

An Investigation of the Association between Child Abuse, Neglect and Youth Offending in  
South Australia

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## Abstract

The association between childhood exposure to maltreatment and the subsequent development of delinquent or criminal behaviours is well established. However, in Australia, there have been few longitudinal studies that have examined this association. Therefore, the overarching aim of this thesis was to explore the maltreatment-offending association in an Australian jurisdiction. To provide context for the empirical work which follows, this thesis commences with two systematic reviews of prospective and longitudinal studies that have examined the maltreatment-offending association. The objective of the first review was to critically review the design and methodological features of studies and how these features influence conclusions drawn. The second aimed to synthesize the evidence for different maltreatment and out-of-home care (OHC) placement factors, as well as other individual, social and contextual factors, shown to play a role in explaining associations between maltreatment and offending. The second part of this thesis then summarises the findings of a data linkage project based on administrative and survey data obtained from South Australia's child protection and youth justice systems. These findings are set out in three studies.

The primary aims of these three studies were: 1) To determine the overlap between child protection and youth justice involvement in South Australia; 2) To determine how substantiated maltreatment and variations in these experiences (i.e., the type, timing and recurrence of maltreatment) related to overall convictions; 3) To explore the extent to which placement in OHC and variations in these experiences (i.e., the type of care, timing of placements and their duration or stability) related to different types of convictions (i.e., violent, property, drug and breach offences); 4) To explore how gender and ethnicity moderated the maltreatment-offending association; and 5) To investigate the role of maltreatment and placement variables on violent convictions after controlling for other known individual and social correlates of crime.

Findings from the first study indicated that, compared to a general population estimate, the odds of having a conviction were significantly greater for individuals for whom child protection notifications or substantiations were made, and for those placed in OHC. The strongest predictors of convictions among maltreated young people were: male gender, Aboriginal and Torres Strait Islander ethnicity, physical abuse, maltreatment recurrence, persistent maltreatment and placement in OHC. In the second study, gender, ethnicity and placement factors were found to moderate the relationship between maltreatment and convictions, although associations varied systematically according to the

type of conviction examined. The findings from the third study demonstrated that demographic factors (male gender and Indigenous ethnicity), maltreatment factors (physical abuse and persistent maltreatment), family background factors (household conflict) and individual characteristics (anger and aggression) were all strongly associated with violent convictions.

Findings from this thesis point to the complex and multifactorial nature of the maltreatment-offending association. It is clear that a collaborative and integrated response from both the child protection and youth justice systems is needed in order to prevent and treat the consequences of maltreatment and reduce offending behaviour among young people.

## Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

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I acknowledge the support I have received for my research through the provision of an Australian Government Research Training Program Scholarship.

Signed.....

Catia Gaetana Malvaso (Candidate)

Date..... 10<sup>th</sup> February 2017 .....



### **List of publications contributing to this thesis**

**Malvaso, C. G., Delfabbro, P., & Day, A. (2015).** The maltreatment-offending association: A systematic review of the methodological features of prospective and longitudinal studies. *Trauma, Violence, & Abuse*. doi: 10.1177/1524838015620820

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**Malvaso, C.G., Delfabbro, P.H, Day, A. (2017).** The child protection and juvenile justice nexus in Australia: A longitudinal examination of the relationship between maltreatment and offending. *Child Abuse & Neglect*, 64, 32-46. doi: 10.1016/j.chiabu.2016.11.02.

**Malvaso, C.G., Delfabbro, P.H, Day, A. (2017).** Child maltreatment and criminal convictions in youth: The role of gender, ethnicity and placement experiences in an Australian population. *Children and Youth Services Review*, 73, 57-65. doi: 10.1016/j.chidyouth.2016.12.

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## **Presentations arising out of this thesis**

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**Malvaso, C.G.** (2015, November). Risk factors that influence the maltreatment-offending association: A systematic review of prospective and longitudinal studies. Paper presented at the Australian New Zealand Association for Psychology, Psychiatry and Law (ANZAPPL) national conference, Canberra, Australia.

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**Malvaso, C.G.** (2016, October). Associations between maltreatment and youth offending. Paper presented at the Department of Child Protection Research Seminar, Hindmarsh, South Australia, Australia.

**Malvaso, C.G.** (2016, July). The link between childhood maltreatment and juvenile offending. Paper presented at Chapin Hall, University of Chicago, Illinois, United States of America.

**Malvaso, C.G.** (2016, June). Associations between maltreatment and youth offending. Paper presented at Youth Justice Psychology Services, North Adelaide, South Australia, Australia.

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## 1 Introduction

A large and convincing body of evidence attests to the role that childhood maltreatment plays in the development of delinquent or offending behaviour in later life. Numerous cross-sectional and longitudinal studies have consistently documented a link between child abuse and neglect and offending behaviour, particularly in adolescence. Although cross-sectional designs are generally subject to bias in terms of retrospective measurement of maltreatment, and therefore afford limited insight into issues of causality, these studies have demonstrated that maltreatment histories are more common among young offenders relative to youth in the general population. On the other hand, prospective and longitudinal evidence of this link has consistently established that the majority of maltreated victims do not go on to commit crime, although it is clear from these studies that young people who have experienced maltreatment are significantly more likely to subsequently engage in offending behaviours compared to their non-maltreated counterparts. Furthermore, longitudinal studies have demonstrated that the pathway from maltreatment to offending is influenced by a complex interplay of individual, social and contextual risk factors other than, and often in combination with, maltreatment experiences.

Researchers have been more recently committed to disentangling the influences of maltreatment and other co-existing risk factors on offending in an effort to identify when, how and for whom abusive and neglectful experiences lead to offending behaviour. Elucidating the effects of different maltreatment experiences, including but not limited to the type, timing and recurrence of maltreatment, has been a primary focus of research in this area. Although a number of studies have advanced knowledge by progressing beyond the use of single measures of maltreatment, or disaggregating composite measures in order to discern the unique effects of different types of maltreatment, relatively few studies have considered the role of multi-type maltreatment. This is important because many young people experience more than one type of abuse or neglect. Furthermore, these experiences can occur throughout different stages of development and at varying levels of severity or chronicity. Further research is needed to determine how these variations in maltreatment experiences influence life outcomes.

Other researchers have been interested in exploring how responses to maltreatment, such as the placement of children and young people into out-of-home care (OHC), serve to mitigate or exacerbate risk. Similar to maltreatment, placement experiences vary greatly;



young people enter different types of care arrangements (e.g., foster, residential or kinship care), and can be placed at different ages and for varying amounts of time. The stability of these placements, generally measured by the number of placement changes experienced by a young person, has been of particular interest due to the behavioural consequences attributed to such disruptions. However, whether OHC is a cause or consequence of offending behaviour requires further exploration.

More recently, there has been greater attention on the role of potential mediating or moderating processes in the maltreatment-offending association. As a result, a number of intervening mechanisms have been identified, including factors relating to: the individual (e.g., mental illness, substance misuse), their social context (e.g., household conflict, deviant peers) as well as the broader socio-economic environment (e.g., the level of neighbourhood poverty or prevalence of criminogenic influences). Despite the fact that there is a clear commitment to exploring and testing more complex models in order to further understand which factors play direct and indirect roles, there are often inconsistencies in the range of variables considered or in the theoretical perspectives used to frame hypotheses.

Adding further complexity to our understanding of the maltreatment-offending association are studies that demonstrate that the effect of maltreatment experiences can vary depending on the victims' gender and ethnicity. Until recently, limitations due to small samples have restricted researchers' ability to compare outcomes among males and females, and among young people from different ethnic groups. There are also differences in the extent to which associations vary depending upon how offending is measured (i.e., self-reported delinquency versus officially recorded criminal convictions) and for different types of crimes (including violent versus non-violent offences, as well as more specific offence categories such as property- or drug-related crimes).

The above considerations make it difficult to identify clear causal pathways between maltreatment and offending outcomes in adolescence. Furthermore, within the Australian context, there have been few longitudinal studies that have examined the extent to which maltreatment is associated with youth offending. As a consequence, the prevailing research in this area has had minimal influence on crime prevention social policy. For these reasons, further investigation of the maltreatment-offending association using Australian data, in addition to addressing some of the limitations of previous research in the area, is likely to contribute to knowledge that has the potential to inform practice and policy.

## **1.1 Thesis Aims**

The overarching aim of this thesis was to explore the link between childhood maltreatment and youth offending in an Australian jurisdiction. Specifically, this thesis aims to address the following questions:

1. To what extent do the child protection and youth justice populations overlap in South Australia?
2. How is substantiated maltreatment, and variations in these experiences (including the type, timing and recurrence of maltreatment) related to overall youth convictions?
3. How does placement in OHC (including the type, timing, duration and stability of placements) relate to different types of convictions (including violent, property, drug and breach related offences)?
4. To what extent does gender and ethnicity moderate the association between maltreatment and convictions?
5. Are maltreatment and placement experiences related to violent convictions after accounting for other individual and social correlates of crime?

## **1.2 Thesis Outline**

This thesis is organised according to the following chapters. Chapter 2 provides background information and definitions of maltreatment and youth offending, outlines the scope of each problem within the Australian context, as well as a brief literature review of prominent studies that have examined the maltreatment-offending association. This chapter also includes a brief overview of the economic costs of maltreatment and a discussion of the major theoretical explanations underpinning the link between maltreatment and youth offending.

Chapter 3 contains two published systematic review papers arising from this thesis. The first paper reviews the methodological features of prospective and longitudinal studies in this area in order to determine how these features influence the conclusions drawn from this body of research. The aim of the second review was to synthesize the evidence on factors shown to play a role in mitigating and exacerbating risk in a way that allows clear insights into the status of knowledge on the maltreatment-offending association.

Chapter 4 introduces a South Australian data linkage project in which administrative data from the South Australian Department for Child Protection were linked

with both administrative and survey data from Youth Justice (Department for Communities and Social Inclusion). Three papers arising from this project are included in Chapter 5. The first publication presents results of analyses examining the overlap between the child protection and youth justice populations in South Australia. This study also examines how demographic factors (gender, ethnicity, and a measure of socioeconomic disadvantage) and variations in substantiated maltreatment experiences (including type, timing, recurrence and placement in OHC) relate to overall convictions. The second publication presents results from analyses examining the moderating role of gender, ethnicity and placement experiences in explaining the associations between substantiated maltreatment and five different categories of convictions (including overall convictions, and specifically, violent, property, drug and breach related convictions). The third study (currently under review) examines the role of maltreatment and placement factors after including other known individual and social correlates of crime in statistical models aimed at predicting violent convictions.

The final chapter (Chapter 6) provides a general discussion of the key findings and contributions of this thesis to the broader literature, as well as potential theoretical and practical implications. It also summarises some of the limitations of the research and potential future directions.

## 2 Background, Literature and Theory

### 2.1 Background and Definitions

Since the publication of C. Henry Kempe's seminal work, the battered child syndrome, in 1962, the issue of child maltreatment has received global attention. However, due to differing social, economic and cultural traditions, the causes and consequences of child maltreatment are difficult to study as single phenomena. Complexities arise due to varying definitions of maltreatment, encompassing different types of abuse and neglect, and the quality and methods for collecting data on the topic. However, one widely accepted definition of maltreatment has been published by the World Health Organisation (WHO):

Child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power (WHO, 2002a, p. 59).

Child maltreatment is a pervasive problem and the associated serious and long-term consequences have been repeatedly documented in the scientific literature. These consequences encompass every facet of child and adult development, including: neurological health (e.g., disruption in early brain development); physical health (e.g., obesity, disease); mental health (e.g., depression, cognitive impairment); social problems (e.g., homelessness, unemployment); and behaviour (e.g., alcohol and drug misuse, perpetrator or victim of violence).

Although maltreatment includes a broad spectrum of abuse or neglect, research in this area tends to focus on the causes and consequences of acts perpetrated by parents or caregivers. These acts include physical abuse, sexual abuse, emotional abuse and neglect. The WHO provides definitions for each of these forms of abuse and the differentiation of each category is based on acts of commission or omission:

- (a) *Physical abuse* of a child is defined by those acts of commission by a caregiver that cause actual physical harm or have the potential for harm.
- (b) *Sexual abuse* is defined as those acts where a caregiver uses a child for sexual gratification. This may include but is not limited to: the inducement or coercion of a child to engage in any unlawful sexual activity; the exploitative use of a child in prostitution or other unlawful sexual practices; the exploitative use of children in pornographic performance and materials.
- (c) *Emotional abuse* includes the failure of a caregiver to provide an appropriate and supportive environment, and includes acts that have an adverse effect on the emotional health and development of a child. Such acts include restricting a child's movements, denigration, ridicule, threats and intimidation, discrimination, rejection and other non-physical forms of hostile treatment.
- (d) *Neglect* refers to the failure of a parent to provide for the development of the child – where the parent is in a position to do so – in one or more following areas: health, education, emotional development, nutrition, shelter and safe living conditions. Neglect is thus distinguished from circumstances of poverty in that neglect can occur only in cases where reasonable resources are available to the family or caregiver (WHO, 2002a, p. 60).

Youth offending, also referred to as juvenile delinquency, is also a widespread issue that exists all over the world. It covers a multitude of different acts that violate both legal and social norms and can be perpetrated by individuals or by groups. Similar to maltreatment, numerous factors are believed to cause or influence youth offending, including: economic and social factors; cultural factors; increases in urbanization and migration; media portrayal of the issue; social exclusion; peer influences; and delinquent identities.

In both developing and developed countries, the issue of youth violence is of particular concern, with many bodies and agencies, including the United Nations (UN) and the WHO conducting research and releasing information on this topic. The WHO (2002b) defines violence as:

The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high

likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation (p. 5).

According to reports from these associations, adolescents and young adults are the main perpetrators of violence, although these individuals often commit a range of non-violent crimes in addition to violent acts. The UN and WHO also emphasise that, although young people who commit crimes are often studied or treated as offenders, they are also victims of criminal and delinquent acts at the hands of adults and also by their juvenile peers (United Nations, 2003). These bodies thus promote the use of social rather than judicial approaches to managing youth offending, with the United Nations Standard Minimum Rules for the Administration of Juvenile Justice (“The Beijing Rules”; 1985) and Guidelines for the Prevention of Juvenile Delinquency (“The Riyadh Guidelines”; 1990) established to help achieve two purposes in responding to youth offending. The first is to protect the human rights of young people who have been found in violation of the law, with detention advised as the last resort option for the most serious crimes committed. The second is to promote the prevention of engagement in criminal activities by young people. These instruments strongly encourage a shift away from tough penalties and law enforcement in response to crimes committed by young people, as well as away from strictly punitive prevention and rehabilitation initiatives. Instead, they emphasize the need for social welfare and holistic approaches that focus on the complex causes and consequences engendered by youth offending.

It is clear that both maltreatment and youth offending are pervasive issues within human society. Neither exists or should be viewed in isolation. As exemplified by the Global Status Report on Violence Prevention (WHO, 2014), a joint endeavour between the WHO, UN Development Programme, and UN Office on Drugs and Crime, all aspects of violence, including child maltreatment and youth violence, have risen to the forefront of the international agenda. This report contends that the divide between the burden of violence and investment in its treatment and prevention is increasing, and that further effort needs to be made at the local, national and global level in order to address these problems.

### **2.1.1 Child maltreatment in Australia**

In Australia, official statistics indicate that in 2014 to 2015, approximately 320,000 notifications for abuse and neglect pertaining to 208,100 children were made to child protection authorities across the country's eight jurisdictions (Australian Institute of Health and Welfare; AIHW, 2016a). Approximately 152,100 notifications were investigated, with 56,400 subsequently substantiated. Of those children for whom at least one substantiation was made, one in five (19%) received more than one substantiation. Nationally, the most common type of abuse substantiated was emotional abuse (43%), with neglect the second most common (26%). However, the rates of abuse type differed across jurisdictions, with neglect the most common type of maltreatment substantiated in South Australia. As mentioned previously, young people often experience more than one type of maltreatment, with the AIHW indicating that the average co-occurrence of different types of abuse ranged from 1.8% for sexual abuse to 31.5% for emotional abuse.

The AIHW have also documented a steady rise in the number of notifications, investigations and substantiations for maltreatment. Increases in maltreatment reports can be largely attributed to the legislation and policy changes, such as mandatory reporting policies that now exist in all Australian jurisdictions. Relatedly, it is possible that there has been an increase in public awareness about the problem of abuse and neglect in Australia, with various state and territory inquiries into child protection services casting child maltreatment, and its associated issues, into the public eye. In South Australia, the most recent inquiry, the Child Protection Systems Royal Commission which was established in August 2014, has received considerable political, public and media attention. Royal Commissioner Margaret Nyland delivered her report, 'The Life They Deserve', and a list of 374 recommendations regarding the improvement of South Australia's system to the Governor on August 5<sup>th</sup> 2016. In response to these recommendations, a separate department (Department for Child Protection) has been established to ensure a primary focus on child protection business, with a new Chief Executive appointed.

Responding to child maltreatment in Australia is also the responsibility of each state or jurisdiction. In South Australia, various care and protection orders exist and applications are made by the relevant Minister to the Youth Court to secure the provision of supervision or out-of-home care (OHC) placement of a child for a period of time. The most common orders include twelve month custody orders or guardianship of the minister orders for up to twelve months or until the child reaches the age of 18. In some circumstances, parents can agree to a Voluntary Care Arrangement, which is a voluntary

agreement to have their children placed in care for a shorter period of time. Due to the recommendations made in the Nyland report, it is now the Chief Executive's responsibility to find a child in need of care and protection a satisfactory place to live. Furthermore, according to Australian legislation in most states and territories, alternative care arrangements are viewed as short-term solutions to ensure the safety of children and young people and to assist parents and caregivers, with the primary intention to reunify children with their biological families. Therefore, applications for orders through the court are usually made after all other attempts for assistance are exhausted. As a consequence, adoption is not as common in Australia compared to other parts of the world, although it is also acknowledged that adoption may be especially underused in Australia due to concerns about previous forced removals of Aboriginal and Torres Strait Islander young people during the colonisation period in this country.

In 2016, the AIHW documented an increase in the rates of children on care and protection orders, with over 48,700 children on an order nationwide as of June 30<sup>th</sup> 2015. Similarly, the number of children in OHC was also documented as on the rise, with approximately 43,400 in a care arrangement as of June 30<sup>th</sup> 2015. The AIHW (2016a) defines OHC as the "overnight care for children aged 0-17, where the state makes a financial payment or where a financial payment has been offered but has been declined by the carer" (p. 132). The three most common types of care arrangements in Australia include foster care, residential care, and kinship care, with the family-based options (i.e., foster or kinship care) the preferred arrangements in most jurisdictions. These arrangements are defined by the AIHW as follows:

- *Foster care*: A form of out-of-home care where the caregiver is authorised and reimbursed (or was offered but declined reimbursement) by the state/territory for the care of the child.
- *Kinship care*: A form of out-of-home care where the caregiver is: a relative (other than parents), considered to be family or a close friend, a member of the child or young person's community (in accordance with their culture), reimbursed by the state/territory for the care of the child (or who has been offered but declined reimbursement).
- *Residential care*: A type of care where the placement is in a residential building whose purpose is to provide placements for children and where there are paid staff. (AIHW, 2016a, p. 128-132).



Young people can also be living in independent care arrangements or other settings, including boarding schools, hospitals or hotels. In 2014-15, data indicated that the most common type of care for young people in South Australia was kinship care, followed closely by foster care, and finally residential care; however, South Australia reported the highest proportion of residential care placement (14%) compared to the other jurisdictions. In some states, residential care can be a single home or a larger congregate care facility with 20-30 residing young people. It has been suggested that the increase in the demand for OHC placements, difficulty in recruiting foster carers, and reductions in the use of non-home-based types of care (e.g., residential care) has led to difficulties in finding suitable placements for young people (Osborn, 2006). As a consequence, there is a growing concern that only young people whose needs are most serious will be placed, and due to the limited placement options available, the risk for placement breakdown or instability is greater. This concern was also raised and addressed in Nyland's report, with the 2016 Children and Young People (Safety) Bill proposed to replace the 1993 Children's Protection Act in an effort to promote permanence and stability for young people who have been placed in OHC. Included in the bill are a number of provisions aimed at promoting and encouraging the participation of young people themselves in the decision-making processes where possible.

As with the rise in child maltreatment reports, the increases in the numbers of children and young people on care and protection orders or in OHC are a likely result of legislation and policy changes, but also reflect the intensification of broader socio-political issues within Australian society. One issue pertinent to Australia is the over-representation of Aboriginal and Torres Strait Islander young people in the child protection system, with the recent AIHW (2016a) report confirming that Indigenous children continue to be over-represented. According to this report, Indigenous young people were seven times more likely than their non-Indigenous counterparts to be receiving child protection services. Although economic hardship and access to opportunities are concerns that are concentrated within the broader issue of poverty, the entrenched disadvantage and suffering of Indigenous peoples since colonisation in Australia is well documented. It has been recognised that there is a need to improve social policy in a way that remains sensitive to the many cultural and social differences that exist, but also ensures that a balance between traditional Indigenous culture and modern society is achieved. In response to this, the Aboriginal and Torres Strait Islander Child Placement Principle was developed and is

enshrined in the legislation of all Australian jurisdictions. This principle aims to preserve Indigenous children's connection to their culture, family, community and sense of identity by promoting placement within family or kin networks. However, along with the recent inquiries and reviews of child protection systems in Australia, it has been acknowledged that there are serious concerns about how well this principle is being implemented (Arney, Iannos, Chong, McDougall, & Parkinson, 2015). The difficulty in recruiting appropriate foster carers is especially pertinent here, with placement options needing to be balanced against the safety and wellbeing of the child in the event that few suitable Aboriginal or Torres Strait Islander carers are available.

