odds of suicidal behaviour among those who reported CPA and CSA reducing from 1.6 (baseline model) to 1.4 when controlling for aggression, substance use and placement in OOHC.

Interestingly, the -2LLR did not change much across each of the models and remained quite large which may indicate that there are other factors associated with suicidal behaviour that we have not included in these models.

Table 2

*Association between High ACEs and Suicidal Behaviour among Men in Detention*

Risk factor	Model 1					Model 2					Model 3				
	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI
Constant															
High ACEs	.70	.13	28.28	2.01***	[1.55, 2.60]	.68	.13	26.26	1.97***	[1.52, 2.55]	.50	.14	13.0	1.65***	[1.26, 2.17]
Aggression						.42	.14	9.29	1.52**	[1.16, 1.98]	.42	.14	9.40	1.52**	[1.16, 1.99]
Substance use						.89	.20	19.28	2.43****	[1.64, 3.62]	.94	.20	21.29	2.56***	[1.72, 3.82]
OOHC											.53	.122	18.96	1.70***	[1.34, 2.16]
-2LLR					1866.77					1831.74					1812.82

Note. OR = odds ratio; CI = confidence interval; OOHC = Out of home Care history. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .



Table 3

*Association between CPA and Suicidal Behaviour among Men in Detention*

Risk factor	Model 1					Model 2					Model 3				
	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI
CPA	.46	.11	16.71	1.59***	[1.27, 1.99]	.50	.12	19.22	1.66***	[1.32, 2.08]	.31	.12	6.35	1.37*	[1.07, 1.74]
Aggression						.45	.14	10.89	1.57**	[1.20, 2.04]	.44	.14	10.50	1.56***	[1.19, 2.04]
Substance use						.94	.20	21.52	2.56***	[1.72, 3.80]	.98	.20	22.87	2.65***	[1.78, 3.95]
OOHC											.56	.12	20.61	1.76***	[1.38, 2.24]
-2LLR					1880.34					1840.46					1819.92

Note. CPA = Childhood physical abuse; OR = odds ratio; CI = confidence interval; OOHC = Out-of-home-care history. \*  $p < .05$ , \*\*  $p < .01$ ,

\*\*\*  $p < .001$ .

Table 4

*Association between CSA and Suicidal Behaviour among Men in Detention*

Risk factor	Model 1					Model 2					Model 3				
	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI	<i>B</i>	<i>SE</i>	Wald	<i>OR</i>	95% CI
Constant															
CSA	.47	.13	13.37	1.60***	[1.24, 2.06]	.55	.13	17.28	1.73***	[1.33, 2.23]	.35	.14	6.29	1.42*	[1.08, 1.86]
Aggression						.44	.14	10.62	1.56***	[1.19, 2.03]	.44	.14	10.29	1.55***	[1.19, 2.03]
Substance use						.96	.20	22.45	2.62***	[1.76, 3.90]	.99	.21	23.59	2.70***	[1.81, 4.04]
OOHC											.59	.12	23.14	1.80***	[1.42, 2.28]
-2LLR					1884.18					1843.05					1820.09

Note. CSA = Childhood sexual abuse; OR = odds ratio; CI = confidence interval; OOHC = Out of home Care history. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## **Chapter 4 - Discussion**

### **4.1 Overview**

The primary aim of this present thesis was to investigate the association between ACEs and suicidal behaviour in young men who entered detention in South Australia. Due to the over-representation of Aboriginal young people in detention, there was also a focus on understanding the differences in these factors by cultural background. Based on the previous literature, it was hypothesised that: 1) Aboriginal men would have a higher prevalence of ACEs and suicidal behaviour than non-Aboriginal men; 2) a higher ACE score would be strongly associated with suicidal behaviour and that particular ACEs (physical and sexual abuse) would be also be associated with suicidal behaviour; and 3) the association between ACEs and suicidal behaviour would be attenuated when controlling for other risk factors, such as substance use, aggression and out-of-home care (OOHC) placement. Each hypothesis was met to some extent, and the proceeding discussion outlines these findings, including their practical and theoretical implications, limitations, and possible future directions.