### **2.1.2 Youth justice in Australia**

Consistent with the aforementioned global trends, young people in Australia are the most common victims and perpetrators of violence. The Australian Institute of Criminology (2012) reported that the victimisation rates of assault are highest within the 15 to 24 age bracket, and that young people aged 15 to 19 are more likely to be processed by police for involvement in criminal activity in general, and for violent crime in particular. Although the youth court's jurisdiction in Australia is similar to that of other countries that have ratified the United Nations *Conventions on the rights of the child* (e.g., the minimum age of criminal responsibility is ten years old and placement in secure detention is a last resort option), some variations in legislation, policy and practice do exist, especially across jurisdictions. For example, in all states and territories, the upper limit for treatment as a young person for a criminal offence is 17, with the exception of Queensland, in which the age limit is 16.

The Australian youth justice system differs from some other countries in so far as in some States it is informed by a welfare model for dealing with young people who commit crime (Day, 2011). This serves as a contrast to the more punitive driven models that operate in parts of Europe and the United States (Muncie, 2008). At the heart of the welfare approach is the need to consider the best interests of the young person. In South Australia, the key objectives of the Youth Justice agency include: diversion (i.e., the option to attend a Family Conference when an offence is considered too serious for an informal or formal caution), supervision (both in the community and in secure custody), offence-specific and therapeutic programs (including specific programs for Aboriginal and Torres Strait Islander young people), psychology services, and pre- and post- release support.

According to a recent report (Australian Institute of Health and Welfare, 2016c), approximately 5,600 young people were under youth justice supervision on an average day in 2014-15. Of these, the majority of young people were supervised in the community (85%) compared to in detention (16%). In contrast to the increase in child protection reports and placements, a steady decline in the number of young people under youth justice supervision was reported. Although overall rates decreased, Indigenous young people continued to be over-represented and were 15 times more likely to be under supervision compared to their non-Indigenous counterparts. Variations across the Australian jurisdictions were observed, with young people in South Australia comprising only 6% of all those under supervision Australia-wide. Supervision patterns in South Australia were similar to national trends; however, they also tended to be below national averages. For example, young people in South Australia spent approximately 11 weeks under supervision, whereas the national median was approximately 20 weeks.

### **2.1.3 The child protection and youth justice nexus in Australia**

In 2016, the AIHW released its first report in which child protection and youth justice data were linked in order to provide information on young people aged 10 to 17 who were involved in both systems during the 2013 to 2014 financial year (Australian Institute of Health and Welfare, 2016b). Although results were limited to only four jurisdictions with relevant data (Victoria, South Australia, Tasmania and the Australian Capital Territory), the report revealed the stark overlap between the two populations. Two key findings were reported: 1) Compared to young people from the general population, those placed on care and protection orders were 27 times more likely to also be under youth justice supervision in the same year; and 2) Young people involved in the child protection system were 23 times more likely to also be under youth justice detention compared to youth in the general population, with almost half (45%) involved in both systems.

Although the accumulation of data will allow for longitudinal analyses in the future, these findings only provide a cross-sectional snapshot of the crossover between the child protection and youth justice populations in Australia over a 12-month period. In general, there are few longitudinal examinations of the link between maltreatment and youth offending in Australia. However, there are some notable exceptions and these studies will be discussed in the following section.

## **2.2 Research on Maltreatment and Offending**

There are an overwhelming number of studies in which the link between maltreatment and offending is examined. However, one question stands out: why is it that the majority of young people who have experienced maltreatment do not go on to commit crimes, yet a large proportion of young offenders have histories of maltreatment? In order to gain a deeper understanding of research in this area, two systematic literature reviews were conducted and are included in this thesis. In the first, the focus was directed towards understanding the different methodological features of studies examining the maltreatment-offending link. There is a great deal of variation in the way this topic is studied and many researchers have commented on the influence that different methodological approaches can have on the conclusions drawn from these studies (Smith & Thornberry, 1995; Thornberry, Knight, & Lovegrove, 2012; Wilson, Stover, & Berkowitz, 2009). The study aimed to critically review the maltreatment-offending literature in order to make some recommendations about the optimal methodological features and rigour required to test the effects of maltreatment on subsequent offending.

The second systematic review was inspired by the increasingly sophisticated nature of prospective and longitudinal studies in the area. Over the last decade, researchers have been committed to determining how variations in maltreatment experiences influence outcomes, as well as the intervening effects that different individual, social and contextual risk factors have on offending. However, the insights gained from the first review made it clear that there are often inconsistencies in the range of risk factors considered and how they are measured. Furthermore, a number of studies lacked clear theoretical underpinnings for explaining these associations. Thus, the second review aimed to synthesize the evidence for risk factors shown to play a role in mitigating or exacerbating risk, and a conceptual framework to guide future research was proposed.

These two reviews are presented in the following chapter, therefore, in an effort to minimise repetition, this section will focus more briefly on the development of research on the maltreatment-offending association and some of the key research groups and studies that have progressed knowledge in the area. Accordingly, this section does not focus on the specific findings from these studies per se, as these are discussed in great detail in the two systematic reviews. Instead, it focuses on the development of research internationally and in Australia, the main theoretical perspectives guiding research in this area, and finally, a discussion of the social and economic consequences of maltreatment and youth offending.

### 2.2.1 International literature

The first studies reporting an association between maltreatment and offending date back as early as the 1960s (e.g., Silver, Dublin & Lourie, 1969), with some studies that followed maltreated youth through to adolescence reporting higher rates of juvenile delinquency and violence among these individuals (e.g., McCord, 1983). Since then, a proliferation of studies based on samples of offenders or incarcerated youth have documented the high rates of maltreatment experienced by these young people (Benoit & Kennedy, 1992; Burton, 2008; Burton, Duty, & Leibowitz, 2011; Dierkhising et al., 2013; Dutton & Hart, 1992; Evans & Burton, 2013; Famularo, Kinscherff, Fenton, & Bolduc, 1990; Felson & Lane, 2009; Flannery, Singer, & Wester, 2001; Fox, Perez, Cass, Baglivio, & Epps, 2015; Gold, Sullivan, & Lewis, 2011; Haapasalo, 2000; Kimonis et al., 2010; King et al., 2011; Kolla et al., 2013; Roe-Sepowitz, 2009; Swogger, Conner, Walsh, & Maisto, 2011). It soon became clear that findings from studies based on these samples, while deepening our understanding of the accumulation of risk factors for these individuals, were not impervious to a number of limitations. First, the majority of these findings are based on self-report and retrospective measures of abuse or neglect, and such instruments are subject to a number of recall biases (Hardt & Rutter, 2004). Second, these studies lack appropriate comparison groups, which makes it difficult to test the strength of the maltreatment-offending association. Third, the cross-sectional designs of these studies limit our ability to draw firm conclusions about the causal relationship between experiencing maltreatment and the subsequent commission of crimes, especially since the potential for other explanatory factors, such as poverty, cannot be ruled out. Finally, these samples are likely to represent the extreme end of the behavioural spectrum, since the most antisocial and behaviourally problematic young people tend to end up in trouble with the law and often present with high levels of a number of risk factors (Wilson et al., 2009).

In order to address some of these limitations, prospectively designed longitudinal studies that employed comparable control groups were introduced. A pioneer of this methodological approach in this area was Cathy Spatz Widom, whose 1989 study based on a specialised cohorts design made it abundantly clear that the association between maltreatment and offending is by no means deterministic (Widom, 1989). This study involved taking a large sample of maltreated youth and matching it as close as possible with a sample of non-maltreated individuals on age, gender, ethnicity and socioeconomic background. In doing this, the groups were hypothesised to differ only in terms of maltreatment experiences. Although it was found that experiencing abuse or neglect was

associated with an increased likelihood of having a record for adult crimes, the majority of maltreated individuals did not have criminal records. Overcoming some of the limitations inherent in cross-sectional research, longitudinal analyses around this time began to focus on determining the magnitude of the maltreatment-offending association and whether, after accounting for possible confounding factors, this association was a causal one (Jonson-Reid, 1998). Widom's data has been subsequently analysed in a number of studies aiming to address different research questions, including how different maltreatment and placement factors relate to different types of crime (DeGue & Widom, 2009; Maxfield, Weiler, & Widom, 2000; Nikulina, Widom, & Czaja, 2011; Rivera & Widom, 1990; Weiler & Widom, 1996; Widom, 1991, 2003; Widom & Ames, 1994; Widom & Maxfield, 1996), and represents an enormous contribution to the knowledge base.

Other groups of researchers have also conducted large-scale longitudinal studies examining the link between maltreatment and offending. Terence Thornberry, the principal investigator of the Rochester Youth Development Study (RYDS), leads one such program of research. Beginning in 1986, the RYDS is a multi-wave panel study that incorporates self- and parent-reported interview data and official child protection and police arrest data. Stratification techniques were used so that young people at high-risk for delinquency and drug use were over-represented, with weights applied to balance the sample. These researchers were among the first to consider beyond maltreatment type in order to explore frequency (the number of different reports), duration (length of the investigation for each report), and number of different types of maltreatment (Smith & Thornberry, 1995). Since Widom's work was based on official records of crime only, and official records do not capture all instances of crime, Thornberry and colleagues also measured delinquency through self-report as well as through official arrest records.

One of the most significant contributions from the RYDS study was the operationalization of the timing of maltreatment to include maltreatment occurring in the childhood years only, that occurring in the adolescent years only, and that occurring through both childhood and adolescence (Ireland, Smith, & Thornberry, 2002; Smith, Ireland, & Thornberry, 2005; Thornberry, Henry, Ireland, & Smith, 2010; Thornberry, Ireland, & Smith, 2001). These studies provided convincing evidence that maltreatment occurring in the childhood years only was less consequential in the development of offending behaviour compared to maltreatment that either began or continued into adolescence. However, the only study to operationalize the timing of maltreatment in a similar way reported that childhood-limited maltreatment was also a strong risk factor for

subsequent offending (Mersky, Topitzes, & Reynolds, 2012), therefore it is clear that further replication in different samples is needed.

Another longitudinal study which has been analysed to contribute to our understanding of the maltreatment-offending association is the Chicago Longitudinal Study (CLS; Reynolds, 1991), a cohort study of low-income, minority children growing up in high poverty neighbourhoods. Along with his colleagues, Reynolds presented some of the most interesting studies that not only illustrated the complexities of the maltreatment-offending association, but also attempted to disentangle the direct and indirect influences of other risk factors (Mersky & Reynolds, 2007; Topitzes, Mersky, Dezen, & Reynolds, 2013; Topitzes, Mersky, & Reynolds, 2011). In light of the possibility of differential effects for males and females, these researchers also began to consider gender differences (Topitzes et al., 2011), with other studies also turning their focus towards examining ethnic differences (Bright & Jonson-Reid, 2008; DeGue & Widom, 2009; Doyle, 2008; Smith et al., 2005; Yampolskaya & Chuang, 2012). Therefore, the trend over the last decade has been to test more complex models of the maltreatment-offending association in a way that provides a deeper understanding of these mediating or moderating processes.

The aforementioned longitudinal studies have provided us with some of the greatest insights into the factors that influence the maltreatment-offending association; however, findings from a number of research programs have also advanced knowledge in this area, including the Lehigh Longitudinal Study (Jung, Herrenkohl, Klika, Lee, & Brown, 2015), the Pittsburgh Youth Study (Lee et al., 2012; Stouthamer-Loeber, Loeber, Homish, & Wei, 2001; Stouthamer-Loeber, Wei, Homish, & Loeber, 2002), and the National Survey of Child and Adolescent Wellbeing (Bender, Postlewait, Thompson, & Springer, 2011; Grogan-Kaylor, Ruffolo, Ortega, & Clarke, 2008), to name a few. Furthermore, advances in technology and methodological processes have seen the increase in the use of data linkage strategies in order to connect information from different government departments. A number of studies have utilised linked child welfare and youth or adult crime data and have provided a wealth of objective insight into the relationship between variables drawn from these systems (Bright & Jonson-Reid, 2008; Goodkind, Shook, Kim, Pohlig, & Herring, 2012; Jonson-Reid, 2002; Jonson-Reid & Barth, 2000; Jonson-Reid, Kohl, & Drake, 2012; Ogloff, Cutajar, Mann, & Mullen, 2012; Vinnerljung & Sallnäs, 2008; Yampolskaya & Chuang, 2012). Researchers have been committed to exploring how child welfare services, in particular the provision of out-of-home care (OHC), influence offending outcomes among maltreated youth (Baskin & Sommers, 2010; Doyle, 2008;

Kolivoski, Shook, Goodkind, & Kim, 2014; Lemmon, 2006; Ryan, 2012; Ryan, Herz, Hernandez, & Marshall, 2007; Ryan, Hong, Herz, & Hernandez, 2010; Ryan, Marshall, Herz, & Hernandez, 2008; Ryan & Testa, 2005; Ryan, Williams, & Courtney, 2013). These studies have demonstrated the moderating influence of different placement factors, and the bi-directional relationship between the type and stability of placements and behavioural problems.

### **2.2.2 Australian literature**

In comparison with international research, in particular with the United States, there are relatively few longitudinal studies that have examined the link between maltreatment and offending using Australian data. However, some notable exceptions exist. For example, studies arising from an administrative data linkage project undertaken by researchers at Griffith University, known as the Queensland Linkage Project (QLP; Stewart, Livingston & Dennison, 2008), have contributed to the validation of the complex association between maltreatment and offending in Australia. Importantly, these studies have also demonstrated the utility of data linkage processes in advancing theory-driven research. The limitations of survey data, including measurement errors and attrition due to study dropouts, do not affect data linkage projects in the same way because it is possible to continuously capture data on even the most vulnerable people who would likely drop out of longitudinal surveys (Stewart et al., 2015).

More recently, data collection for the Pathways of Care Longitudinal Study (POCLS) began in New South Wales (Paxman, Tully, Burke, & Watson, 2014). This is Australia's first large-scale prospective longitudinal study of children and young people in OHC. It includes both survey data completed by young people and their caregivers, in addition to administrative records from child protection, health, education and youth justice. Although the study is still in its early years and therefore it has not been possible to examine offending outcomes in this sample, it will be a valuable resource for examining the links between maltreatment and offending as subsequent waves of data become available.

Although longitudinal research in this area is scarce, it is worth mentioning that a number of Australian researchers have been interested in exploring the crossover of youth between the child protection and youth justice systems in different jurisdictions. Researchers in Victoria and New South Wales have raised concerns about the number of



young people who graduate from OHC into the criminal justice system, and the over-representation of young people with OHC backgrounds in youth detention facilities. Figures from a report conducted in New South Wales indicated that 28% of males and 39% of females in youth detention also had histories of placement in OHC (Wood, 2008). In order to recognise and address this problem, Mendes, Baidawi, and Snow (2014) sought to identify policies and practices that would help to reduce the number of young people crossing over from OHC to youth justice. Based on qualitative interviews with a range of stakeholders, formal interagency collaboration and the provision of intensive intervention and support were identified as the foremost solutions that would ensure successful transitions from OHC into mainstream living.

Furthermore, this study also included interviews with care leavers aged 18 to 26 years (N = 15) who had also been involved in the Youth Justice system. It is not often that the views of the very people affected by these situations are taken into account in research examining the maltreatment-offending association. It was found that young people in Mendes' study could be further broken down into two main groups: those who reported entering care during adolescence due to behavioural problems, and those who entered at a younger age for reasons of child maltreatment. Each of the young people included in the study had experienced at least one placement in residential care, and most described having substance abuse and/or mental health issues, and a family history of criminality. The majority had disengaged from education and were involved in multiple offences, with almost half of these young people describing involvement with the adult criminal justice system after leaving care. Findings pointed to the complex needs of this vulnerable group of young people, which is reflective of the broader literature that documents the challenges faced by young people leaving care (Courtney & Dworsky, 2006; Delfabbro & Malvaso, 2014; Mendes & Moslehuddin, 2006; Sawyer, Carbone, Searle, & Robinson, 2007; Stein, 2012). It also highlighted the importance of addressing these needs and altering the pathways of these young people before offending behaviour becomes more entrenched in adulthood. This idea is also supported by studies documenting the increased likelihood that individuals involved in crime as youth will continue to offend as adults (Farrington, 2007; Maxfield et al., 2000).

Other Australian researchers have focused more on the policing and judicial processes that might lead to further disadvantage for young people with care and protection backgrounds. For example, Cashmore (2011) suggested that police attention is disproportionate towards youth in care for minor incidences that would not receive such

attention in ordinary family settings. According to Cashmore, calling on police to manage damaging or destructive behaviours that would usually be dealt with by parents in their family homes is not uncommon practice in OHC settings. In support of this claim, McFarlane (2010) found that property damage was one of the most common reasons for which young people in OHC faced court. These findings are also supported by research published in the United Kingdom (Schofield et al., 2012). Cashmore (2011) also described how courts in Australia might be limited in options to grant bail in situations where foster families or care homes are unable, or unwilling, to remain involved with a young person involved in crime. As a last resort option, these young people are remanded in custody and these problems contribute to a cycle of offending from which these young people are less able to escape.

In 2015, a secondary analysis of data from a national profile study of young people in OHC aimed to investigate factors associated with offending (Malvaso & Delfabbro, 2015). Although this was only a cross-sectional snapshot of the maltreatment-offending association in Australia, a number of risk factors were identified that are consistent with longitudinal research in this area, including how demographic, maltreatment, placement, and behavioural factors are all important in explaining this maltreatment-offending association. Further exploration of these associations using longitudinal data from Australia would provide deeper insight into the potential causal link between maltreatment and offending, as well as indirect influences that mediate or moderate these pathways.

### **2.3 Theoretical Perspectives Linking Maltreatment to Offending**

A number of psychological and criminological theories have been proposed to explain the maltreatment-offending association. However, due to the heterogeneous nature of this relationship, it is possible that this phenomenon cannot be fully explained by any single theory. Dynamic theories of maltreatment and crime are needed in order to explain the complex interplay of risk factors from different levels in a person's ecology, and how the interconnections between these different levels combine to mitigate or exacerbate risk. For this reason, this section predominantly focuses on perspectives that capture the intricacies of risk and development over the life course by not accepting any unitary theoretical approach, including ecological systems theory, developmental psychopathology, and developmental and life course (DLC) theories.

### 2.3.1 Ecological systems theory

Pioneered by Urie Bronfenbrenner (1979), ecological systems theory posits that human development is shaped by the environment in which an individual is embedded. Five different levels or systems within the person's ecology were described: the microsystem, mesosystem, exosystem, macrosystem and chronosystem. It was theorised that the interconnections between these systems explain behaviour. Accordingly, risk is multiply determined by the direct and indirect interactions that occur within a child's immediate environment, including: the individual characteristics of the child (e.g., personality), the social context (e.g., the child's direct contact with the microsystem, including relationships with family and peers), and the broader context (e.g., relationships between parents and teachers in the mesosystem and parental characteristics, such as employment, in the exosystem). Furthermore, the aforementioned systems are not only interconnected, but are embedded within the macrosystem. Behaviour is thus also shaped, for example, by the cultural beliefs that extend beyond a child's immediate environment, but encompass the economic, social and political spheres in which it is embedded.

These explanations have been used in both child maltreatment (e.g., Belsky, 1993) and offending (e.g., Hawkins & Catalano, 1993) research as a way to describe the aetiology of abnormal development. Drawing on these theories, it has been suggested that the maltreatment-offending association is created by a combination of interacting stressors, risks and protective factors. Studies on the maltreatment-offending association have provided further evidence in support of an ecological model of development, with the combination of different levels of risk factors producing robust effects of youth offending (Mersky & Topitzes, 2010; Schuck & Widom, 2005; Verrecchia, Fetzner, Lemmon, & Austin, 2010). Although ecological theory is a useful, multi-faceted framework for conceptualising risk, it is also recognised that the framework itself, when limited to a set of risk factors, provides only limited insight into why some individuals in similar environments go on to offend while others do not. As suggested by Cicchetti and Lynch (1993), ecological models predominantly explain the causes of maltreatment, rather than its consequences. It might be that the ecological framework is useful as a heuristic approach for investigating effects rather than explaining them. Other theories derived from this paradigm, however, tend to focus more on the processes or sequelae of maltreatment and can provide a more detailed understanding of the finer intricacies of how, why, when and for whom these experiences relate to offending within the context of multiple ecological risks.

### 2.3.2 Developmental psychopathology

As exemplified by Cicchetti and Toth (1995), identical events can affect each individual differently. Their experience is dependent on a number of factors, including: the timing of the event; the context in which it occurred; the developmental stage of the individual across a range of psychological and biological domains; and, the meaning that is attributed to the event. Therefore, there are many tenets of the developmental psychopathology perspective, including the importance of biological processes, early attachment, negotiation of stage-salient issues, and adaptation.

One of the main premises of the developmental approach is that attachment to a caregiver (usually the mother) is fundamental in shaping a child's ability to acquire subsequent developmental capacities (Bowlby, 1969). From the seminal studies conducted by Ainsworth (1967; 1970; 1979; 1991) and, later in high-risk samples studied by Main and Soloman (1986), four attachment styles can be differentiated: secure attachment, insecure attachment, ambivalent or anxious-ambivalent attachment, and disorganized attachment. While securely attached children seek proximity to their mothers after separation, insecurely attached children are usually upset and angered by separations, often rejecting or ignoring their mothers at reunification. Disorganized attachment applies to children who display contradictory actions towards their mothers, including appearing disoriented, dazed facial expressions, and rocking behaviours. The developmental psychopathology perspective emphasises the importance of successful negotiation of this stage-salient event – that is, attachment provides the foundation for successful (or unsuccessful) developmental adaptation later in life (Egeland, Yates, Appleyard, & van Dulmen, 2002).

It has been demonstrated that the development of anxious attachment in infancy is linked to experiences of maltreatment (Egeland & Sroufe, 1981), and as a consequence, later stages of development are adversely implicated (Cicchetti & Toth, 1995). Similarly, links between attachment and antisocial behaviour have been demonstrated (e.g., Tizard & Hodges, 1978). Maltreated young people and those who have been removed from abusive or neglectful environments experience considerable difficulties in developing trust and forming attachments with other children and adults (Newton, Litrownik, & Landsverk, 2000). These young people, especially those who have been observed as having anxious-avoidant attachment, are more likely to develop interpersonal and behavioural problems (Putallaz & Heflin, 1990; Urban, Carlson, Egeland, & Sroufe, 1991). Some of these problems are the early precursors of offending behaviour, including behaving aggressively

towards peers, engaging in other hostile behaviours such as bullying, and displaying behaviours that are synonymous with diagnoses of attention-deficit hyperactivity disorder (ADHD) (Penzerro & Lein, 1995). In turn, these young people might experience rejection or withdrawal from peers, which subsequently results in further academic, interpersonal and behavioural problems (Dodge, Pettit, & Bates, 1994).

As illustrated by the findings of these studies and as explained by Kerig and Becker (2015), the developmental psychopathology perspective offers an explanatory framework that encompasses the multi-faceted and transactional nature of risk factors that influence the maltreatment-offending association. While Bowlby argued that children usually form only one strong attachment, typically to their mothers, studies conducted by Rutter (1981) demonstrated that multiple attachments are possible. Furthermore, Bowlby asserted that maternal deprivation results in serious developmental impairment, but Rutter's studies showed how a range of factors (e.g., family discord) can be the underlying causes of emotional disturbances developed by children. In contrast with Bowlby's conclusions, Rutter asserted that the continuity of care is a crucial factor in curtailing these consequences. These findings have important implications for young people who have been maltreated or placed in out-of-home care as they suggest that these early vulnerabilities can be, at least to some extent, rectified through appropriate intervention.

Other theories that are integrated within the developmental psychopathology perspective are those that focus specifically on victimisation or trauma processes, including Finkelhor and Kendall-Tackett's (1997) theory of developmental victimology and the trauma-specific theories emphasised in developmental traumatology. The former focuses on individual differences in reactions and responses to multiple types of victimisation over the course of childhood development and suggests a more general framework for understanding these experiences, whereas the latter emphasises the role of posttraumatic symptoms arising from abusive or neglectful experiences (Kerig & Becker, 2015). It is argued that the trauma experience itself can alter normal developmental processes and, as a consequence, lead to the development of offending behaviour (Ford, Chapman, Connor, & Cruise, 2012; Kerig & Becker, 2010). Trauma associated with maltreatment has been found to influence cognitive and social development in a number of adverse ways through links with poor impulse control, emotion regulation issues, aggression, mental illness and substance misuse. It has been suggested that the pervasiveness of these issues are responsible for the development of delinquent or criminal behaviour (Swogger et al., 2011). For example, these trauma experiences might lead to the

biased processing of social cues and these biased cognitive patterns then play a role in mediating the link between trauma and offending (Dodge, Bates, & Pettit, 1990). These impairments could include incorrectly attributing hostility to the intentions or actions of others, accessing retaliatory aggressive responses more readily, and viewing aggressive behaviour as morally acceptable. Although a number of studies provide convincing evidence that post-traumatic symptoms help to explain associations between interpersonal trauma (Kerig, Ward, Vanderzee, & Arnzen Moeddel, 2009), polyvictimization (Ford, Elhai, Connor, & Frueh, 2010) and delinquency, the constellation of consequences that arise from maltreatment represents a significant challenge for treatment.

### **2.3.3 Developmental and life-course perspectives**

The development and life course (DLC) perspective integrates paradigms from a number of different theories of crime that have developed over the last three decades. With a major focus on risk factors, this perspective aims to demonstrate and explicate the within-individual changes in offending that transpire over the course of the life span (Farrington, 2005). Complementing the premises of ecological theory, the DLC perspective postulates that human development is multiply determined by interconnections between different levels of an individual's ecology and that these influences can change throughout the life course (Casey, 2011). Some of the most prominent theories in this area include Moffit's (1993) developmental taxonomy of antisocial behaviour and Sampson and Laub's (1993) age-graded informal social control theory. As Farrington (2005) delineates, the primary aim of the DLC perspective is to describe and explain the development of offending, but to do this, it is concerned with the secondary aims of identifying risk and protective factors at different ages and understanding how life events influence outcomes over the course of development.

Some key differences between developmental and life course theories have been described. For example, the former asserts that development is age-graded and hierarchical in nature and strongly emphasises the role of childhood factors, such as maltreatment, for offending. It is argued that early abuse or neglect disrupts age-appropriate development. In turn, this interference in normative development leads to antisocial behaviour. The life course perspective, on the other hand, places more emphasis on the variable and exogenous influences that occur over time. The proximity of these life events and transitions are thought to be more consequential than distal experiences. These premises have been used

to explain why maltreatment that occurs in adolescence might be more consequential than maltreatment that is limited to the early childhood years (Ireland et al., 2002).

However, the DLC perspective is not limited to the tenets of developmental and life course criminology, but also includes elements of social learning, control, and strain theories. At the core of social learning theories are processes of modelling, imitation and reinforcement of behaviour patterns that are displayed by parents and caregivers (Akers, 1985; Garbarino, 1981; Vissing, Straus, Gelles, & Harrop, 1991). According to this perspective, deviance is socially transferred from the violent or neglectful parent, resulting in the child or young person's learned behaviours of aggression, hostility and the disregard of others' feelings and interests (Brezina, 1998).

By contrast, control theory proffers that antisocial behaviour is generally hindered by ties to family, school, or other conventional institutions (Hirschi, 1969). As demonstrated by the developmental psychopathology perspective discussed previously, victims of maltreatment often have difficulties forming attachment, developing trust, and maintaining positive interpersonal relationships. As a result, control theory posits that these individuals are more likely to engage in deviant behaviour in the absence of the requisite social bonds needed to inhibit such behaviour. It has been suggested that these individuals seek immediate gratification over long-term benefit, with deviant behaviour manifesting from this self-interest and a lack of self-control (Gottfredson & Hirschi, 1990). It is possible that these control processes, including the maltreated individual's weakened social bonds and conventional values, in addition to their inability to develop long-term goals, mediate the maltreatment-offending association (Rebellon, 2005).

Finally, the experience of anger is emphasised in social-psychological strain theories, such as Agnew's (1985) general strain theory. According to this theory, anger and other negative emotions are generated in response to the strain caused by negative treatment from others, instigating the need for retaliatory responses in order to cope with or appease these negative emotions. These responses include manifestations of strong negative affect, including anger, frustration, aggression and delinquent behaviour. These maladaptive behaviours then result in additional strain due to their deteriorating effects on interpersonal relationships, education and employment options (Kerig & Becker, 2015).

By incorporating the intervening processes proposed by these theories, the DLC perspective attempts to capture the multiplicity of intervening processes that might influence the pathways from maltreatment to offending. It also acknowledges that there is an interaction between individual cognitive decision-making processes and social and

environmental factors. The way an individual understands their experiences, and the emphasis that is subsequently placed on them, is not only influenced by the developmental context, but might also be reflected in their subsequent behaviour. For example, it is still unclear why some maltreated individuals engage in destructive or dangerous behaviour (such as violence), while others are more susceptible to risky or vulnerable situations (such as repeat victimization by partners). Kerig and Becker (2015) suggest that a contrast might exist between some young people who are more defiant in recognising their engagement in risky or vulnerable situations, and others who are unable to identify these risks.

## **2.4 Social and Economic Costs of Maltreatment and Offending**

The financial and social costs of both maltreatment and offending place a huge burden not only on the individual, but also on governments and society in general. The World Health Organization (2002a) illustrated the financial burden of maltreatment by documenting a number of both direct and indirect costs. Direct costs include those associated with the treatment of maltreatment (e.g., hospital visits), whereas indirect costs are those that relate to lost productivity, decreased quality of life and premature death. Expenditures by the criminal justice and social welfare systems (including investigating maltreatment reports, prosecuting offenders, and placing young people into out-of-home care), as well as costs to the education system and employment sector were also acknowledged.

Few studies have attempted to capture these costs in Australia. Recently, a report by Australia's Productivity Commission indicated that the direct costs of providing services to victims of abuse or neglect, or those at risk of abuse or neglect, in the year 2014-15 was 4.3 billion dollars (SCRGSP, 2016). This included the costs associated with child protection, out-of-home care (OHC), family support and intensive family support services. An increase in expenditure of 5.8% from 2013-14 was noted. The largest expenditure was associated with the provision of OHC services, accounting for 56.2% of the overall expenditure (or 2.4 billion dollars). Furthermore, a report released in 2006 estimated that the total cost of young people leaving care in Australia was just over two billion dollars per year (Morgan Disney & Associates & Applied Economics, 2006). The individual cost for those with higher risk pathways (including involvement with the youth and adult criminal justice systems as well as other comorbid problems such as drug and



alcohol use) was estimated at an average of 2.2 million dollars over the life course (from age 16 to 60), with an average cost of approximately 50,000 dollars per year.

However, OHC is only one aspect of child protection and quantifying the broader economic and social costs of maltreatment can be challenging, especially due to the extensive range of consequences associated with this pervasive issue. Taylor et al. (2008) estimated that although the annual costs of child abuse and neglect for all people in Australia in 2007 was four billion dollars, the burden of disease cost (including lifetime consequences relating to maltreatment) was estimated at a further 6.7 billion dollars. A recent cost of illness study by McCarthy et al. (2016) estimated that for a cohort of individuals who experienced maltreatment for the first time during 2012-13, the total lifetime financial cost (including health, welfare, criminal costs and productivity losses) was 9.3 billion. Furthermore, non-financial costs (including premature mortality and reduced quality of life) were estimated at 17.4 billion. At an individual level, the lifetime financial cost of maltreatment was \$176,437, and the lifetime non-financial cost was \$328,757. The cost associated with provision of services from the child protection system alone was almost 829 million dollars (this included the costs associated with substantiating maltreatment and placing young people into OHC). Interestingly, these researchers also acknowledged that young people who have experienced maltreatment are more likely to engage in delinquent or criminal behaviour as adolescents or adults. Accordingly, they estimated the medical, lost productivity and criminal justice system costs associated with violent crime that could be attributed to maltreatment. An annual cost of 8.2 billion dollars was estimated, with a lifetime cost of violent offences attributed to maltreatment estimated to be between 183 and 664 million dollars (this was based on substantiated cases of maltreatment only).

Other significant lifetime costs identified in this study included the healthcare costs associated with treating mental illnesses, drug and alcohol abuse, and suicide and self-harm, as well as lost productivity, quality of life reductions and premature mortality. This study highlighted the stark reality that, as a result of maltreatment, these individuals are themselves faced with significant financial and non-financial costs. However, it is clear that these costs are also borne by the government and, importantly, by the public. That is, the people who ultimately pay for the government structures that organise these services. Therefore, the need to target this problem and invest in early interventions that can ameliorate the consequences of maltreatment is unambiguous. It is also clear that

identifying families and children at risk of maltreatment and other preventative efforts would help to reduce expenditure later down the track.

These studies, the rising rates in maltreatment reports, the increasing number of young people and families requiring services, the increase in annual expenditure on child protection and OHC services, and the knowledge gained through reviews and royal commissions about the flawed child protection systems that deal with these issues in Australia, together point to the idea that our current system and program investments are unsustainable. A number of researchers in Australia have been advocating for a public health approach to the issue of maltreatment, and this is an idea that has also been endorsed by the World Health Organization. This approach would include both primary provision of services, as well as secondary prevention services. However, as noted by Segal and Dalziel (2011), the complex consequences of maltreatment and the resultant difficulty in ascertaining the extent of its effect could result in the underestimation of the benefits of treatment and prevention efforts.

Among the effects often missed by economic evaluations of maltreatment include the impact on mortality, quality-of-life, and intergenerational transmission effects. The latter, intergenerational effects, was not captured by the comprehensive estimates ascertained in McCarthy et al.'s (2016) study, and represents an important area for evaluation because of the evidence demonstrating how many of the risk factors for maltreatment are the same as its consequences. As pointed out by Segal and Dalziel, a deeper understanding of these interrelationships would be beneficial because tertiary prevention efforts aimed at ameliorating the consequences of maltreatment among victims could also function as a primary prevention strategy for inhibiting the intergenerational transmission of abuse and neglect. Segal and Dalziel (2011) also identify the difficulty in realising the best combination of services and cross-agency collaborations needed to treat and prevent the consequences of maltreatment. They propose that a health economics 'priority setting' model for child protection can address some of these challenges and involves three phases: 1) Identifying potential interventions; 2) Estimating the economic performance of these interventions; and 3) Deriving policy-relevant conclusions. It is argued that the adoption of this framework could help to ensure that the appropriate amount of resources and funding are dedicated to improving outcomes for current and future generations of vulnerable children.

Overall, the evidence suggests that maltreatment and youth offending are not only relevant to the individual systems deemed responsible for remedying these problems. In

isolation, the child protection and youth justice systems can only contribute so much, especially in light of the growing demand for resources and services in a fiscally constrained environment. It is evident that no government sector and no community is left unaffected by child maltreatment, or violence in general, therefore a cross-sector approach spanning local, national and international levels would be advantageous. This extends to other aspects of civil society, including the media and community and professional organisations.

## **2.5 Summary**

Maltreatment and youth offending are ubiquitous concerns for researchers, practitioners and policy-makers alike. A substantial amount of international literature attests to the link between maltreatment in childhood and adolescence and the subsequent development of offending behaviour; however, less is known about this link in Australia. Thus, further exploration of this association is needed. Similarly, a number of dynamic theoretical perspectives have been developed to capture the causes and consequences of the maltreatment-offending association. Identifying the factors that mitigate or exacerbate risk are important, but also a deeper understanding of the underlying mechanisms responsible for influencing the maltreatment-offending association is necessary. The social and economic consequences engendered by maltreatment and youth offending are pertinent, and investment in treatment and prevention strategies are not only central to improving outcomes for victims, but are relevant to governments and society more broadly.

### **3 Systematic Reviews of the Literature**

This chapter includes the first two papers contributing to this thesis. Both are systematic reviews of the maltreatment-offending literature. In the first review, the methodological features of prospective and longitudinal studies examining the link between maltreatment and offending are reviewed. This paper was published in the journal *Trauma, Violence and Aggression* in 2015. The second review, published in *Aggression and Violent Behavior* in 2016, focuses on synthesizing the evidence for risk factors found to play a role in mitigating or exacerbating risk in the association between maltreatment and offending. These papers are presented in the format in which they were submitted for publication and therefore reflect the requisite sections, style and language for publication in the respective journals.

### 3.1 Publication: The maltreatment-offending association: A systematic review of the methodological features of prospective and longitudinal studies.

#### 3.1.1 Statement of authorship

Title of Paper	The maltreatment-offending association: A systematic review of the methodological features of prospective and longitudinal studies.
Publication Status	Published.
Publication Details	Malvaso, C.G., Delfabbro, P., & Day, A. (2015). The maltreatment-offending association: A systematic review of the methodological features of prospective and longitudinal studies. <i>Trauma, Violence &amp; Abuse</i> , 1-15. doi: 10.1177/1524838015620820.

#### *Principal Author*

Name of Principal Author (Candidate)	Catia Gaetana Malvaso		
Contribution to the Paper	Conducted the systematic searches, tabulated and interpreted the findings, completed the narrative review, and drafted the manuscript.		
Overall percentage (%)	80		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/02/2017

#### *Co-Author Contributions*

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Paul Delfabbro		
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Signature		Date	10/02/2017

Name of Co-Author	Andrew Day		
Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

### **3.1.2 Abstract**

Although the association between childhood maltreatment and the subsequent development of offending behaviour is well documented, the association does not necessarily reflect a causal relationship. This paper provides a systematic review of prospective and longitudinal studies using official records of maltreatment to gain insights into the extent to which methodological variations are likely to influence the conclusions drawn about the likely relationship between maltreatment and offending. Sixty-two original studies met the inclusion criteria. These studies were assessed according to a set of seven methodological criteria: 1) Inclusion of comparison groups; 2) The use of statistical controls; 3) Valid outcome measures; 4) Operationalization of maltreatment; 5) Proper temporal order of associations; 6) Data relating to unsubstantiated maltreatment; and 7) Consideration of mediating and moderating factors. The strength of evidence in support of the maltreatment-offending association was influenced by a number of methodological factors. Despite the increasing sophistication of studies, there is a need to be mindful of how these factors are taken into account in future research in order to gain a deeper understanding of the adverse consequences of maltreatment and how this might inform interventions.

## ***Critical Findings***

- Consistent with the substantial literature in relation to this topic, the findings from this systematic review indicate that there is an enduring association between maltreatment and subsequent offending behavior. It was also shown that studies are generally becoming more sophisticated with respect to their sampling and statistical techniques; however, inconsistencies and gaps in the research were also identified.
- These included the use of appropriate comparison groups, the range and type of control variables considered, the examination of taxonomic categories of maltreatment (e.g., type and timing of abuse), the use of substantiated versus unsubstantiated reports of maltreatment, the type of outcome considered and how this was measured (e.g., self-reported versus official records of offending), and the exploration of mediating and moderating effects.
- By taking these methodological features into account, this review has been able to highlight some of the important factors that researchers should take into account when designing new studies that can facilitate a more rigorous test of the maltreatment-offending association.
- This systematic review has demonstrated not only that the association between maltreatment and offending is complex, but also that this complexity needs to be reflected in the way studies are designed and data are analyzed in order to gain a deeper understanding of this association.

## ***Recommendations and Implications for Practice, Policy and Research***

- Despite the increasing sophistication of studies, several important methodological factors need to be considered in future research in order to gain a more accurate understanding of the adverse consequences of maltreatment and to inform the development of treatment and prevention programs.
- Future researchers should endeavor to use representative samples and matched comparison groups of maltreated and non-maltreated subjects.
- Composite measures of both maltreatment and offending should be avoided because they do not allow the examination of the unique effects of different maltreatment experiences (e.g., type or timing of abuse) and how they relate to specific types of crime (e.g., violent versus nonviolent crime).
- Because the maltreatment-offending association is likely to be influenced by a

range of risk and protective factors across individual, social and contextual domains, researchers need to not only include a range of potentially confounding variables in their multivariate analyses, but they also need to explore more complex questions and consider the effects of mediator or moderator variables.

- Identifying these factors through the use of rigorous methodological and statistical techniques are necessary for the development and implementation of interventions designed to improve outcomes for victims of maltreatment, and the implications of this will be beneficial for governments and society in general who also bear the costs of crime.



### 3.1.3 Introduction

There is now a large and convincing body of evidence, reported in multiple studies conducted in countries around the world, to support the suggestion that childhood maltreatment is associated with an increased risk of delinquent or criminal behavior in later life. It might be argued, however, that this research has not had as much influence on crime prevention social policy as might be expected, partly because of the difficulties associated with identifying clear causal pathways between abuse and neglect and behavioral outcomes in later life. Indeed, different studies have produced different results and it has been suggested that widespread use of retrospective and self-report measures of maltreatment has led to significant over-estimations of the strength of the association (Jung et al., 2015; Malinosky-Rummell & Hansen, 1993). In addition, it is difficult to draw firm conclusions about causality from studies that utilize cross-sectional research designs.

The publication of more methodologically rigorous prospective or longitudinal studies that utilise large samples of data, some even at the population level represents a methodological improvement (Hardt & Rutter, 2004; Smith, Ireland, Thornberry, & Elwyn, 2008; Widom & Maxfield, 1996), although this type of study is typically costly, requires long time frames, and introduces different threats to the validity of any findings, including those associated with differential attrition, the use of low integrity data sourced from official records, and inconsistent recording practices. For example, Lansford et al. (2007) have argued that studies that rely solely on substantiated cases of maltreatment may also exaggerate the size of the association by focussing only on the outcomes of those who have been most severely maltreated. However, other researchers have argued that the use of official records of maltreatment in prospective and longitudinal studies is necessary because one needs to establish the date of maltreatment in order to maintain proper temporal order between associations (Smith et al., 2008). What is clear, however, are substantial inconsistencies in relation to the way in which longitudinal studies are designed; how aspects of maltreatment and offending outcomes are operationalized; and, which variables are considered, or controlled for, in multivariate analyses. Accordingly, there is a need to synthesise the current knowledge in a way that allows an examination of the extent to which methodological elements of studies influence conclusions about the nature of the association between childhood maltreatment and subsequent offending.

Although there are a number of review articles published in this area, many of these use a narrow inclusion criteria and focus only on very specific outcomes, for example, the intergenerational continuity of maltreatment (Ertem, Leventhal, & Dobbs, 2000;

Thornberry et al., 2012), antisocial behaviour in adolescence only (Wilson et al., 2009), or violent behaviour only (Falshaw, Browne, & Hollin, 1996; Maas, Herrenkohl, & Sousa, 2008). Furthermore, while previous reviews have considered how some methodological or design features of studies might influence their findings, only two studies focused solely on these issues. Both Ertem et al. (2000) and Thornberry et al. (2012) evaluated the literature on the intergenerational continuity of maltreatment using a set of pre-established methodological criteria. Both groups of researchers concluded that many of the studies testing the cycle of maltreatment hypothesis are predominantly based on methodologically weak designs and thus do not provide a definitive examination of the topic.