### **4.2 Hypothesis 1: Aboriginal and Torres Strait Islander Men will have a Higher Prevalence of ACEs and Suicidal Behaviour than Non-Aboriginal Men**

The findings in this thesis only partially supported Hypothesis 1. When examining ACEs as a cumulative score, Aboriginal men had a higher mean number of ACEs compared to non-Aboriginal men. When individual ACEs were examined separately, Aboriginal men had a higher prevalence of childhood emotional abuse (CEA), neglect, family history of crime, family member substance use problem and parental death, while Non-Aboriginal men had a higher prevalence of household conflict. Both Aboriginal and non-Aboriginal men had a similar prevalence of child physical abuse (CPA), childhood sexual abuse (CSA) and parental separation. The finding that Aboriginal people had a higher cumulative ACEs score

is not surprising when considered in the sociohistorical and political context of Australia. As previous enquiries and reports have highlighted, it is the legacy of colonisation that contributes to the entrenched disadvantage that Aboriginal communities face today. Furthermore, given that Aboriginal young people are over-represented in the child protection system and the child maltreatment factors were measured using official notifications it was not surprising that Aboriginal young men had a higher prevalence of CEA and neglect as they are the most common types of substantiated reports. However, Aboriginal and non-Aboriginal men had similar prevalence of CPA and CSA. Official reports for CSA and CPA are generally slightly higher for non-Aboriginal people, however, as highlighted by the previous literature, this finding could potentially be due ceiling effects wherein by the time young people reach the most punitive end of the Youth Justice system (detention), differences between the two groups become less pronounced.

Despite the differences found in the prevalence of ACEs, minimal differences were found between the proportion of Aboriginal and non-Aboriginal young men who reported suicidal ideation, suicidal attempts, or overall suicidal behaviour. Despite this, given that Aboriginal young men had a higher prevalence of ACEs and a higher ACEs score was associated with suicidal behaviour, a hierarchical logistic regression was performed to test for a significant interaction between high ACEs score and cultural background. However, no interaction effect was found which further indicated that there was no difference in the association between ACEs and suicidal behaviour by cultural background.

As highlighted by previous research, it is possible that Aboriginal people are less likely to report experiences of suicidal behaviour depending on the type of screening tool used and the cultural competency of the administrator (Balaratnasingam et al., 2015; Dudgeon, et al., 2014). Given suicidal behaviour in this study was measured by two simple self-report questions (“During the last week, have you had thoughts about killing yourself”

and “Have you ever tried to kill yourself?”) which was administered as part of routine screening for youth in detention it may be that young people in general, and in particular Aboriginal young people, are less likely to disclose such thoughts and behaviours.

An alternative explanation is one of resilience. Given Aboriginal people have higher prevalence of ACEs but minimal difference in suicidal behaviour, Aboriginal young people may have developed resilience in the face of adversity. A major limitation of the ACEs framework is its focus on deficits. Future strengths-based research is needed to identify factors that promote resiliency among Aboriginal and non-Aboriginal youth. Although this study found minimal differences in suicidal behaviour between Aboriginal and non-Aboriginal young people, this does not mean that all interventions targeted at youth in detention should be the same regardless of cultural background. Further research is needed to be understand culturally specific experiences of adversity and harm in order to develop appropriate responses and interventions.

#### **4.3 Hypothesis 2: A Higher ACE Score will be Strongly Associated with Suicidal Behaviour and Particular ACEs (CSA and CPA) will also be Associated with Suicidal Behaviour**

Young people who reported three or more ACEs had a two times greater odds of reporting suicidal behaviour compared to young people who had fewer or zero ACEs. Similarly, young people who had notifications for CSA or CPA had approximately 1.6 times greater odds of reporting suicidal behaviour compared to young people who did not have notifications for these types of maltreatment. These findings supported hypothesis 2. Considering the high proportion of young people that report experiencing ACEs in samples of justice-involved young people, the association between ACEs and suicidal behaviour found in this thesis are likely to be relevant to justice systems in other countries.

#### **4.4 Hypothesis 3: The Association between ACEs and Suicidal Behaviour will be Attenuated when Controlling for other Risk Factors, such as Substance Use, Aggression and OOHC Placement**

Hypothesis 3 was also partially supported by the results. The inclusion of aggression and substance use did not attenuate the effect of ACEs on suicidal behaviour; however, when these factors were entered into the model along with OOHC placement, the effect of a high ACEs score on suicidal behaviour was reduced. The odds of suicidal behaviour among those with three or more ACEs reduced by around 40% when all three covariates were included in the model. Similar results were also found for two individual ACEs (CPA and CSA), with the odds of suicidal behaviour among both those who reported CPA and CSA reducing by around 20% when all three covariates were included in the model. Interestingly, when examining the association between both CPA and CSA and suicidal behaviour, when aggression and substance use were added to the model the effect of CPA and CSA on suicidal behaviour increased slightly. This is likely to be due to suppressor effects, in which, aggression and substance use may account for some of the variance in CSA/CPA that is actually unrelated to suicidal behaviour, therefore improving the association between CSA/CPA and suicidal behaviour. However, the  $-2LLR$  did not change much across each of the models and remained quite large which indicates that there are other factors associated with suicidal behaviour that were not included in these models. Further research is needed to ascertain whether there are other correlates of suicidal behaviour that should be included in future research.