To the best of our knowledge, there has not been a systematic methodological review on the broader association between maltreatment and offending. Therefore, this study aims to examine the methodological strengths and weaknesses of published research in this area. It aims to cover a broader definition of offending by including studies that explore outcomes in both adolescence and adulthood, and by not limiting inclusion according to type or severity of crime. Although studies that examine maltreatment through retrospective self-report have been excluded, this will not extend to self-reported offending. It is acknowledged that similar biases are associated with self-reported measures of offending; however, because issues of temporal order and therefore causality do not apply here, and the review aims to be as inclusive as possible, studies that measure offending behaviour through self-report measures will be included. A review of this nature is necessary for two important reasons: 1) To gain a deeper understanding of the methodological features of prospective and longitudinal studies aimed at assessing the maltreatment-offending association and how these features might influence findings, and 2) To identify the strengths and weaknesses of previous work so that researchers designing future studies can capitalise on areas identified for improvement. Not only will this help to improve the overall quality of the scientific literature on the maltreatment-offending association, but it can also facilitate a more thorough test of the topic which will be useful for informing effective treatment and prevention programs.

### **3.1.4 Method**

A systematic literature review was conducted of English language studies that have examined the link between maltreatment in childhood or adolescence and subsequent offending in adolescence or adulthood using the Preferred Reporting Items for Systematic

reviews and Meta-Analyses guidelines (PRISMA; Moher, Liberati, Tetzlaff & Altman, 2009). The search focused on peer-reviewed studies that reported quantitative data; qualitative analyses, case studies, and unpublished dissertations were thus excluded. There was no date of publication restriction. The databases searched included: PsycInfo, PubMed, Embase, Scopus, Social Services Abstracts and CINCH. Grey literature identified through Google Scholar. Databases were last searched on 9<sup>th</sup> of July 2015.

A three-step search strategy was used. First, a limited search was undertaken in PsycInfo and PubMed in order to analyse text words contained in the titles and abstracts of articles, as well as specific index terms used to describe articles. Key words used in the initial search included variations of: child maltreatment, child abuse, neglect, child protection, child welfare, out-of-home care, foster care, residential care, kinship care, delinquency, offending, crime, and incarceration. Second, all identified keywords and index terms were then used to search all databases. All searches were screened for any material that met the inclusion criteria outlined below. As Google Scholar yielded over 20,000 results, only first 100 pages were screened for relevant material. Third, the reference lists of all relevant articles were hand searched to identify additional studies.

### ***Eligibility criteria***

Given that the focus of this review is on prospective or longitudinal studies that employ official records to measure child maltreatment, retrospective and cross-sectional studies as well as studies that measure child maltreatment through survey methods were not included. Similarly, purely descriptive studies, such as studies that merely report rates of offending among maltreated youth, were excluded. Studies were also excluded if they were concerned with assessing recidivism rates or interventions. Because this review focuses on the relationship between maltreatment and offending and those factors that influence this relationship, studies that included child maltreatment as a mediating or moderating factor were not included.

This review was not limited to studies of any single form of maltreatment and was inclusive of physical, emotional or psychological, and sexual abuse and various forms of neglect (i.e., physical, emotional, educational or supervisory neglect). However, other forms of adverse childhood or adolescent experiences (e.g., harsh parenting, exposure to neighborhood violence, or witnessing domestic violence) were not included. Maltreatment was limited to that which occurred in childhood or adolescence, that is, before the age of 18 years old. The main outcome of interest was delinquent or offending behavior. The

outcome was not limited by measurement method, thus both self-reported measures and official records of offending behavior were included. Measures of delinquency or criminal offending were not limited by severity; however, studies assessing other specific outcomes that may be associated with offending (e.g., aggression, antisocial behavior) were not included. Finally, studies examining neurobiological or genetic factors that influence the maltreatment-offending association were excluded. This final exclusion criterion is recognised as a limitation of the study; however, it was decided that the role of genetics and neurobiological influences warrants a separate review and is beyond the scope of this study.

A flow diagram of search results is displayed in Figure 3.1. The initial search yielded 8,798 hits, in addition to 32 records identified through other sources. After screening titles and abstracts, 108 studies were considered potentially relevant and the full-text articles were then accessed. Of these, 46 were excluded and 62 were included in the final qualitative synthesis. The 46 studies were excluded because they did not meet the eligibility criteria described above. To be more specific, studies were excluded because: a) they did not use official records of maltreatment (N=22); b) offending, as defined above, was not the outcome measure (N=7); c) maltreatment history was not assessed or was considered as part of an aggregated category of risk (N=6); d) they were purely descriptive or did not report multivariate statistics (N=6); and, e) they used retrospective designs or were review papers (N=4).

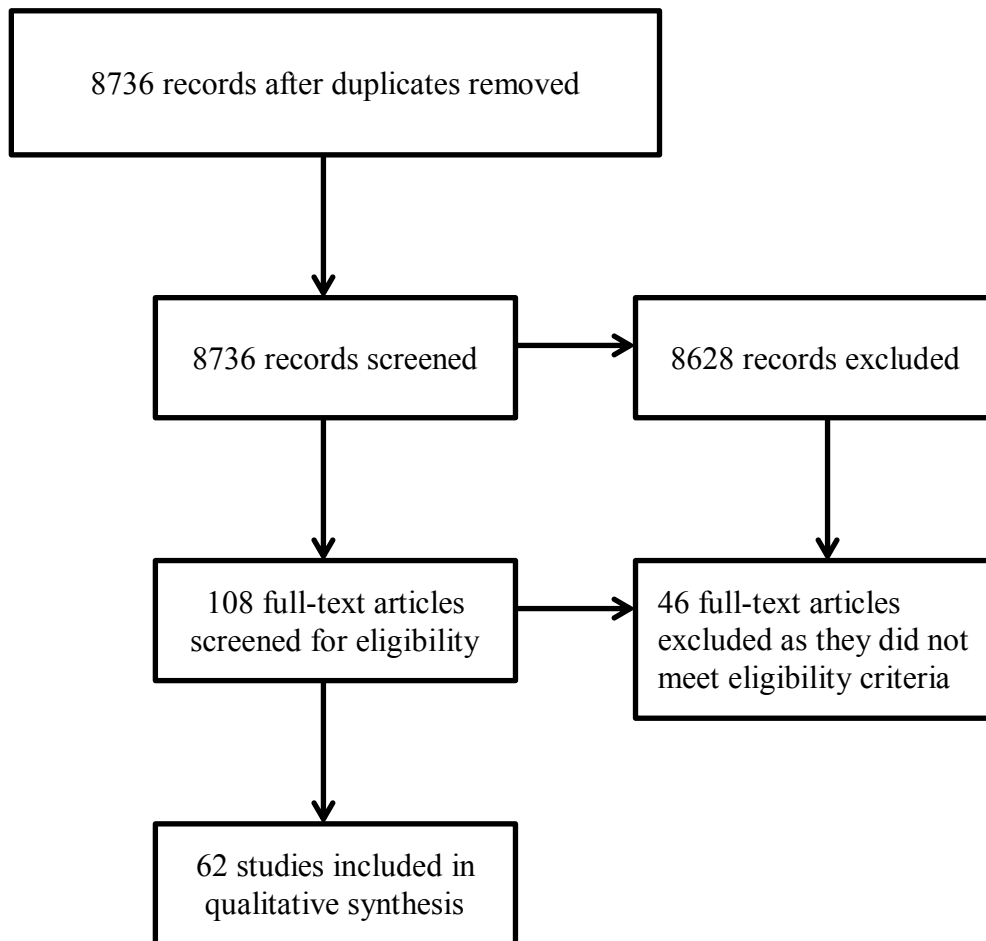


Figure 3.1. Flow of Information from Identification to Inclusion of Studies.

### ***Classification of methodological features of included studies***

Both Ertem et al. (2000) and Thornberry et al. (2012) have identified a set of methodological criteria that can be applied to establish whether a study offers a valid assessment of the intergenerational continuity of maltreatment. These have been adapted for use in this study to provide a method by which identified studies could be classified, although our focus here (i.e., on the association between maltreatment and subsequent offending) is necessarily broader.

*Inclusion of an appropriate comparison group.* Although within-group analyses of the offending behavior of maltreated individuals can be useful in identifying taxonomic categories that distinguish between different maltreatment experiences, the presence of an appropriate comparison group of non-maltreated individuals is important if the

independent contribution of maltreatment on offending is to be established, especially when the two groups are matched on as many relevant factors as possible. This is particularly important in light of observation that child maltreatment and criminality share many of the same demographic and family risk factors, including poverty or socio-economic disadvantage (see Zingraff, Leiter, Myers & Johnsen, 1993).

*The use of statistical controls.* From an ecological perspective, a multitude of risk factors can influence the maltreatment-offending association (e.g., see Belsky, 1993 and Catalano & Hawkins, 1996 for ecological theories of maltreatment and offending), including those related to characteristics of the child (e.g., low intelligence, emotional or behavioral problems), the social context (e.g., parental mental illness or substance misuse, low income, negative peer relationships), and the broader context (e.g., neighborhood poverty, urban size). This highlights the importance of using statistical controls which can help to determine the unique contribution of maltreatment on offending outcomes while controlling for intervening relationships.

*Determination of a valid outcome measure.* The integrity of data derived from official records of both childhood and delinquent or offending behavior cannot be assumed. For example, it is well established that official records of offending underestimate prevalence and are subject to bias in both the use of police discretion and legal processes (Maxfield et al., 2000). Studies that rely on officially-recorded crime may further reflect the disproportionate involvement of some families with official agencies (Smith & Thornberry, 1995). Nonetheless, maltreatment data accessed from official records is considered to be more reliable than self-report data, especially when obtained from surveys that incorporate scales which do not have strong psychometric properties.

*Operationalization of maltreatment.* Studies which rely on a single or aggregated categorization of maltreatment may produce different findings from those which consider different types or instances of maltreatment given that variations in maltreatment experiences potentially moderate, mediate, or exaggerate the maltreatment-offending association (Verrecchia et al., 2010). These variations include different taxonomic categories that distinguish between maltreatment experiences on the basis of the *type* of maltreatment (e.g., physical, sexual, emotional abuse or neglect), the *timing* of

maltreatment (e.g., childhood-limited, adolescent-limited, or persistent maltreatment), as well as its *recurrence, chronicity, duration, and severity*.

*The proper temporal order between maltreatment and offending.* Maltreatment is often not an isolated event. Although it is not always easy, or possible, to identify the sequence with which offending follows maltreatment, this is of obvious importance to any attempt to establish causality.

*Data relating to unsubstantiated maltreatment.* Although it is unclear whether the inclusion or exclusion of unsubstantiated cases of maltreatment introduces bias, different types of maltreatment do have different substantiation thresholds (Leiter, Myers, & Zingraff, 1994; Ryan & Testa, 2005). For example, cases of neglect are more difficult to substantiate than cases of physical or sexual abuse because the former require investigators to establish a pattern of failure in caregiving or supervision while the latter may only require a single identifiable incident. On the other hand, unsubstantiated cases may represent false positives or less serious instances of maltreatment (e.g., see Widom, 1988). Another potential confound comes from the likelihood that those who have had their maltreatment experiences substantiated will have received additional services and interventions which may curtail the long-term consequences of maltreatment.

*Consideration of mediating or moderating factors.* Recent years have seen the advent of more complex statistical methods that take into account a broad range of variables that potentially mediate or moderate the relationship between maltreatment and offending. Studies that utilize these methods have the advantage of looking beyond the direct effects of variables of interest to examine their indirect effects (by testing interaction terms in multivariate models or examining relationships using structural equation modelling or path analysis).

### **3.1.5 Results**

Of the 62 studies identified for inclusion in the review, the vast majority (N=58; 93.5%) were conducted in the United States, three were based on Australian data, and one came from Sweden. Sample sizes ranged from 106 (Swanston et al., 2003) to over 23,000 (Doyle, 2008). Just over one third (N=22; 35.5%) had a sample size of 1,000 or less,

indicating that the majority of included studies utilized large sample sizes. A small number utilized sample sizes greater than 10,000 (N= 7; 11.3%).

Of the final pool of studies, 40 (64.5%) were based on administrative data linkage projects, of which 14 were based on the case-control cohort designed data first pioneered by Widom (1989). The remaining 22 (35.5%) studies were drawn from longitudinal studies of community or general population samples.

A total of 24 (38.7%) studies utilized data from samples consisting of maltreated individuals only and are therefore limited in the extent to which their findings can be generalized (as well as being more likely to overestimate associations). The remainder of the studies utilized comparison groups of maltreated and non-maltreated subjects and are discussed in greater detail below (see Table 3.1). For a more detailed summary of the included studies' consideration of offending details, taxonomic categories of maltreatment and other risk factors, please refer to the online supplementary table (see Table 3.2 shown in section 3.1.8). Studies also varied in: the number and types of control variables used in multivariate analyses; how offending outcomes were measured; their consideration of variations in maltreatment experiences; how temporal order issues were accounted for; the use of substantiated or unsubstantiated reports of maltreatment; and, their exploration of mediating or moderating relationships.



Table 3.1. *Methodological Features of Included Studies*

Author (date)	Data	Comparison group	Matched comparison group	Statistical controls	Outcome measure		Maltreatment categories	Maltreatment classification			Mediators/ moderators
					OR	SR		S	R	O	
Widom & Massey (2015)	Widom's	✓	✓	✓	✓		✓	✓			
Jung et al. (2014)	LLS	✓		✓		✓				✓	
Kolivoski et al. (2014)	ADL			✓	✓		✓		✓		
Goodkind et al. (2012)	ADL			✓	✓		✓		✓	✓	
Smith et al. (2013)	RYDS	✓		✓	✓	✓		✓		✓	
Jonson-Reid et al. (2012)	ADL	✓		✓	✓		✓		✓		
Lee et al. (2012)	PYS	✓		✓	✓	✓	✓	✓		✓	
Mersky et al. (2012)	CLS	✓		✓	✓	✓	✓	✓			
Ogloff et al. (2012)	ADL	✓	✓	✓	✓		✓				
Ryan (2012)	ADL			✓	✓		✓		✓		
Topitzes et al. (2012)	CLS	✓		✓	✓		✓	✓		✓	
Yampolskaya & Chung (2012)	ADL			✓	✓		✓		✓		
Bender et al. (2011)	NSCAW			✓		✓	✓			✓	
Nikulina et al. (2011)	Widom's	✓	✓	✓	✓		✓	✓		✓	
Topitzes et al. (2011)	CLS	✓		✓	✓		✓	✓		✓	

Author (date)	Data	Comparison group	Matched comparison group	Statistical controls	Outcome measure		Maltreatment categories	Maltreatment classification			Mediators/ moderators
					OR	SR		S	R	O	
					Yampolskaya et al. (2011)	AD				✓	
Baskin & Sommers (2010)	AD	✓	✓	✓	✓		✓	✓			
Mersky & Topitzes (2010)	CLS	✓		✓	✓			✓			
Postlethwait et al. (2010)	NSCAW			✓		✓			✓		
Ryan et al. (2010)	ADL			✓	✓		✓		✓		
Thornberry et al. (2010)	RYDS	✓	✓	✓	✓	✓	✓	✓			
Verrecchia et al. (2010)	ADL			✓	✓		✓	✓		✓	
DeGue & Widom (2009)	Widom's			✓	✓		✓	✓		✓	
Bright & Jonson-Reid (2008)	ADL	✓		✓	✓		✓	✓	✓	✓	
Doyle (2008)	ADL			✓	✓		✓			✓	
Grogan-Kaylor et al. (2008)	NSCAW			✓		✓	✓		✓		
Ryan et al. (2008)	ADL			✓	✓		✓	✓			
Stewart et al. (2008)	ADL				✓						
Smith et al. (2008)	RYDS	✓		✓	✓	✓		✓			
Tyler et al. (2008)	NSCAW			✓		✓	✓		✓	✓	
Vinnerljung & Sallnas (2008)	ADL			✓	✓		✓			✓	

Author (date)	Data	Comparison group	Matched comparison group	Statistical controls	Outcome measure		Maltreatment categories	Maltreatment classification			Mediators/ moderators
					OR	SR		S	R	O	
					Feiring et al. (2007)	AD, Su				✓	
Lemmon (2006)	ADL	✓		✓	✓		✓				
Mersky & Reynolds (2007)	CLS	✓		✓	✓		✓			✓	
Salzinger et al. (2007)	AD, Su	✓	✓	✓		✓	✓			✓	
Widom et al. (2006)	Widom's	✓	✓	✓	✓		✓			✓	
Ryan & Testa (2005)	ADL			✓	✓		✓			✓	
Schuck & Widom (2005)	Widom's	✓	✓	✓	✓		✓			✓	
Smith et al. (2005)	RYDS	✓		✓	✓	✓	✓				
Wall & Barth, (2005)	NSCAW			✓		✓	✓		✓	✓	
Grogan-Kaylor & Otis (2003)	Widom's	✓	✓	✓	✓		✓				
Siegel & Williams (2003)	AD	✓	✓	✓	✓		✓				
Swanston et al. (2003)	AD, Su	✓		✓	✓	✓	✓				
Ireland et al. (2002)	RYDS	✓		✓	✓	✓	✓				
Jonson-Reid (2002)	ADL			✓	✓		✓			✓	
Stouthamer-Loeber et al. (2002)	PYS	✓	✓	✓		✓	✓				

Author (date)	Data	Comparison group	Matched comparison group	Statistical controls	Outcome measure		Maltreatment categories	Maltreatment classification			Mediators/ moderators
					OR	SR		S	R	O	
					Taussig (2002)	SISC				✓	
Stouthamer-Loeber et al. (2001)	PYS	✓	✓			✓	✓	✓			
Thornberry et al. (2001)	RYDS	✓		✓		✓	✓	✓			
Jonson-Reid & Barth (2000)	AD			✓	✓		✓		✓	✓	
Widom & White (1997)	Widom's	✓	✓	✓	✓			✓			
Maxfield & Widom (1996)	Widom's	✓	✓	✓	✓		✓	✓			
Weiler & Widom (1996)	Widom's	✓	✓	✓	✓	✓		✓			
Smith & Thornberry (1995)	RYDS	✓		✓	✓	✓	✓	✓			
Ireland & Widom (1994)	Widom's	✓	✓	✓	✓			✓			
Widom & Ames (1994)	Widom's	✓	✓	✓	✓		✓	✓			
Leiter et al. (1993)	AD, Su	✓				✓	✓	✓	✓		
Zingraff et al. (1993)	AD, Su	✓				✓	✓	✓			
Widom (1991)	Widom's					✓	✓	✓			
Rivera & Widom (1990)	Widom's	✓	✓	✓	✓			✓			
Widom (1989)	Widom's	✓	✓	✓	✓		✓	✓			

Author (date)	Data	Comparison group	Matched comparison group	Statistical controls	Outcome measure		Maltreatment categories	Maltreatment classification			Mediators/ moderators
					OR	SR		S	R	O	
Runyan & Gould (1985)	AD			✓	✓		✓		✓		

Note. AD = Administrative data. Su = Survey. ADL = administrative data linkage. LLS = Lehigh Longitudinal Study. PYS = Pittsburgh Youth Study. CLS = Chicago Longitudinal Study. RYDS = Rochester Youth Development Study. SISC = Screening Impact on Services and Costs for Foster Children Study. OR = official records. SR = self-report. S = Substantiated. R = Reported. O = Other.

Overall, just as the studies varied according to their methodological features, the majority of the studies also found varying effects for the influence of maltreatment on offending. Studies that compared maltreated and non-maltreated subjects using a composite measure of maltreatment generally found that these experiences resulted in increased offending (e.g., Smith et al., 2013; Rivera & Widom, 1990). However, findings varied in studies that considered variations in maltreatment experiences, and differential effects were found for maltreatment type, timing, severity and chronicity as well as for placement experiences (e.g., see Baskin & Sommers, 2010; Vinnerljung & Sallnas, 2008). Some studies found that maltreatment was associated with particular types of crimes (e.g., crimes against society) but not others (e.g., person or property crimes; Jung et al., 2015) while others found that it was linked to outcomes in different times periods (e.g., in adolescence but not adulthood; Lee et al., 2012). A range of mediating and moderating effects were also observed (e.g., see Topitzes et al., 2011) and both gender-specific and race-specific pathways were also found (e.g., see Goodkind et al., 2012; Tyler, Johnson & Brownridge, 2008). Only four studies found no association between maltreatment and the outcome in their multivariate analyses (Bender et al., 2011; Runyan & Gould, 1985; Wall & Barth, 2005; Weiler & Widom, 1996). However, the authors of this review could not discern any meaningful patterns between the conclusions drawn from these studies as reflected by methodological variations. Nonetheless, the way in which important methodological features might influence findings and the complex nature of the maltreatment-offending association is discussed below.

#### *Use of comparison groups*

Of the 62 studies identified for inclusion in the review, over half (N=38; 61.3%) of the studies compared maltreated subjects with non-maltreated subjects on an outcome of interest. However, the studies varied in the methods used for constructing comparison groups. The first study, which pioneered this approach was reported by Widom (1989). Using a prospective cohorts study design, Widom took a sample of court-substantiated maltreated children and matched them with a control group on a number of different demographic characteristics. The two samples were, therefore, expected to differ on only one attribute: the experience of child abuse and/or neglect. Widom also restricted her cohorts to those who were aged 11 years or younger to ensure that the maltreatment preceded any involvement with juvenile or adult offending. As can be seen in Table 3.1, over a fifth of the included studies (22.6%) make use of this data to explore various

questions and outcomes. Other studies utilizing administrative records and databases have adopted designs that are similar to that of Widom (e.g., Baskin & Sommers, 2010).

A number of longitudinal studies identified in these searches also enabled comparisons between participants who had (or had not) been subjected to maltreatment. Examples of these are the Lehigh Longitudinal Study (LLS), the Rochester Youth Development Study (RYDS), the Chicago Longitudinal Study (CLS), and the Pittsburgh Youth Study (PYS). The RYDS, for example, uses a stratified sample representative of young people at increased risk for delinquency who were interviewed, along with their primary caregivers, from the (average) age of 14 until they reached 31 years of age. Records were then obtained from Child Protective Services for each participant, enabling those who had been maltreated to be differentiated from those who had no recorded experience of maltreatment. Similar approaches are used in the CLS, PYS and LLS, with the CLS prospectively tracking underprivileged minority participants. The PYS tracked three cohorts of boys, and the LLS tracked children involved with the child welfare system in several group settings (e.g., day care) and from which children outside of the welfare system were also recruited and tracked.

A number of studies endeavoured to match their groups on a number of factors. These studies are said to be based on specialized cohorts or matched control study designs (Baskin & Sommers, 2010; Widom, 1989). Of the 38 studies that included a comparison group of non-maltreated subjects, exactly half (N=19; 50.0%) attempted to match their comparison groups on at least two factors. The most common matching factors were age, gender, race, and some indicator of socioeconomic status (SES), typically family income, or social class. Only one study, by Thornberry et al. (2010) attempted to match their groups on factors other than those stipulated above. In this study, matched variables covered a broad range of ecological risk factors, including: contextual factors (neighborhood arrest rate and neighborhood proportion of families living in poverty), social factors (mother's age at first birth, family structure, family SES, parental education, drug/alcohol use, depressive symptoms, stress level, stressful life events, social support, harsh parenting, and family history of maltreatment, substance use, and mental health problems), and individual factors (age, gender, and race). In order to match their groups of maltreated and non-maltreated subjects, Thornberry, Henry, Ireland, and Smith (2010) employed a fairly new and sophisticated method to balance their two groups on all observed covariates before estimating the effects of maltreatment: propensity score matching (PSM; Rosenbaum & Rubin, 1983). By comparing groups with similar

propensities for maltreatment, PSM controls for selection effects and allows causal inferences to be made with greater confidence.

### *Use of statistical controls*

Although the majority of studies in this review did not employ matched control study designs, all of the studies used statistical controls in multivariate models to account for residual effects. Similar to studies using matched control designs, the majority of these studies controlled only for the effects of individual factors and, to a lesser extent, social factors. Commonly used individual factors included age, gender, and race or ethnicity and the most common social factor assessed was a measure of either SES, family income or social class. A large proportion of studies did control for additional variables (N=49; 79.0%); however, the number of additional factors assessed in any given study ranged from one to nineteen. Of these, factors further relating to the individual in question were assessed in half of the studies (N=31; 50.0%). These included variables relating to education (e.g., school engagement, academic achievement, special education, cognitive functioning), mental health (e.g., depressive symptoms, self-perception, psychopathy), drug and alcohol use, behavioral problems (e.g., externalizing behaviour, conduct problems, antisocial behavior and prior delinquency or offending behavior) and health indicators (including infancy risk such as low birth weight). Less than half of the studies considered other social factors such as family and/or peer characteristics (N=27; 43.5%), but factors included related to: the family (e.g., structure, size, family history of maltreatment, incarceration, mental illness); the parents (e.g., education, substance use, mental health, employment, criminality), parent-child or caregiver-child relationships (e.g., attachment, relatedness, monitoring, involvement or harsh discipline); and, peer relationships (e.g., attachment to peers or association with deviant/delinquent peers). A smaller number of studies considered contextual variables (N=17; 27.4%). These studies predominantly included an indicator of neighborhood poverty, although a few studies considered other factors such as urban size or community violence, crime, or victimization level. Overall, only 13 studies (21.0%) considered factors across all three domains.

Furthermore, although there may be some consistency among studies in terms of variables controlled for (e.g., neighborhood poverty or academic achievement), it did not always follow that such variables would be measured in similar ways. For example, Topitzes et al. (2011) measured whether subjects had graduated from high school (a proxy for academic achievement), whereas Wall and Barth (2005) used a standardized scale of



basic skills and knowledge to measure academic achievement. This makes comparisons between studies more difficult.

#### *Valid outcome measures: Self-report versus official records*

The majority of studies (40; 64.5%) used official records to examine delinquent or criminal behavior. Only 11 studies (17.7%) only used self-report measures and another 11 (17.7%) studies made use of both self-report and official measures. Of the studies that examined self-reported offending, the majority (N=14; 66.6%) used validated measures. The most common measures included the National Youth Survey (NYS), Self-Report Delinquency scale (SRD) and the Youth Self-Report. The first studies to utilize both self-report and official measures was that reported by Smith and Thornberry (1995) who found that maltreated subjects were more likely than non-maltreated subjects to be involved in both officially recorded and self-reported delinquency after control variables were held constant.

It is important to note that there was considerable variation in the how delinquency or crime was measured (e.g., arrests, court involvement, convictions, placement in juvenile justice facilities); the type of delinquency or offending recorded (e.g., violent versus non-violent arrests, homicide or property offenses, drug-related or sex offenses); and the severity of the crimes (e.g., minor, moderate or serious). Similarly, studies varied in the timeframe used to measure offending (31 studies, or 50.0%, examined juvenile outcomes, 8 studies, or 12.9%, followed outcomes in adulthood, and 22 studies, 35.5%, tracked outcomes in both adolescence and adulthood).

#### *Operationalization of maltreatment*

Almost one third of studies (N=18; 29.0%) used a single or aggregated category of maltreatment in their analyses. This included studies which only examined one type of maltreatment (e.g., victims of sexual abuse only; Ogloff et al., 2012) and studies which different types of maltreatment were combined into a single aggregated category (e.g., Smith et al., 2013). In studies such as these, it is not possible to determine the unique effects of different types of maltreatment and how these relate to subsequent offending. The remaining 44 studies varied in the extent to which they explored the influence of different taxonomic categories of maltreatment. Of these, 25 studies examined at least two or more types of abuse and/or neglect, 11 studies considered the timing of the maltreatment (including age at time of first maltreatment incident, childhood-limited maltreatment,

adolescent-limited maltreatment and persistent maltreatment), 21 studies explored variations in out-of-home care experiences (including reason for placement, as well as placement type, duration and instability), and 13 studies considered other features of maltreatment experiences (including its chronicity, frequency and severity).

Different outcomes might be observed when examining self-reported versus officially recorded offending. For example, Thornberry et al. (2010) examined the influence of timing (childhood-limited versus any adolescent maltreatment) on self-reported offending (both general and violent crime) and official arrest or incarceration records in early adulthood. They found no effects for childhood-limited maltreated for either self-reported or official measures, but found that those who experienced maltreatment in their adolescent years were significantly more likely to report general and violent offending as well as having officially recorded arrests or being incarcerated. Another example is the study by Smith et al. (2005) in which the effects of maltreatment during adolescence, as well as the type of maltreatment (physical or sexual abuse and neglect), on self-reported and official measures of offending in adolescence and adulthood were examined. It was found that after taking into consideration control variables, adolescent maltreatment was significantly associated with arrests (official measure) and violent offending (self-report) but not with general offending (self-report). However, when they examined the effects into early adulthood, adolescent maltreatment was significantly associated with arrests and self-reported general and violent offending. The researchers then considered the type of abuse experienced and found that neglect was significantly associated with arrests, general and violent offending in late adolescence but only with arrests in early adulthood; physical abuse was significantly associated with violent offending only (in both adolescence and adulthood); and sexually abused adolescents were no more likely to offend according to any measure in late adolescence but this group was significantly associated with general offending in early adulthood.

#### *Maintaining temporal order*

One of the main advantages of using prospective designs or longitudinal data is that the proper temporal order between maltreatment and subsequent offending behavior can be established. There are several ways that researchers have endeavoured to maintain the proper temporal order of variables in the included studies. For example, Widom's studies use a restricted sample of children who were 11 years of age or younger at the time of maltreatment. Although this was done to ensure that maltreatment preceded delinquency,

the approach is problematic because a proportion of young people continue to experience maltreatment during their adolescent years and, for some, maltreatment experiences even commence in adolescence. Other studies that included young people with maltreatment experiences in their adolescent years either collected delinquency or criminal information first or established the date of each subjects' first recorded delinquent or criminal act so that maltreatment that occurred prior to that date only were used (see Jonson-Reid, 2002; Lemmon, 2006; Verrecchia et al., 2010, for examples). However, this can also be problematic if maltreatment experiences continue to accrue for individuals who are not involved in delinquent or criminal behavior. Similarly, it is possible that maltreatment is a consequence of delinquency and that it influences the continuation of delinquent or criminal behavior. Some researchers have dealt with the issue by statistically controlling for previous delinquent behavior (see Smith et al., 2005, 2008, 2013).

#### *Maltreatment classification status*

The majority of the studies included in this review utilized cases of substantiated maltreatment only (N=42; 67.7%). Only 10 (16.1%) studies included reports or investigations that may or may not have been substantiated (this includes studies in which substantiation was not mentioned and therefore substantiation status could not be determined). The remainder of the studies were based on other independent groups, for example young people in various out-of-home care placements for whom rates of maltreatment cannot be reliably estimated (maltreatment is not the only reason young people are placed in out-of-home care; some are placed due to behavioral problems or delinquency, or due to the death or incarceration of their parents). In these studies, unless the maltreatment substantiation status was stipulated, the studies were classified as using an alternative ("other") approach to classifying maltreatment.

Only two studies directly addressed the issue of bias relating to substantiated and unsubstantiated cases of maltreatment in their analyses. Unsatisfied with lack of research into these ideas, the authors of one of the included articles in our review, by Leiter et al. (1994), sought to examine whether school and juvenile court outcomes differed for children with either substantiated or unsubstantiated reports of maltreatment. It was found that outcomes for either group were not significantly different. They found that, for school and delinquency related outcomes, substantiated maltreatment might not be an indicator of more serious cases of abuse and/or neglect. Similarly, Bright and Jonson-Reid (2008) included both substantiated and unsubstantiated cases of maltreatment in their examination

of whether maltreatment predicted juvenile court involvement. They found that young people with substantiated reports were not any more likely to be involved with the juvenile courts than young people with unsubstantiated reports. Although these are the only two studies that specifically examined differences in outcomes for young people with substantiated or unsubstantiated maltreatment, the idea was taken into consideration by researchers when deciding how maltreatment was to be classified in their study (e.g., see Ryan & Testa, 2005) or was acknowledged as a limitation or potential source of bias (e.g., Smith et al., 2005; Thornberry et al., 2001).

#### *Mediator and moderator relationships*

Of the 62 included studies, 14 (22.6%) incorporated one or both of these approaches in their analyses. One common way to do this was to include interaction terms (moderation) between several variables and use these in multivariate analyses. A moderating variable is a third variable which influences the nature or magnitude of the relationship between two other variables. For example, in the study by Salzinger, Rosario, and Feldman (2007), the moderating effects of peer relationship variables between preadolescent maltreatment and adolescent violent delinquency (i.e., attachment to friends, delinquency of friends, abusive behaviour with best friend) were tested by creating interaction terms with each of these variables and pre-adolescent abuse (e.g., pre-adolescent abuse times attachment to friends). These variables were entered into a hierarchical linear regression model along with other control variables. Interactions between abuse and delinquency of friends and abusive behavior with best friends were found to significantly predict adolescent violent delinquency. Other studies using interaction terms did not report significant effects. For example, Lee et al. (2012) examined the influence of race in the relationship between maltreatment and violent offending and although race itself was a significant predictor of violence, the researchers found no significant race-by-maltreatment interaction effects. However, the lack of effect could be due to limited statistical power and this is a problem for many studies looking at the consequences of maltreatment because the number of maltreated children or young people tends to be relatively small.

Other studies have examined possible mediating relationships. An example of mediation analyses can be found in the study by Smith et al. (2013) who used path analysis to examine the influence of five educational variables on the relationship between maltreatment and several outcome variables including general crime, violent crime and

arrest. After controls were entered into the model, evidence of weak mediation was found for school grade point average, high school diploma, and school protective index. This indicated that these educational variables partially mediated the relationship between maltreatment and offending outcomes. Another way to explore mediating relationships is through the use of Structural Equation Modelling (SEM) – a statistical technique used to test both direct and indirect relationships between variables. Examples of SEM can be found in the studies by Feiring, Miller-Johnson, and Cleland (2007); Topitzes et al. (2011); Topitzes, Mersky, and Reynolds (2012); Verrecchia et al. (2010); Widom, Schuck, and White (2006). To illustrate using a recent study, Topitzes et al. (2011) constructed two separate SEM for males and females in order to examine the effects of individual (e.g., trouble-making behavior), family (e.g., parent expectations), peer (e.g., social-emotional skills) and school-related processes (e.g., high school graduation) on the relationship between maltreatment and juvenile delinquent and adult arrest conviction while also controlling for a number of covariates (e.g., race, parental substance abuse). For males, the direct path from maltreatment to adult arrest conviction was eliminated, with direct mediation effects observed for troublemaking behavior and indirect mediation effects observed for social-emotional skills and parent expectations through delinquency and high school graduation. However, in the female model, the direct effect of maltreatment on adult arrest conviction remained, although direct (e.g., parent expectations) and indirect effects (e.g., acting out behavior) of other variables were also found. Thus, the relationship between maltreatment and offending was fully mediated by a number of factors for males but only partially mediated for females. This study in particular illustrates the complexity of the relationship between maltreatment and offending by detailing the role of a number of intervening variables.

### **3.1.6 Discussion**

A review of the methodological characteristics of studies that have investigated the association between child maltreatment and offending is important in establishing what can be concluded from this body of research. A clear strength of many of these studies is the use of longitudinal or prospective designs that enable the temporal order of associations to be established and causality to be inferred. At the same time, all of these studies utilise administrative or official records of child maltreatment which, although providing objective data about the date of maltreatment, risk under-representing maltreatment. The

proportions of false negatives included in research samples will fluctuate depending on local investigative processes and resources, as well as target thresholds for substantiating reports. Furthermore, disproportional attention towards certain groups (e.g., families of poorer social classes and minority or ethnic groups) can introduce further biases.

It is worth considering the findings of one study identified for inclusion in this review to illustrate these issues. Smith et al. (2008) examined the concordance between official records and self-reported measures of maltreatment as well as their predictive value in outcomes as assessed by both self-reported measures of offending and official arrest records. The researchers found moderate concordance between the official and self-reported maltreatment measures but, as expected, maltreatment was more prevalent when it was self-reported. Two differences were found between the measurement methods: official records were predictive of both officially recorded and self-reported offending, whereas self-reported maltreatment was only predictive of self-reported offending. When the researchers combined the two measures of maltreatment, their predictive value was not enhanced. These findings highlight how different dimensions of the outcome of interest can be ascertained by different measures. However, our suggestion is that official measures of maltreatment are required to establish the proper temporal order of variables if the aim is to establish causation.

It is also important to include comparison groups of maltreated and non-maltreated subjects in any studies which seem to establish the independent contribution of abuse and/or neglect on offending. However, there are differences in how these comparison groups are constructed given that not all instances of maltreatment are reported or officially recorded. Furthermore, studies that defined maltreatment as abuse and/or neglect which is substantiated are potentially problematic as even fewer cases reach substantiation status. Therefore, instances of actual maltreatment are likely to be under-represented and some participants who have potentially experienced maltreatment in fact end up in the comparison group. As a result, these studies will produce conservative estimates of associations, and this is an important consideration when interpreting results from the studies using this design.

Similar issues can be identified in studies that use administrative data linkages. For example, Baskin and Sommers (2010) formed their comparison group of non-maltreated children through the use of unfounded referrals to the Department of Child and Family Services in Los Angeles. Unfounded cases included those which were closed by investigators and deemed false, improbable, due to accidental injury, or not involving

abuse or neglect. It is quite possible that some of these cases still experienced maltreatment although they did not progress further through the official channels. Furthermore, between-group comparisons are also limited if a single aggregated category of abuse and neglect is constructed as this has the potential to conceal the real effects of different types and instances of maltreatment (see Verrecchia et al., 2010). Nonetheless, irrespective of how comparison groups are constructed, the studies using these methods do show that not all young people who are abused and/or neglected become offenders. At the same time, there is evidence that victims of maltreatment are at increased risk for offending when compared to those in the general population.

The contribution of this study is to highlight the high level of variability that currently exists between studies examining the maltreatment-offending association and how methodological factors might influence the nature of the relationship found. It also contributes to the current literature by providing recommendations based on the strengths of these studies that should be considered when developing new studies. These include the ways studies are designed (e.g., representative samples that include matched comparison groups of maltreated and non-maltreated subjects), the operationalization of maltreatment (e.g., consideration of different maltreatment experiences such as type and timing of abuse), the way outcomes are assessed (e.g., type of offense, how offending is measured) and the extent to which other potentially confounding factors have been controlled for in multivariate analyses as well as the exploration of more complex questions (e.g., the role variables that mediate or moderate the maltreatment-offending association). It is worth noting here that many of the studies that utilized comparison groups did not always match their groups on relevant variables (e.g., Jung et al. 2014), but some of the longitudinal studies were based on samples that were purposively selected to over-represent young people at increased risk for delinquency (e.g., studies conducted by Smith, Thornberry and colleagues) and underprivileged minority groups (e.g., studies conducted by Mersky, Topitzes and colleagues). Therefore, although these studies did not use matching procedures, they are based on comparisons between maltreated and non-maltreated subjects in community samples where the risk for delinquency is high regardless of maltreatment status.

It is unclear whether the inclusion or exclusion of unsubstantiated cases of maltreatment introduces biases in research examining the consequences of abuse and/or neglect. It has been suggested that including substantiated cases only is problematic because different types of maltreatment often have different substantiation thresholds

(Leiter et al., 1994; Ryan & Testa, 2005). Therefore, there could be a bias towards particular abuse types if only substantiated cases are included. On the other hand, researchers promoting exclusion contend that unsubstantiated cases may represent false positives or are less serious instances of maltreatment (e.g., see Widom, 1988). However, two studies included in this review have demonstrated that even if unsubstantiated cases constitute less serious incidents, such cases may still be serious enough to measure and detect adverse consequences (Bright & Jonson-Reid, 2008; Leiter et al., 1994). Furthermore, it is highly probable that young people who have had their maltreatment experiences substantiated received services. Such intervention may curtail the long-term consequences of maltreatment for these young people. Therefore, it is possible that studying substantiated cases only may provide conservative estimates of the actual effects of maltreatment.

A number of more recent studies have demonstrated the complexity of the relation between maltreatment and offending by detailing the role of a number of mediating and moderating factors. This suggests that the presence of a range of different intervening variables can indirectly mitigate or exacerbate the risk of offending. However, evidence for such relations comes from a handful of studies and there has not been a lot of consistency in the effects found. Nonetheless, identifying the potential mechanisms responsible for the increase in offending among maltreated youth represents opportunities for intervention and targeting these factors early can ultimately lead to better outcomes.

### **Directions for future research**

By examining the methodological features of the included studies, one can come to several conclusions about the quality of the research that is used to inform the association between childhood maltreatment and offending behaviour. Overall, it is clear that studies are becoming more sophisticated in terms of sampling, statistical techniques, and exploring complex questions aimed to provide a deeper understanding of the direct and indirect effects of maltreatment on diversely measured offending outcomes. Because the relationship in question is a complex one, it is necessary that researchers continue their investigations with as much rigour as their data allow. To achieve this, the following observations and recommendations are made.

First, researchers must consider how sampling practices will allow explorations of subgroup effects and influence results. Although representative of the general population from which they are drawn, random stratified samples typically yield a relatively small



number of cases of maltreatment. Although samples selected based on maltreated subjects only may be able to analyze larger groups of maltreated youth, even these populations will include fewer examples of less prevalent maltreatment types (e.g., sexual abuse). In these situations, researchers may be less able to assess the unique contribution of different maltreatment subgroups (e.g., type of maltreatment) due to small cell numbers. They are further limited in their capacity to explore more subtle subgroup comparisons (e.g., interaction effects of maltreatment type with gender and race). These limitations may also extend to statistical power constraints in observing effects for specific types of crime. For example, it is known that females generally offend at lower rates than males, and the former are increasingly less likely to participate in particular types of crimes such as violent offending (Mersky & Reynolds, 2007). The low prevalence of particular types of crime coupled with small numbers of maltreated cases may limit the statistical power required to detect effects when exploring subgroup interactions. Some of these problems are likely to be resolved through increases in data linkage strategies performed at the population level, which allows for vast numbers of individuals to be included in studies. For example, in Sweden, national identifiers assigned to each citizen are used that allow the same individuals to be tracked across different information systems.

Second, the utility of comparison groups of maltreated and non-maltreated children is clear. However, in terms of studies employing matching designs, it is evident that a broader range of variables need to be considered so that comparison groups are matched on as many variables as possible. Similarly, researchers should endeavour to use as many variables as possible as statistical controls in multivariate analyses to ensure that any bivariate relationships between maltreatment and outcomes remain after controlling for spurious effects. As suggested by ecological theories of both maltreatment and offending, risk can be multiply determined by a range of factors across different domains or systems, including but not limited to the characteristics of the individual, and the social and broader context. As only just over a fifth of the studies included in this review considered factors from all of these domains, future studies should attempt to broaden the scope of their analyses to include a wider range of variables. Doing so will enable a more accurate understanding of the maltreatment-offending association, as well as identifying risk factors towards which interventions can be targeted.