Overall a higher ACEs score was associated with an increased risk of suicidal behaviour even after controlling for other well-known correlates for suicidal behaviour. As highlighted by Anda et al. (2020), whilst screening for ACEs might be useful in understanding who might be more at risk for suicidal behaviour, simply screening for ACEs

does not reduce the prevalence of ACEs. Therefore, there may be a need for targeted programs and initiatives for young people with high ACEs.

#### **4.5 Strengths and Limitations**

The current study is the first in Australia to examine the association between ACEs and suicidal behaviour in a sample of Aboriginal and non-Aboriginal young men in detention whilst controlling for other well-known correlates of suicidal behaviour. A limitation is that the prevalence of ACEs may be underestimated. For instance, five of the ACEs utilise self-report measures which can be subject to recall and reporting biases. A strength of this study was that it utilised official records of maltreatment for four ACEs and are therefore not subject to the same biases. However, it is important to note that not every case of maltreatment experienced will be reported to child protection and therefore may still represent an underestimate of the total experience of maltreatment in this sample.

Another limitation relates to the operationalisation ACEs. Whilst the operationalisation of ACEs as a cumulative score is useful in that it acknowledges the interrelatedness and co-occurrence of experiences; it unfortunately does not allow us to distinguish between differences in the severity or chronicity of each experience. For example, an individual can have multiple severe experiences of the same type of ACE over a long period of time or only experience one of the same type of ACE over a short period of time that is less severe - both experiences would be counted the same according to this cumulative measure.

In fact, in a recent paper by the original authors of the ACEs study highlighted a number of the limitations and misapplications of the ACEs framework were highlighted (Anda et al., 2020). The authors cautioned against the implications and potential harmful effects of making inferences about individuals based on information from population-based

studies in which the risk may be overestimated in individuals ('ecological fallacy'). Examples provided included overdiagnosis and over-referring of people to services that do not benefit them, creating a sense of stigma towards the individual, and disrupting relationships between the individual and health care professional.

An additional limitation of the ACEs framework is that it encompasses only 10 experiences. It is possible that there are other adverse experiences that are not included in the original framework (Finkelhor, 2018; Finkelhor et al., 2013) and some may be specific to the sociohistorical and political context in which an individual lives (e.g., the intergenerational trauma experienced by Aboriginal young people).

#### **4.6 Future Directions**

This thesis utilised cross-sectional data, therefore, we are unable to establish whether a high ACEs score, CPA or CSA predict suicidal behaviour, only that they are correlated. More comprehensive longitudinal research is needed to understand how different dimensions of ACEs (e.g., severity, intergenerational trauma) influence risk of suicidal behaviour as well as the temporal order between associations. Furthermore, findings in this thesis are restricted to young people in Youth Justice that are supervised in detention. It is well-known that conditions of confinement can exacerbate symptoms of mental distress (Abrams et al., 2004). Thus, replication of these associations is needed in different samples of justice-involved young people, for example, those serving orders in the community. As highlighted by the AIHW (2020) approximately 80% of young people are supervised by youth justice in the community. This will provide insight into whether the results from this sample can be extrapolated to the broader Youth Justice system and other jurisdictions.

#### **4.7 Conclusion**



In summary, this thesis provided a comprehensive examination of the association between ACEs and suicidal behaviour among young men in detention. Findings suggest that ACEs are strongly associated with suicidal behaviour, and this association remained after controlling for several other established risk factors for suicidal behaviour. This has important implications for policy and practice, and youth justice systems need to be sensitive and responsive to the complex psychological health needs of the young people for whom they are responsible. This thesis was the first to examine the association between ACEs and suicidal behaviour by cultural background and points to the importance of understanding differences in risk between Aboriginal and non-Aboriginal young men in detention. Understanding the impact of ACEs on suicidal risk for young people in detention is important for informing the development of effective suicide prevention strategies.

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