Third, studies should not limit their outcome variable to officially recorded or self-reported measures of offending alone. It has been shown that experiences of maltreatment can exert different influences on officially measured and self-reported offending outcomes.

In order to better understand the maltreatment-offending association, studies using both measures of offending are needed and, better still, studies akin to that of Smith and Thornberry (1995) that measure both official and self-reported outcomes in the same sample are encouraged. To enhance comparability across studies, researchers are also strongly encouraged to use validated self-report measures of offending. Furthermore, studies that aggregate data across different groups are unable to identify different groups of offenders which may be qualitatively different from one another. There is a need for more sophisticated research designs that are able to test these hypotheses and, more specifically, identify whether a small number of people with particular characteristics are responsible for a large proportion of crimes committed (see Loeber & Farrington, 1998). The use of aggregated data potentially conceals important within-group effects.

It is also clear from these studies that maltreatment and child protection experiences are heterogeneous. Young people can be subjected to different types of abuse, at different times throughout their childhood or adolescent years, and at different levels of severity and frequency. Similarly, young people may experience various levels of intervening services, from placement in out-of-home care down to the type, stability and length of placement services. Although the unique effects of such variations in maltreatment or child protection histories on offending is beyond the scope of this review, there is evidence that these factors can influence the nature of the association between maltreatment and offending. It is, therefore, important for future studies to look beyond aggregated categories of maltreatment and examine the individual or interacting contribution of different types and instances of abuse, as well as the effects of intervention or placements. This will assist in determining when, how, and for whom abusive and neglectful experiences are most consequential, and has implications for the development of more effective intervention strategies.

Future studies using longitudinal or prospective data should think carefully about sampling strategies to ensure that the temporal order of associations are properly maintained. Researchers need to be cognisant of the problems associated with the use of age-restricted samples, including the risk of excluding groups of children or adolescents who are equally at risk for adverse outcomes. It thus becomes important to select representative samples and make use of methodological and statistical controls. In addition, although the majority of the studies included in this review utilise data from substantiated cases of maltreatment only, it would be useful to consider differential effects on outcome for data from both substantiated and unsubstantiated maltreatment cases.

Finally, it is important for researchers to continue to explore beyond direct associations between maltreatment and offending, and further elucidate the factors that might play indirect roles in mitigating or exacerbating the risk for offending. In order to promote consistency and comparability, researchers should endeavour to use validated self-report measures when examining the role of intervening variables or attempt to measure constructs in similar ways to other studies. This will further enhance our understanding of the mechanism by which maltreatment is associated with offending.

### **3.1.7 Conclusion**

This systematic review examined the extent to which methodological elements of studies influenced conclusions about both the nature and the strength of the association between childhood maltreatment and subsequent offending. The review utilizes a broader definition of delinquency and offending than has considered in many previous review articles. Furthermore, by drawing and expanding upon methodological criteria established by previous researchers (Ertem et al., 2000; Thornberry et al., 2012), this review provides one of the most comprehensive overviews of the strength of evidence in support of an association between maltreatment and offending and the role of methodological factors. It is clear that the link between childhood and adolescent experiences of maltreatment and the subsequent development of offending behavior is complex; however, this review illustrates that a deeper understanding is required if interventions are to be designed and implemented that prevent the adverse consequences of maltreatment. The studies presented in this review represent some of the most methodologically advanced and rigorous research in the area. However, this systematic evaluation of the methodological features of the included studies revealed variations, inconsistencies and gaps that need to be considered and addressed in future research.

### 3.1.8 Online supplementary material

Table 3.2. *A Detailed Examination of the Included Studies' Consideration of Offending Details, Taxonomic Categories of Maltreatment and Other Risk Factors*

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Widom & Massey (2015)	Arrests (sex offenses)	Adult	✓				✓	✓	
Jung et al. (2014)	Crimes against the person, property, society	Adult					✓	✓	
Kolivoski et al. (2014)	Juvenile detention placements	Juvenile			✓		✓		
Goodkind et al. (2013)	Juvenile justice facility placements	Juvenile			✓		✓		
Smith et al. (2013)	SR = general, violent (NYS) crime; OR = arrest	Adult					✓	✓	
Jonson-Reid et al. (2012)	Court petitions for violent delinquency	Juvenile			✓	✓	✓	✓	
Lee et al. (2012)	SR/PR = violent offending; OR = convictions	Both		✓		✓	✓	✓	
Mersky et al. (2012)	SR = adult/juvenile arrest; OR = juvenile petition (violent, drug, property, nonviolent), adult	Both		✓			✓	✓	✓

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
	incarceration, arrest, conviction (violent, drug, property, nonviolent)								
Ogloff et al. (2012)	Charges (Multiple offences ranging from theft to homicide)	Adult					✓		
Ryan (2012)	Arrests	Both			✓		✓		
Topitzes et al. (2012)	Arrests and convictions for violent crimes	Both			✓		✓	✓	
Yampolskaya & Chung (2012)	Juvenile justice facility/detention placements	Juvenile	✓				✓		
Bender et al. (2011)	Minor, moderate and serious offences (SRD)	Juvenile					✓	✓	✓
Nikulina et al. (2011)	Arrests	Adult					✓	✓	✓
Topitzes et al. (2011)	Arrests and convictions	Both					✓	✓	
Yampolskaya et al. (2011)	Arrest and juvenile justice facility placements	Juvenile	✓		✓		✓		
Baskin & Sommers (2010)	Arrests and charges for violent versus nonviolent crimes	Juvenile	✓		✓		✓		
Mersky & Topitzes (2010)	Incarceration	Adult					✓	✓	✓

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Postlethwait et al. (2010)	Delinquency (SRD)	Juvenile					✓		
Ryan et al. (2010)	Arrests	Juvenile	✓		✓		✓		
Thornberry et al. (2010)	SR = general/violent crime; OR = arrests/incarceration	Adult		✓			✓	✓	✓
Verrecchia et al. (2010)	Court referrals	Juvenile		✓		✓	✓	✓	✓
DeGue & Widom (2009)	Arrests: Any and violent crimes	Both			✓		✓		
Bright & Jonson-Reid (2008)	Court petitions for status offenses and delinquent convictions	Juvenile	✓	✓	✓	✓	✓		✓
Doyle (2008)	Arrests, convictions and incarceration	Adult	✓		✓		✓		✓
Grogan-Kaylor et al. (2008)	Delinquency (scale with tested validity)	Juvenile	✓		✓		✓	✓	✓
Ryan et al. (2008)	Arrests	Juvenile	✓		✓		✓		
Smith et al. (2008)	SR = general offending (NYS), violent, drug use; OR = arrests	Both					✓	✓	✓
Stewart et al. (2008)	Police cautions and court appearances	Juvenile					✓		

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Tyler et al. (2008)	Delinquency (SRD)	Juvenile	✓				✓	✓	✓
Vinnerljung & Sallnas (2008)	Convictions	Adult			✓		✓	✓	
Feiring et al. (2007)	Delinquency (SRD)	Juvenile				✓	✓		
Mersky & Reynolds (2007)	Any/violent juvenile petitions, any adult arrests/convictions	Both	✓				✓	✓	✓
Salzinger et al. (2007)	Violent delinquency (SRD)	Juvenile					✓	✓	
Lemmon (2006)	Delinquency	Juvenile			✓	✓	✓		✓
Widom et al. (2006)	Arrests: Violent crimes	Both					✓	✓	
Ryan & Testa (2005)	Delinquency court petitions	Juvenile	✓		✓	✓	✓		
Schuck & Widom (2005)	Arrests	Both	✓				✓	✓	✓
Smith et al. (2005)	SR = general offending (NYS), violent, drug use; OR = arrests	Both	✓	✓			✓	✓	✓
Wall & Barth, (2005)	Delinquency (YSR)	Juvenile	✓				✓	✓	

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Grogan-Kaylor & Otis (2003)	Arrests	Both	✓		✓		✓	✓	
Siegel & Williams (2003)	Arrests: juvenile (any, violent, property, running away), adult (any, violent, property, drug)	Both					✓	✓	
Swanston et al. (2003)	SR = Delinquency (YSR; Parent report CBCL), OR convictions	Juvenile					✓	✓	
Ireland et al. (2002)	SR = General delinquency, drug use, violence, serious street crime; OR = Arrests/official contact with police	Both		✓			✓	✓	✓
Jonson-Reid (2002)	Incarceration	Juvenile	✓		✓		✓	✓	
Stouthamer-Loeber et al. (2002)	Delinquency (SRD)	Juvenile					✓	✓	
Taussig (2002)	Adolescent Risk Behaviour Survey (ARBS)	Juvenile	✓				✓	✓	



Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Stouthamer-Loeber et al. (2001)	SR = delinquency (SRD; YSR), OR = court petitions for any, index/nonindex violent, index/nonindex property	Juvenile	✓			✓	✓	✓	
Thornberry et al. (2001)	General delinquency	Juvenile	✓	✓			✓	✓	✓
Jonson-Reid & Barth (2000)	Incarceration	Juvenile	✓		✓		✓		
Widom & White (1997)	Arrests: Any, violent, and nonviolent crimes	Both					✓	✓	
Maxfield & Widom (1996)	Arrests: Violent crimes	Both	✓				✓	✓	
Weiler & Widom (1996)	OR = Arrests; SR = Criminal behaviour (adapted from Wolfgang and Weiner's [1989] SR measure)	Both					✓	✓	
Smith & Thornberry (1995)	SR = Delinquency (general, serious, moderate, minor, violent); OR = Official contact with police	Juvenile				✓	✓	✓	
Ireland & Widom (1994)	Arrests: Drug or alcohol offences	Both					✓	✓	

Author (date)	Offending details		Taxonomic categories of maltreatment				Other risk factors		
	Type of offending	Outcome timing	Types	Timing	OOHC	Other	I	S	C
Widom & Ames (1994)	Arrests: Sex crimes, prostitution, rape/sodomy	Both	✓	✓			✓	✓	
Leiter et al. (1994)	Official court records	Juvenile				✓	✓	✓	
Zingraff et al. (1993)	Arrests: Property, general, violent and status	Juvenile	✓			✓	✓	✓	
Widom (1991)	Arrests: Any and violent	Both			✓		✓	✓	
Rivera & Widom (1990)	Arrests: Violent	Both					✓	✓	
Widom (1989) (Science article)	Arrests: Violent	Both	✓	✓			✓	✓	
Runyan & Gould (1985)	Juvenile court hearings	Juvenile		✓	✓		✓	✓	

Note. OOHC = Out-of-home care. I = Individual. S = Social. C = Contextual. OR = Official Records. SR = Self-report. SRD = Self-Report Delinquency scale. NYS = National Youth Survey. YSR = Youth Self-Report.

### 3.2 Publication: Risk factors that influence the maltreatment-offending association: A systematic review of prospective and longitudinal studies.

#### 3.2.1 Statement of authorship

Title of Paper	Risk factors that influence the maltreatment-offending association: A systematic review of prospective and longitudinal studies.
Publication Status	Published.
Publication Details	Malvaso, C.G., Delfabbro, P.H, Day, A. (2016). Risk factors that influence the maltreatment-offending association: A systematic review of prospective and longitudinal studies. <i>Aggression &amp; Violent Behavior, 31</i> , 1-15. doi: 10.1016/j.avb.2016.06.006.

#### *Principal Author*

Name of Principal Author (Candidate)	Catia Gaetana Malvaso		
Contribution to the Paper	Conducted the systematic searches, tabulated and interpreted the findings, completed the narrative review, and drafted the manuscript.		
Overall percentage (%)	80		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/02/2017

#### *Co-Author Contributions*

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Paul Delfabbro		
Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

Name of Co-Author	Andrew Day		
Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

### **3.2.2 Abstract**

The association between exposure to maltreatment during childhood or adolescence and subsequent delinquent or offending behaviors has been repeatedly documented in the scientific literature. Despite this, the nature of this relationship remains unclear and, in particular, whether problematic behavior arises directly as a result of the maltreatment, other co-existing risk factors or an interaction between maltreatment and these risk factors. This systematic review aims to organize evidence on this topic in relation to an ecological perspective that encompasses the multi-faceted nature of the maltreatment-offending association. A final pool of 62 studies were included in the qualitative synthesis. Results and discussion are organized according to four main sections: taxonomic categories of maltreatment (e.g., the type or timing of abuse, as well as how welfare involvement or placement in out-of-home care influences outcomes), individual risk factors (e.g., emotional and behavioral problems), social risk factors (e.g., characteristics of the family, parents and peers), and contextual risk factors (e.g., neighborhood characteristics). As consistent with ecological theory, a multitude of factors contribute to the maltreatment offending association. The application of a conceptual framework to guide future research and treatment is discussed.

### 3.2.3 Introduction

A large number of studies claiming to provide evidence for an association between exposure to maltreatment during childhood or adolescence and subsequent delinquent or offending behaviors have been published (see Wilson et al., 2009). Although many of these studies are based on cross-sectional designs involving retrospective samples which provide limited insight into issues of causality, prospective and longitudinal studies have consistently shown that not all children or young people who are exposed to maltreatment go on to offend (e.g., see Widom & Maxfield, 1996; Wilson et al., 2009). Rather, these studies demonstrate that the pathways from maltreatment to offending are complex, and that other factors play a significant role in mitigating or exacerbating risk. For example, variations in child maltreatment experiences (such as the type and timing of abuse), and out-of-home care (OOHC) experiences might systematically increase or decrease the likelihood of future offending. Furthermore, disentangling the influences of individual, social and contextual factors can also help to determine when, where, how and for whom abusive or neglectful experiences inflate or reduce the risk of offending.

Despite the abundance of research in this area, there are often few consistencies in the range of variables considered or a clear theoretical framework to allow one to develop hypotheses. Accordingly, the aim of this review is to synthesize current knowledge in a way that allows clear insights into the status of knowledge in this area. The focus is selective to prospective and longitudinal studies that utilize official records of maltreatment but encompasses a broad definition of offending by including studies that explore different types of crime in both adolescence and adulthood. Although there are biases associated with the integrity of data sourced from official maltreatment records, other researchers have asserted that they are necessary in longitudinal studies in order to establish the date of maltreatment and maintain the proper temporal order between associations (Smith et al., 2008).

Although a number of reviews on this topic have been published previously, most of these use narrow inclusion criteria and focus on very specific outcomes, for example, the intergenerational continuity of maltreatment (Ertem et al., 2000; Thornberry et al., 2012), antisocial behavior in adolescence only (Wilson & Stover, 2009), or violent behavior only (Falshaw et al., 1996; Maas et al., 2008). The most recent evaluation of the literature was published as a book chapter (Kerig & Becker, 2015). Although this work offers an interesting overview of some of the key studies in this area, it provides only a snapshot of the findings by focusing on a selection of studies and risk factors. For example,

while the differential effects of maltreatment type and timing are considered, other aspects of maltreatment experiences, such as frequency or severity, are not considered. Similarly, little discussion is dedicated to the effects of different placement types, or how the age at time of placement or the length of time spent in care might influence outcomes. The paper does highlight the role of a number of intervening factors; however, a range of variables are likely to be influential in the maltreatment- offending association, and the extent to which these are captured by the current literature requires synthesizing.

The present review aims to synthesize current knowledge by taking an ecological theory approach to organizing the evidence. Ecological systems theory was pioneered by Urie Bronfenbrenner (1979) and posits that a person's development is influenced by their environment. Bronfenbrenner suggested that there are five different levels or systems in one's environment, including the microsystem, mesosystem, exosystem, macrosystem and chronosystem. The interactions between these different systems have been used to explain behavior. For example, although a child has direct contact with their microsystem (i.e., their family or school), interactions occurring at other levels will also influence their behavior (e.g., relationships between parents and teachers in the mesosystem or parental unemployment or promotion in the exosystem). Ecological theories have also been used to inform both child maltreatment research (e.g., Belsky, 1993) and explanations of offending (e.g., Hawkins & Catalano, 1993). They suggest that both are caused by a combination of interacting stressors, risks and protective factors. Risk is generally conceptualized as multiply determined by individual characteristics (e.g., low intelligence, behavior problems), the social context (e.g., characteristics of family and peers), and the broader context (e.g., neighborhood poverty). The central assumption is that these different systems are embedded within each other and it is through these interconnections that human development is shaped, thus providing a framework that can encompass the multi-faceted nature of the maltreatment-offending association.

Although an ecological theory approach is useful for organizing the evidence on this topic, it does little to explain why some young people in similar environments go on to offend while others do not. Many psychological and criminological theories have been developed to explain varying patterns of criminal behavior (for a review see McGuire, 2002); however, one particularly useful theoretical approach that may help to complement the predictions of ecological theory include dynamic theories of crime based on developmental and lifecourse (DLC) perspectives (e.g., Catalano & Hawkins, 1996; Farrington, 2005; Moffitt, 1993; Sampson & Laub, 2005; Thornberry, 1997). Similar to

ecological theory, the DLC perspective postulates that human development is multiply determined by interconnections between different levels of a person's ecology and that these influences can change over the course of the lifespan (Casey, 2011). For example, while the influence of the family might be more consequential in the early stages of development, peer relations become increasingly influential when an individual starts school. Importantly, DLC theories recognize that there is an interplay between these environmental factors and individual cognitive decision-making processes which can be useful in explaining how life experiences such as maltreatment shape individuals and their pathways to and from offending (Farrington, 2007). Therefore, after describing the evidence base for risk factors that influence the maltreatment-offending association, a DLC framework will be used to conceptualize how interactions between these factors might alter pathways from maltreatment to offending.

#### **3.2.4 Method**

A systematic literature review was conducted of English language studies that examine the maltreatment-offending association using the Preferred Reporting Items for Systematic reviews and Meta-Analyses guidelines (PRISMA; Moher et al., 2009). The search focused on peer-reviewed studies that reported quantitative data; qualitative analyses, case studies, and unpublished dissertations were thus excluded. There was no date of publication restriction. The databases searched included: PsycInfo, PubMed, Embase, Scopus, Social Services Abstracts and CINCH. Grey literature was identified through Google Scholar. Databases were last searched on 9th of September 2015.

A three-step search strategy was used. First, a limited search was undertaken in PsycInfo and PubMed in order to analyze text words contained in the titles and abstracts of articles, as well as specific index terms used to describe articles. Key words used in the initial search included variations of: child maltreatment, child abuse, neglect, child protection, child welfare, out-of-home care, foster care, residential care, kinship care, delinquency, offending, crime, and incarceration. Second, all identified keywords and index terms were then used to search all databases. All searches were then screened for any material that met the inclusion criteria outlined below. As Google Scholar yielded over 20,000 results, only first 100 pages were screened for relevant material. Third, the reference lists of all relevant articles were hand searched to identify additional studies.

### ***Inclusion and exclusion criteria***

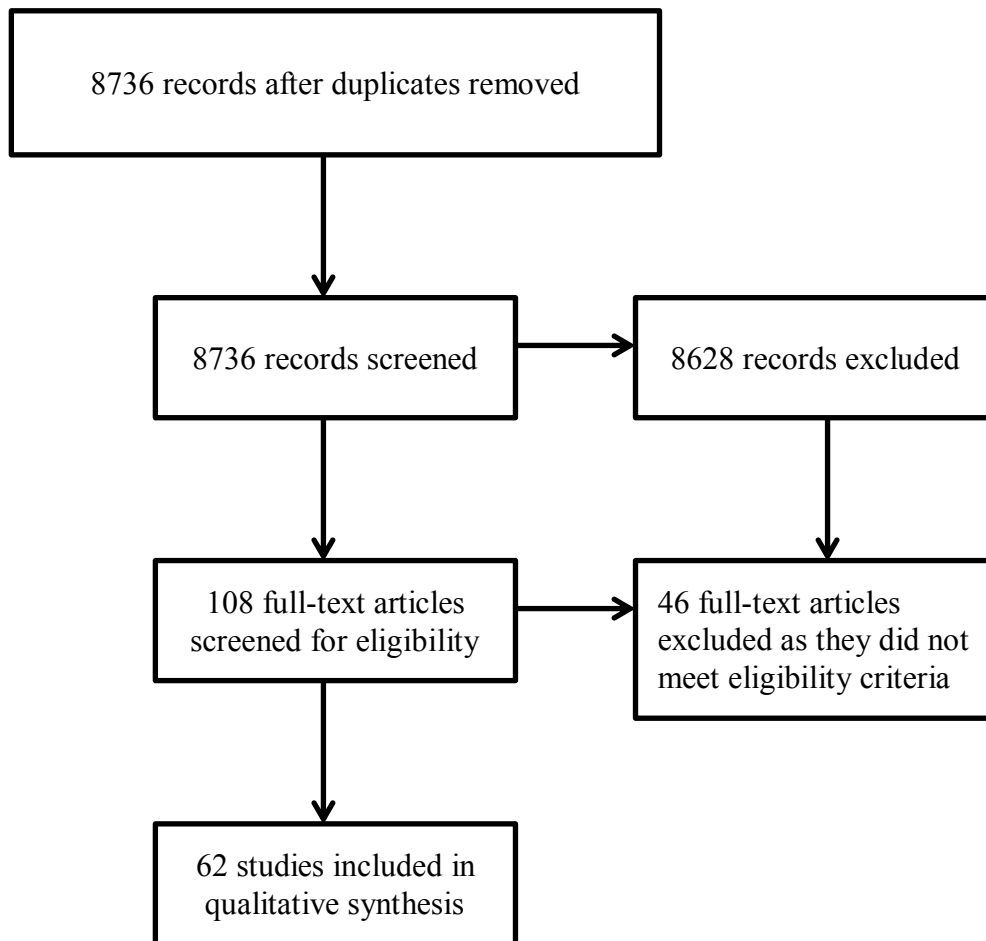
Only prospective or longitudinal studies that employed official records to measure maltreatment were included in this review. It was not limited to studies of any single form of maltreatment and was inclusive of physical, emotional, and sexual abuse and various forms of neglect (i.e., physical, emotional, educational or supervisory neglect). Other forms of adverse childhood or adolescent experiences (e.g., harsh parenting, exposure to neighborhood violence, or witnessing domestic violence) were not included. Maltreatment was defined as that which occurred in childhood or adolescence, that is, before the age of 18 years.

The main outcome of interest was delinquent or offending behavior. Both self-reported measures and official records of offending behavior were included. Studies that assessed other more specific outcomes associated with offending (e.g., aggression, antisocial behavior) were not included. Finally, studies examining neurobiological or genetic factors were excluded. This final exclusion criterion is recognized as a limitation; however, it was decided that the role of these influences warrants separate consideration.

A flow diagram of search results is displayed in Figure 3.2. The initial search yielded 8798 hits, in addition to 32 records identified through other sources. After screening titles and abstracts, 108 studies were considered potentially relevant and the full-text articles were then accessed. Of these, 46 were excluded as they did not meet the eligibility criteria, leaving 62 studies for the final qualitative synthesis. To be more specific, studies were excluded because: a) they did not use official records of maltreatment (N = 22); b) offending, as defined above, was not the outcome measure (N = 7); c) maltreatment history was not assessed or was considered as part of an aggregated category of risk (N = 6); d) they were purely descriptive or did not report multivariate statistics (N = 6); and, e) they used retrospective designs or were review papers (N = 4).

Although the research team as a whole decided on the parameters of the review and the strict exclusion that was applied, a complete independent review of the literature was not conducted due to the vast number of results yielded in the initial searches. This was acknowledged as a limitation of the review. In an attempt to address this limitation, a small subset of randomly selected articles (10 which were included and 10 which were excluded from the final review) were assessed by an independent researcher according to the exclusion criteria. There were no disagreements about the relevance of any of these articles for inclusion or exclusion in the review.





*Figure 3.2.* Flow of Information from Identification to Inclusion of Studies.

### 3.2.5 Results

Of the 62 studies identified for inclusion, the vast majority ( $N = 58$ ; 93.5%) were conducted in the United States, three utilized Australian data, and one was conducted in Sweden. Sample sizes ranged from 106 (Swanston et al., 2003) to over 23,000 (Doyle, 2008). Just over one third ( $N = 22$ ; 35.5%) had a sample size of 1000 or less, indicating that the majority of included studies utilized large sample sizes. Under half of the studies (26; 41.9%) were based on administrative data linkage projects, 22 (35.5%) were drawn from community or general population samples, and 14 (22.6%) were based on the case-control cohort designed data pioneered by Widom (1989). The majority (40; 64.5%) used official records to examine delinquency or criminality. Only 11 studies (17.7%) used self-report measures, although another 11 (17.7%) studies made use of both self-report and official measures. Of those that examined self-reported offending, the majority ( $N = 14$ ;

66.6%) used validated measures, e.g., the National Youth Survey, Self- Report Delinquency scale, and the Youth Self-Report. The timeframe in which offending outcomes were measured varied: 31 studies (50.0%) examined juvenile outcomes, 8 studies (12.9%) followed outcomes in adult- hood, and 22 studies (35.5%) tracked outcomes in both.

Almost one third of studies included in this review (N = 18; 29.0%) used a single category of maltreatment (e.g., victims of sexual abuse only; e.g., Ogloff, Cutajar, Mann, & Mullen, 2012) or a composite measure which combined different types of maltreatment into a single aggregated category (e.g., Smith et al., 2013). In studies such as these, it is not possible to determine the unique effects of different types of maltreatment on offending outcomes. However, the remaining studies (N = 42; 67.7%) considered variations in maltreatment and child protection experiences when examining offending outcomes, although the studies varied in the extent to which they explored the influence of these factors (see Table 3.3). Of these, 26 studies examined at least two or more types of abuse and/or neglect, 11 considered the timing of the maltreatment, 21 explored variations in OOHC experiences (e.g., placement type), and 13 considered other features of maltreatment experiences (e.g., chronicity or severity). For a more detailed summary of the included studies, please refer to the online supplementary tables (see Tables 3.4 and 3.5 shown in section 3.2.8).

Table 3.3. *Included Studies' Consideration of Taxonomic Categories of Maltreatment, Placement Details and Other Risk Factors*

Author (date)	Taxonomic categories of maltreatment				Placement details			Other risk factors		
	Type	Timing	Other	OOHC	Type	Instability	Other	I	S	C
Widom & Massey (2015)	✓							✓	✓	
Jung et al. (2014)								✓	✓	
Kolivoski et al. (2014)				✓	✓	✓	✓	✓		
Goodkind et al. (2013)				✓	✓	✓	✓	✓		
Smith et al. (2013)								✓	✓	
Jonson-Reid et al. (2012)			✓	✓	✓			✓	✓	
Lee et al. (2012)		✓	✓					✓	✓	
Mersky et al. (2012)		✓						✓	✓	✓
Ogloff et al. (2012)								✓		
Ryan (2012)				✓	✓	✓		✓		
Topitzes et al. (2012)				✓		✓		✓	✓	
Yampolskaya & Chung (2012)	✓							✓		
Bender et al. (2011)			✓					✓	✓	
Nikulina et al. (2011)								✓	✓	✓
Topitzes et al. (2011)								✓	✓	
Yampolskaya et al. (2011)	✓		✓	✓			✓	✓		

Author (date)	Taxonomic categories of maltreatment				Placement details			Other risk factors		
	Type	Timing	Other	OOHC	Type	Instability	Other	I	S	C
Baskin & Sommers (2010)	✓			✓	✓	✓	✓	✓		
Mersky & Topitzes (2010)								✓	✓	✓
Postlethwait et al. (2010)								✓		
Ryan et al. (2010)	✓			✓	✓	✓	✓	✓		
Thornberry et al. (2010)		✓						✓	✓	✓
Verrecchia et al. (2010)		✓	✓					✓	✓	✓
DeGue & Widom (2009)				✓	✓	✓	✓	✓		
Bright & Jonson-Reid (2008)	✓	✓	✓	✓	✓			✓		✓
Doyle (2008)	✓			✓	✓			✓		✓
Grogan-Kaylor et al. (2008)	✓			✓				✓	✓	✓
Ryan et al. (2008)	✓			✓	✓	✓	✓	✓		
Smith et al. (2008)								✓	✓	✓
Stewart et al. (2008)								✓		
Tyler et al. (2008)	✓							✓	✓	✓
Vinnerljung & Sallnas (2008)				✓	✓	✓	✓	✓	✓	
Feiring et al. (2007)			✓					✓		
Mersky & Reynolds (2007)	✓							✓	✓	✓

Author (date)	Taxonomic categories of maltreatment				Placement details			Other risk factors		
	Type	Timing	Other	OOHC	Type	Instability	Other	I	S	C
Salzinger et al. (2007)								✓	✓	
Lemmon (2006)			✓	✓				✓		✓
Widom et al. (2006)								✓	✓	
Ryan & Testa (2005)	✓		✓	✓		✓		✓		
Schuck & Widom (2005)	✓							✓	✓	✓
Smith et al. (2005)	✓	✓						✓	✓	✓
Wall & Barth, (2005)	✓							✓	✓	
Grogan-Kaylor & Otis (2003)	✓			✓				✓	✓	
Siegel & Williams (2003)								✓	✓	
Swanston et al. (2003)								✓	✓	
Ireland et al. (2002)		✓						✓	✓	✓
Jonson-Reid (2002)	✓			✓	✓		✓	✓	✓	
Stouthamer-Loeber et al. (2002)								✓	✓	
Taussig (2002)	✓							✓	✓	
Stouthamer-Loeber et al. (2001)	✓		✓					✓	✓	
Thornberry et al. (2001)	✓	✓						✓	✓	✓
Jonson-Reid & Barth (2000)	✓			✓	✓			✓		

Author (date)	Taxonomic categories of maltreatment				Placement details			Other risk factors		
	Type	Timing	Other	OOHC	Type	Instability	Other	I	S	C
Widom & White (1997)								✓	✓	
Maxfield & Widom (1996)	✓							✓	✓	
Weiler & Widom (1996)								✓	✓	
Smith & Thornberry (1995)			✓					✓	✓	
Ireland & Widom (1994)								✓	✓	
Widom & Ames (1994)	✓	✓						✓	✓	
Leiter et al. (1994)			✓					✓	✓	
Zingraff et al. (1993)	✓		✓					✓	✓	
Widom (1991)				✓	✓	✓	✓	✓	✓	
Rivera & Widom (1990)								✓	✓	
Widom (1989)	✓	✓						✓	✓	
Runyan & Gould (1985)		✓		✓	✓	✓	✓	✓	✓	

*Note.* Taxonomic categories of maltreatment section ‘other’ refers to studies that considered the frequency, severity or duration of maltreatment.

OOHC = out-of-home care. Placement details section ‘other’ refers to studies that considered age at time of placement or length of placements. I = Individual. S = Social. C = Contextual.

All studies included at least two statistical control variables in their analyses. The most common variables were age, gender, ethnicity and a measure of socioeconomic status. The majority of studies also considered other individual, social, and contextual risk factors (N = 49; 79.0%); however, the number of additional factors assessed in any given study ranged from one to nineteen. Additional factors relating to the individual in question were assessed in half of the studies (N = 31; 50.0%). These included variables relating to education, health and mental health, drug and alcohol use, and behavioral problems. Less than half of the studies considered other social factors (N = 27; 43.5%), but factors included related to: the family (e.g., structure, size), the parents (e.g., education), parent- or caregiver-child relationships; and, peer relationships. A smaller number of studies considered contextual variables (N = 16; 25.8%). These studies predominantly included an indicator of neighborhood poverty, although a few studies considered other factors such as urban size or community violence. Overall, only 13 studies (21.0%) considered factors across all three domains.

As has been outlined above, the included studies varied both in terms of their methodological design as well as their approach for analyzing the observed relationship between maltreatment and offending. Studies that compared maltreated and non-maltreated subjects using a composite measure of abuse and/or neglect generally found that these experiences resulted in increased offending (e.g., Rivera & Widom, 1990; Smith et al., 2013). However, findings were more mixed in studies that considered variations in maltreatment experiences with results often found to vary depending upon maltreatment type, timing, severity and chronicity as well as placement experiences (e.g., see Baskin & Sommers, 2010; Vinnerljung & Sallnäs, 2008). Some studies found that maltreatment was associated with particular types of crime (e.g., crimes against society) but not others (e.g., person or property crimes; Jung et al., 2015) whereas others found that abuse was associated with outcomes in different times periods (e.g., in adolescence but not adulthood; Lee et al., 2012). A range of mediating and moderating effects were also observed (e.g., see Topitzes et al., 2011) and both gender-specific and race-specific pathways were also found (e.g., see Goodkind et al., 2012; Tyler et al., 2008).

Only four studies found no association between any of the maltreatment variables included and offending outcomes in their multivariate analyses. For example, Runyan and Gould (1985) found that placement in foster care was not significantly associated with juvenile delinquency. However, because the authors of this study did not display the results of their regression analysis, it was not possible to determine the amount of variance

accounted for by other variables (i.e., maternal education, race, sex and type of past maltreatment). In another example, Weiler and Widom (1996) found positive bivariate associations between child maltreatment and both official and self-reported measures of violence. When measures of psychopathy, as well as several other control variables, were introduced to their multivariate analyses, maltreatment status was no longer a significant predictor of violence, which suggested that the maltreatment-offending association might be mediated by psychopathic characteristics. Similarly, Wall and Barth (2005) could not find any unique effects for the four maltreatment types tested (physical and sexual abuse, and two forms of neglect); instead, older age, female gender, below-average social skills and a low sense of caregiver relatedness were associated with increased delinquency. Finally, the only variable associated with delinquency in longitudinal analyses by Bender et al. (2011) was age; maltreatment and internalizing symptoms were also tested but no significant associations were found.

Inspection of the different results showed that there did not appear to be any meaningful consistencies between the conclusions drawn from the studies that found positive associations between maltreatment and offending, mixed findings, or no unique effects for maltreatment variables. That is, when comparing the methodological features of these studies, the authors could not determine any particular design features that appeared to consistently influence the findings. For example, it was not possible to discern consistent patterns of results based on whether studies used official records or self-report measures of offending; the number of control variables included in multivariate analyses (which could explain weaker effects of maltreatment); or the sample size (which could lead to a lack of statistical power to detect significant differences). However, what the majority of studies included in this review did demonstrate was that the effects of maltreatment are often strongly mediated or moderated by other individual, social and contextual risk factors. This points to the complexity of the maltreatment-offending association and the importance of other intervening factors. Thus, it is important to understand how these other risk factors, or combinations of risk factors, are related to offending outcomes and may help to contextualize broader maltreatment-outcome associations. To help organize the findings, the results will be summarized in the following four sections: 1) Taxonomic categories of maltreatment and care experiences; 2) Individual risk factors; 3) Social risk factors; and 4) Contextual risk factors. This will enable an analysis of incremental risk factors that might exacerbate or reduce offending among maltreated youth, or how maltreatment might be related to other factors associated with offending.



## ***Taxonomic categories of maltreatment and care experiences***

### *Type of maltreatment*

This section discusses the evidence found for the influences of different types of maltreatment (e.g., physical, sexual or emotional abuse and neglect). These were considered in 26 (41.9%) of the studies. Some studies in which several subtypes of maltreatment were examined, unique effects for physical abuse (Grogan-Kaylor et al., 2008; Taussig, 2002) and neglect (Bright & Jonson-Reid, 2008; Grogan-Kaylor & Otis, 2003) alone were reported; however, other studies found that the risk of offending was significantly increased for physically abused and neglected youth alike (Maxfield et al., 2000; Zingraff et al., 1993). Gender differences were also observed. For example, Tyler et al. (2008) found that neglect was more influential in the pathway to delinquency for males, whereas physical abuse increased the risk for females. There appeared to be consistent evidence that victims of sexual abuse were less likely to offend (Baskin & Sommers, 2010; Jonson-Reid, 2002; Zingraff et al., 1993). However, there was one exception: Yampolskaya, Armstrong, and McNeish (2011) found that, compared to physically abused and neglected youth, victims of sexual abuse were more likely to enter juvenile detention placements.

In terms of certain maltreatment types predicting specific types of crime, there was some evidence that child physical abuse (CPA) was associated specifically with violent crime (Maxfield & Widom, 1996; Mersky & Reynolds, 2007; Smith et al., 2005). However, Baskin and Sommers (2010) found that victims of CPA were at increased risk for arrest for non-violent crimes over violent crimes. Furthermore, neglect was also found to increase the risk of violent offending (Maxfield & Widom, 1996; Mersky & Reynolds, 2007; Smith et al., 2005). Only two studies that considered maltreatment subtypes explored sex offending as an outcome. Widom and Ames (1994) found that CPA, sexual abuse (CSA), and neglect all increased the likelihood for sex offending in young adulthood. Widom and Massey (2015) extended this investigation into later adulthood and found that only CPA and neglect, not CSA, were significantly associated with increased risk for sex offending.

Overall, there appears to be evidence for associations between all abuse subtypes and offending; however, the evidence tended to vary depending on the type of crime considered. Neglect emerged as a strong predictor for a range of different types of crime.

### *Maltreatment chronicity, frequency, recurrence and severity*

Evidence for the severity or cumulative effect of maltreatment experiences, such as chronicity, frequency or recurrence, is discussed in this section. Chronicity, frequency, recurrence and severity of maltreatment experiences were explored in 13 studies (21.0%). The terms chronicity, frequency and recurrence appeared to be used interchangeably to measure similar constructs across different studies and usually referred to the number of maltreatment incidents, reports or substantiations accrued by individuals. Jonson-Reid, Kohl, and Drake (2012) refer to this as “chronicity”, while Ryan and Testa (2005) refer to it as “recurrence” and Zingraff et al. (1993) as “frequency”. Despite this, Jonson-Reid et al. (2012) found no effect for chronicity on violent delinquency, Verrecchia et al. (2010) found that recurrence was marginally associated with delinquency, Ryan and Testa (2005) found that the risk for delinquent behavior was increased for males with two or more substantiated reports of maltreatment and for females with three or more reports, Smith and Thornberry (1995) found mixed and weak associations between maltreatment frequency and delinquency, and Zingraff et al. (1993) found that maltreatment frequency increased the risk for property but not violent offending. Lemmon's (2006) study provides the most methodologically sophisticated analysis of maltreatment recurrence and its effects on three delinquency measures: initiation, continuation, and severity (violent offending). Maltreatment recurrence was found to be associated with all three measures of delinquency; however, recurrence effects were reduced by placement services (being placed in out-of-home care as opposed to receiving in-home services) for chronic and violent offending.

The findings of studies examining the consequences of maltreatment severity were also difficult to interpret as a result of the varying definitions or classifications of seriousness used. Some studies employed Barnett, Manly, and Cicchetti's (1993) Maltreatment Classification System (MCS) in order to establish severity—a commonly used classification system designed to capture several dimensions of maltreatment experiences (e.g., Smith & Thornberry, 1995; Stouthamer-Loeber, Loeber, Homish, & Wei, 2001). Others were more vague in describing how maltreatment severity was classified and included ranking systems based on type of abuse (Yampolskaya et al., 2011), “degree of injury” experienced by victims of supervisory neglect (Verrecchia et al., 2010), and substantiated cases of maltreatment and placement in foster care as proxies for severity (Bright & Jonson-Reid, 2008). One study by Bender et al. (2011) considered severity in an entirely different way. It utilized caseworker ratings of maltreatment risk

which were then grouped according to the level of severity (none, mild, moderate and severe). Another study that focused on victims of sexual abuse only, summed the abuse characteristics (e.g., whether the abuse included penetration or the perpetrator was a parental figure) to create a measure of severity (Feiring, Miller- Johnson, & Cleland, 2007). Despite the differences in measurement approaches, mixed evidence was found with the majority of studies reporting no or weak associations (Feiring et al., 2007; Smith & Thornberry, 1995; Yampolskaya et al., 2011), and one study reporting a direct effect for severity on delinquency (Verrecchia et al., 2010). Overall, there appeared to be inconsistent evidence for the severity of cumulative effects of maltreatment, especially due to the different approaches used to measure or conceptualize these aspects of maltreatment experiences.

### *Timing of maltreatment*

This section considers the evidence for associations between the timing of maltreatment and offending, and whether the age at time of maltreatment or instances of maltreatment that occur earlier in childhood, later in adolescence, or across both childhood and adolescence are more or less influential in the development of criminal behavior. Eleven (17.7%) studies considered the timing of maltreatment experiences and how this might influence outcomes. The majority simply considered age at time of first maltreatment incident or first referral to child protection services, and either did not include this variable in multivariate analyses or found no significant age-related effects (Lee et al., 2012; Runyan & Gould, 1985; Verrecchia et al., 2010; Widom, 1989; Widom & Ames, 1994). Bright and Jonson-Reid (2008) and Leiter et al. (1994), however, did find that the risk for juvenile court petitions and delinquency increased as the age at time of maltreatment increased. The remaining studies examined the relationship in greater detail and separated maltreated youth into three main groups: those who experienced maltreatment in childhood only (childhood-limited maltreatment); in adolescence only (adolescent-limited maltreatment); and in both childhood and adolescence (persistent maltreatment).

Four studies by Ireland, Smith, Thornberry and colleagues provide convincing evidence that maltreatment which begins or continues into adolescence is more consequential in the development of offending behavior compared to maltreatment which is limited to the childhood years. This was found to be true for self-reported delinquency (Thornberry et al., 2001) and official records of arrests (Ireland et al., 2002) in both early

and late adolescence. It must be noted though that in these studies, the overlapping time periods between adolescent-limited and persistent maltreatment and the outcomes might compromise the temporal order of associations. However, Smith et al. (2005) extended the analyses into early adulthood and found that, after controlling for early behavior problems and socio-demographic variables, any maltreatment experienced during adolescence was significantly associated with arrest, and self-reported general and violent offending. These researchers repeated the investigation in 2010 using increasingly sophisticated statistical techniques and found that, again, childhood-limited maltreatment was not associated with offending outcomes in early adulthood; however, any maltreatment in adolescence was significantly associated with each offending outcome in addition to incarceration (Thornberry et al., 2010). Type of abuse was also considered. Although it was found that physical abuse and neglect that occurred in adolescence were both particularly influential in the development of delinquency in adolescence (Thornberry et al., 2001), the effects of neglect were somewhat weaker in early adulthood (predicting arrest only; Smith et al., 2005). However, physical abuse continued to predict violent offending in adulthood.

The only study included in this review that attempts to replicate these findings was that conducted by Mersky et al. (2012). They found that both any childhood and any adolescent maltreatment, as well as childhood-limited and adolescent-limited maltreatment, were associated with juvenile offending outcomes, and these effects did persist into adulthood (although the effects of adolescent maltreatment had somewhat dissipated). Furthermore, when subjects were excluded when delinquency preceded the first maltreatment report, the effects of adolescent maltreatment became increasingly tenuous. Adolescent-limited maltreatment, (but not adolescent maltreatment inclusive of previous childhood maltreatment), was only associated with drug-related offending.

Overall, the effects of the timing of maltreatment differed according to both the type of crime considered and whether criminal behavior was assessed in adolescence or adulthood. Although there was evidence for maltreatment occurring at any age, there appears to be some increasingly consistent evidence that, as the age of maltreatment increased, the risk for offending also increased.

#### *Out-of-home care (OOHC) experiences*

This section discusses the evidence behind variations in out-of-home care experiences and how they influence offending outcomes. The type, timing, duration and stability of placements were all considered. Of the 21 studies (33.8%) that considered

OOHC experiences, 15 considered the type of placement (e.g., foster care, residential units; 24.2%), nine examined the effects of placement length or duration (14.5%), and seven considered the youths' age at time of placement (11.3%). Early studies reported that placement in OOHC care was not a significant risk factor for offending (Runyan & Gould, 1985; Widom, 1991). Some studies found that placement services even reduced the risk among maltreated children. For example, Lemmon (2006) found that the association between maltreatment recurrence and chronic or violent offending was attenuated by placement into foster care. Evidence for the potentially protective effects of foster care was also reported by DeGue and Widom (2009). However, other studies found evidence to the contrary, suggesting that placement in OOHC is associated with increases in offending (e.g., Goodkind et al., 2012; Ryan & Testa, 2005). There is also evidence that victims of maltreatment who remain with their families and receive in-home services are at increased risk for subsequently offending (Bright & Jonson-Reid, 2008).

Overall, there seems to be strong evidence for the negative effects of foster care placement (Doyle, 2008), but more so for group home, residential or congregate care placements (Baskin & Sommers, 2010; Ryan, 2012; Ryan et al., 2010; Ryan et al., 2008). However, outcomes were found to vary according to the type of offending and how it was measured and the level of justice system involvement. Baskin and Sommers (2010) found that group home placement only predicted overall arrests and non-violent crimes but not violent crimes. Kolivoski et al. (2014) found that group home placement was only associated with offending for youth who were chronically involved with the juvenile justice system (rather than for those with low to moderate involvement). Gender differences were also observed. DeGue and Widom (2009) found that males placed in OOHC were more likely to be arrested as adults than males who had not been placed. On the other hand, females placed in foster care only had a reduced chance of offending compared to those who were not placed. Furthermore, Ryan et al. (2010) found that both males and females with a history of group home placement were more likely to be arrested as juveniles; however, Goodkind et al. (2012) found that effects of group home placement were more pronounced for females than for males.

DeGue and Widom (2009) and Vinnerljung and Sallnäs (2008) found no association between offending and length of placement; Ryan et al. (2010) found the length of time spent in care was associated with an increased chance of offending; and Baskin and Sommers (2010), Goodkind et al. (2012) and Kolivoski et al. (2014) found that the longer youth spent in placements the less likely they were to offend. It was consistently

found that being placed in care at an older age increased the risk of offending (Baskin & Sommers, 2010; DeGue & Widom, 2009; Jonson-Reid, 2002; Ryan et al., 2010). Similarly, there is consistent evidence that placement instability is associated with increased offending (DeGue & Widom, 2009; Goodkind et al., 2012; Jonson-Reid & Barth, 2000; Kolivoski et al., 2014; Ryan, 2012; Ryan et al., 2008; Ryan et al., 2010; Vinnerljung & Sallnäs, 2008; Yampolskaya & Chuang, 2012). A number of studies also considered the reason for placement in OOHC and found that those placed due to behavioral problems, as opposed to those placed only for maltreatment or for other reasons, were more likely to offend as assessed by a range of outcome measures (Jonson-Reid, 2002; Ryan, 2012; Vinnerljung & Sallnäs, 2008; Widom, 1991).

Overall, the most consistent predictors of offending behavior were being placed in care at an older age and experiencing a high number of placement changes. Inconsistent evidence was found for the effects of foster care placement and placement length or duration. Although there was some strong evidence that placement in residential or congregate care increased risk, variations in outcomes were found depending on how offending was measured and the type of crime considered.

### ***Individual factors***

This section considers factors relating to the individual and how these are associated with offending outcomes. Individual factors included were: gender, age, ethnicity, behavioral and emotional problems, education, mental health, and substance misuse.

#### *Gender*

Gender was one of the most common variables considered among the studies included in this review (N = 56; 90.3%). The remaining 10% of studies examined outcomes among either females or males only. There were three predominant ways that gender was considered: 1) As a control variable in multivariate analyses; 2) In separate multivariate analyses predicting outcomes for males and females individually; and 3) In interaction terms.

The majority of studies found that males were significantly more likely to offend than females; although one study found no main effect for gender (Swanston et al., 2003), and another found that self-reported delinquency was significantly lower among males (Wall & Barth, 2005). Gender differences were found to vary according to outcomes (e.g.,

type of crime) and maltreatment or placement profiles. Mersky and Reynolds (2007), for example, found that maltreatment was associated with several violent offending outcomes among maltreated males, but was only associated with two outcomes (violent petitions and adult convictions) for females. Ryan et al. (2010) found that the risk of juvenile delinquency significantly increased for females who: experienced foster or group care placements; changed placements due to absconding behaviors; and, entered care due to caretaker absence. Males were at increased risk for delinquency if they were placed at an older age or experienced more than three placement changes, absconded from placements, and experienced placement in group and kinship care settings. Finally, path models in the study by Tyler et al. (2008) showed that, among males, neglect was associated with greater school engagement. On the other hand, for females, neglect was associated with less school engagement. In both models, school engagement was significantly associated with delinquency.

Similarly, studies that tested gender effects in interaction terms reported differing effects dependent on the outcome considered. Goodkind et al. (2012) found that juvenile justice involvement was strongly associated with placement in OOHC for girls only, whereas white boys receiving services for substance abuse problems were at increased risk for justice involvement. Furthermore, when they examined outcomes among youth placed in OOHC only, significant gender by race interactions were found, with justice involvement twice as likely among African American boys. White girls placed in congregate care were also found to be at twice the risk for justice involvement. As previously discussed, evidence for an association between gender and placement type was also found by DeGue and Widom (2009). In contrast, several studies did not find any significant gender interactions (Salzinger et al., 2007; Schuck & Widom, 2005; Topitzes et al., 2012).

### *Age*

Although the majority of age related effects are discussed in the previous sections on the timing of maltreatment and OOHC experiences, some studies also controlled for or explored age in other ways (N = 33; 53.2%). For example, various studies considered age of onset for offending and found that older children were at greater risk for offending as measured by various outcomes (Feiring et al., 2007; Grogan-Kaylor & Otis, 2003; Ogloff et al., 2012; Rivera & Widom, 1990; Schuck & Widom, 2005). One study also explored age of onset of offending in relation to different types of maltreatment. Widom and Massey

(2015), whose study mainly focused on the link between child sexual abuse and subsequent sexual offending, found that, although maltreated and neglected children as a group on the whole were at increased risk of being arrested at any age compared to controls, sexually abused youth did not commence their criminal careers at an earlier age compared to controls.

### *Ethnicity*

Similar to gender, the ethnicity or race of subjects was commonly controlled for as a main effect or in interactions terms in multivariate analyses (N = 56; 90.3%). As a main effect, it was consistently found that minority racial status (e.g., African American, Hispanic, and Indigenous populations) was associated with increases in offending (e.g., see Doyle, 2008; Stewart et al., 2008; Yampolskaya & Chuang, 2012). Only one study had contrasting findings. Baskin and Sommers (2010) found that white youth were significantly more likely to be arrested. Findings also varied according to outcome measurement, with Smith et al. (2005) demonstrating that Hispanic and African American youth were more likely to be arrested according to official records but not self-reported outcomes.

The association between race/ethnicity and offending became less clear, however, when researchers explored subgroup effects. For example, although Lee et al. (2012), DeGue and Widom (2009) and Bright and Jonson-Reid (2008) all found significant main effects for race on offending outcomes, when examining placement subsamples only or interactions with placement variables, no effects for race were found. This suggests that these variables play a similar role in offending outcomes for young people of different ethnicities. In contrast, Ryan and Testa (2005) found that although African American males and females were at increased risk for delinquency in the full sample of maltreated youth, when limiting their sample to those who had experienced OOHC placements only, African American males were at significantly increased risk whereas the risk for females only approached significance.

Other studies also found significant interactions with race. Goodkind et al. (2012), for example, reported that while female African Americans had only half the increased likelihood of involvement with the juvenile justice system compared to white females, African American males were at double the risk compared to white males. Furthermore, white youth who experienced congregate care placements were more likely to have juvenile justice system involvement than African American youth, suggesting that the



negative effects of this placement type was more detrimental for white youth. However, evidence from the study by Jonson-Reid (2002) indicates that this is not the only placement type with detrimental consequences for white youth; in this study, white youth who were not placed in OOHC but received in-home services, as well as those who were placed in foster care, were at increased risk of subsequent entry into the correctional system. On the other hand, it was found that receiving in-home services served to reduce the likelihood of incarceration for non-White youth. Finally, among youth placed into care for the reasons of abuse and/or neglect, an interaction between race and foster care was observed – youth from minority backgrounds placed into foster care were at increased risk for incarceration.

#### *Behavioral and emotional problems*

A number of studies (N = 18; 29.0%) investigated the intervening role of behavioral and emotional problems between maltreatment and offending, and included the role of: running away, conduct disorders, anger or aggression, poor socio-emotional skills, attentional deficits, and poor self-perceptions. Three studies investigated the role of running away as a risk factor for subsequent involvement in offending. Goodkind et al. (2012) found that juvenile justice involvement was less likely among youth who absconded from placements, whereas Ryan et al. (2010) found that placement changes resulting from running away increased the likelihood of arrest for both males and females in OOHC. Although neither direct or indirect effects were found between maltreatment type, running away and delinquency, Tyler et al. (2008) found that running away itself was associated with increased delinquency for males and females.

Some studies reported main effects for several other indicators of behavioral or emotional problems: Yampolskaya and Chuang (2012), for example, demonstrated that the risk of juvenile justice placement doubled for youth with ADHD (attention-deficit hyperactivity disorder) and quintupled for youth with conduct disorders; Taussig (2002) found that caregiver-rated behavioral problems and self-perceived social acceptance and conduct were each associated with increased delinquency; and Wall and Barth (2005) found that, although low to average social skills increased the likelihood of delinquency, problems with attention were unrelated.

Other studies found indirect associations. Two studies by Topitzes and colleagues found mediation effects for the association between child maltreatment and adult arrests (Topitzes et al., 2011) and violent arrests (Topitzes et al., 2012) through greater

externalizing behaviors and lower socio-emotional skills for males, and increased acting out behavior and less internalizing behaviors for females. Widom, Schuck, and White (2006) found that child maltreatment was associated with early aggression among males, which led to problematic behavior and, in turn, increased the likelihood of arrest, whereas among females, maltreatment was not associated with aggression. Verrecchia et al. (2010) used a combined behavior and academic risk index (including measures of anger, poor impulse control, reading problems, truancy, and school expulsions) and found indirect effects to delinquency. Finally, Feiring et al. (2007) explored the role of behavioral and emotional problems among sexually abused youth and found that abuse-specific shame and self-blame attributions were associated with anger, which was both directly and indirectly (through deviant peers) associated with increased delinquency.

### *Education*

Ten studies (16.1%) considered education-related variables. Education was measured in a number of ways and included level of education completed, measures of reading ability or academic achievement, factors related to school experience or engagement, and inclusion in special education classes. Both Jung et al. (2014) and Weiler and Widom (1996) found that having higher levels of education was a protective factor against criminality in adulthood. In terms of gender differences, Bright and Jonson-Reid (2008) examined three categories of youths' special education needs [learning disability (LD), emotional disturbance, and other disability] and found that females with LD were at increased risk for status and delinquency petitions. On the other hand, emotional disturbances placed males at increased risk for both types of petitions, and those with LD for status petitions only. Self-reported school engagement, academic achievement and intellectual abilities were found to have no association with offending outcomes in the studies by Grogan-Kaylor et al. (2008), Wall and Barth (2005) and Topitzes et al. (2012), respectively.

Indirect associations for education-related variables were also demonstrated. Weak mediation effects were found for Grade Point Average and earning a high-school diploma on arrests, and school protective index on both general and violent crimes, again demonstrating the potential protective role of education (Smith et al., 2013). Topitzes et al. (2011) provided some more convincing evidence of the mediating, and protective, role of education-related variables on adult arrest conviction, finding both direct and indirect associations for a number of variables for males (high school graduation and school

commitment) and females (high school graduation, reading achievement and school mobility). For males, these education factors along with a number of variables from other domains (behavior, parent characteristics and juvenile delinquency) fully mediated the main effect of maltreatment on adult arrests. However, the maltreatment-arrest association was only partially mediated for females. Greater school engagement was also found to be a protective factor against delinquency for males and females (Tyler et al., 2008).

### *Mental health*

Studies that considered factors relating to mental health (N = 9; 14.5%) found either direct or indirect associations. Starting with the studies that included measures of service utilization, Kolivoski et al. (2014), Goodkind et al. (2012), and Jonson-Reid (2002) all found that receiving assistance for mental health issues was associated with a greater likelihood of juvenile justice system involvement. Next, the role of abuse-related mental health symptoms (abuse-related shame and abuse-specific attributions) and anger among sexually abused youth was explored by Feiring et al. (2007), who argued that these stigmatization symptoms were related both directly and indirectly (through anger) to increased delinquency.

Other studies examined the contribution of more clearly defined mental health disorders or symptoms. In the most recent study, there were significant main effects for three disorders; depression and bipolar increased the chance of juvenile justice system involvement, whereas post-traumatic stress disorder (PTSD) was associated with reduced involvement (Yampolskaya & Chuang, 2012). In contrast, a positive association was found between maltreatment, PTSD and delinquency in another study (as well as depression) (Bender et al., 2011). Similarly, although less clearly defined, Grogan-Kaylor et al. (2008) demonstrated that trauma (measured through sexual concerns, anger, depressive, anxious, dissociative, and post-traumatic symptoms) and greater internalizing behaviors (as a proxy for psychopathology) also increased the likelihood of delinquency. In terms of gender differences, Postlethwait, Barth, and Guo (2010) observed increased delinquency among females with depression, but found no effect for males. Finally, the association between maltreatment and violent offending disappeared after controlling for psychopathy (as measured by the Psychopathy Check List – Revised; Hare, 2003) in both male and female models (Weiler & Widom, 1996).

### *Substance misuse*

Few studies considered substance misuse problems (N = 4, 6.5%). Postlethwait et al. (2010) found that males who used moderate to high levels of a range of substances reported higher levels of delinquency. Another study considered problematic alcohol use and found that for females, maltreatment was directly associated with alcohol use which was, in turn, associated with arrests; however, for males, maltreatment was associated with problematic alcohol use indirectly through early aggressive behaviors (Widom et al., 2006). Two studies considered the role of drug and alcohol system involvement, with one finding positive associations with a number of different offending trajectories (Kolivoski et al., 2014). The second found that, although service support for substance abuse was not directly associated with juvenile justice involvement, it moderated the association between gender and race, i.e., justice involvement was more likely among white boys (Goodkind et al., 2012). However, when re-running their analyses on a reduced sample of youth who experienced OOHC placements, substance abuse service receipt was found to actually reduce the likelihood of justice involvement.

### *Other individual risk factors*

Three other individual factors were considered in a handful of studies (N = 6; 9.7%): low birth weight, marital status and health status. Low birth weight was either reported as being controlled for in multi-variate analyses but the results were not provided (Jonson-Reid et al., 2012; Mersky et al., 2012), or was not associated with offending outcomes (Mersky & Reynolds, 2007; Mersky & Topitzes, 2010). Similarly, no associations were found between health status and delinquency (Grogan-Kaylor et al., 2008). However, being married played a protective role in mitigating several criminal outcomes including convictions, incarceration, person and property crimes, and an overall measure of lifetime crimes (Jung et al., 2014).

### *Summary of the evidence for individual risk factors*

Overall, it was consistently found that, as age increased, the likelihood of offending also increased. Similarly, there were consistent findings that young people from minority or ethnic backgrounds were also at increased risk. Although there were some discrepancies in how education was considered or measured, education was found to be a consistently protective influence. Evidence relating to the role of mental health was generally less consistent, with risk varying depending upon the type of mental illness or gender. There

was consistent evidence that maltreatment was indirectly linked to offending behavior through behavioral problems and drug and alcohol use, although some variations were found depending on the type of behavior or specific outcomes considered. Externalizing behavior, taking the form of conduct disorders or which was influenced by ADHD, all tended to increase the risk of offending, although some variations were found depending on gender.

### ***Social factors***

The following subsections describe the evidence found for different social factors that have been considered in studies examining the maltreatment-offending association. Social factors considered include: socioeconomic status or family poverty, family structure and the characteristics of parents or caregivers, and peer relations.

#### *Socioeconomic status (SES) and family poverty*

Over half of the studies in this review included measures of SES, social class, family income or poverty in their analyses (N = 35; 56.5%), although a number of studies used these indicators to match maltreated and non-maltreated comparison groups only (e.g., see Schuck & Widom, 2005) or did not specify these variables' relative contribution to outcomes in multivariate analyses (e.g., see Smith et al., 2008). Others found that low SES, family poverty and welfare receipt were associated with increases in offending (Jonson-Reid, 2002; Lee et al., 2012; Mersky & Topitzes, 2010; Nikulina, Widom, & Czaja, 2011), whereas other studies found no associations (Bender et al., 2011; Grogan-Kaylor et al., 2008; Ireland et al., 2002; Leiter et al., 1994; Siegel & Williams, 2003; Smith et al., 2005; Swanston et al., 2003).

There was some evidence that the effects of SES or family poverty differed according to the type of crime committed. For example, Jung et al. (2014) found that although low SES was significantly associated with an overall measure of crime, incarceration and person-related crimes, it was not associated with a number of other types of crime (e.g., property crime and crimes against society). Indirect effects for SES indicators were also observed. Smith et al. (2013) found weak mediation effects for the association between maltreatment and arrest through school grade point average and earning a high school diploma, and family poverty was significantly and negatively associated with both of these measures.

### *Family structure and parent/caregiver characteristics*

A number of studies considered factors relating to the family structure (N = 15; 24.2%) or other factors relating to parent or caregiver characteristics (N = 24; 38.7%). Some of these studies included various familial characteristics (e.g., number of people in the household) as controls in multivariate analyses but did not explicitly describe their relative contribution in predicting outcomes (e.g., see Mersky et al., 2012; Thornberry et al., 2010). Verrecchia et al. (2010) used a family functioning risk index comprised of a range of factors (including marital conflict, domestic violence, parental drug or alcohol problems, and chaotic parenting) and found indirect effects on youth offending, although the relative importance of each of the risk factors cannot be determined through the use of such combined measures.

In terms of family structure, there was evidence that youth not residing with both biological parents were at increased risk for subsequent offending (Stouthamer-Loeber et al., 2001), in particular for those living in single-parent families (Mersky & Reynolds, 2007) and re-married settings (Zingraff et al., 1993). However, Leiter et al. (1994) found that maltreated children residing without any biological parents had a greater likelihood of engaging in delinquent behavior compared to those living in single-parent families. In other studies, no effect was found for family structure (Ireland et al., 2002; Swanston et al., 2003). Furthermore, significant findings emerged in studies exploring family instability. Females who experienced domestic violence and family dysfunction were at increased risk of arrest in both adolescence and adulthood, although when the model was restricted to African American girls only the association was rendered non-significant in adolescence (Siegel & Williams, 2003). Smith et al. (2005) observed a greater number of arrests and increases in late adolescent general offending for youth who experienced a higher succession of parental figures, although this effect did not extend into early adulthood. Parent or caregiver characteristics, such as their education level, employment status, and history of criminality, mental illness and substance abuse problems were commonly explored. Some studies found no effects for these factors (Bender et al., 2011; Ireland et al., 2002; Leiter et al., 1994; Mersky & Topitzes, 2010; Topitzes et al., 2012). However, there was some evidence that lower levels of parental education and unemployment increased the likelihood of youth offending (Smith et al., 2005; Stouthamer-Loeber et al., 2001), as did parental criminality (Widom & White, 1997). Finally, Widom et al. (2006) found direct effects for parental incarceration on violent arrests for females, but not for males; however, parental drug and alcohol problems were found to exert indirect effects

through problematic alcohol use for both females and males.

Stronger evidence was found in studies that examined the influence of aspects of parent- or caregiver-child relationships. For example, the likelihood of delinquency was reduced for young people who had positive relationships with, and were monitored by, their caregivers (Grogan-Kaylor et al., 2008) and for those with greater relatedness to their caregiver (Wall & Barth, 2005). Indirect associations for the role of disciplinary practices were also observed in three studies. First, Tyler et al. (2008) found that negative parenting increased the likelihood of delinquency through absconding behaviors for females, whereas positive parenting mitigated the relationship through greater school engagement for both males and females. Second, Wall and Barth (2005) found that youth who reported 'unharsh' discipline had better relationships with their caregivers and were at reduced risk for delinquency. Finally, in the study by Topitzes et al. (2011), the association between maltreatment and adult arrests among males was indirectly mediated by parent expectations of their child's school success through juvenile delinquency and high school graduation. Similarly, parent expectations in addition to parental involvement indirectly mediated the relationship through high school graduation for females.

#### *Peer relations*

Four out of five studies reported either direct or indirect effects for peer relationships, although the direction of these effects differed. For example, Grogan-Kaylor et al. (2008) found that youth reporting less satisfaction with, and higher levels of loneliness in, peer relationships were at decreased risk for delinquency. Another study found that delinquency was increased for those whose perception of classmate support was low (Taussig, 2002). Similar increases in delinquency were found among youth who experienced childhood abuse and who also had delinquent friends in adolescence, as well as for those who had friendships which were characterized by abusive behavior (Salzinger et al., 2007).

#### *Summary of social factors*

The evidence indicated that low socioeconomic status or family poverty were consistently associated with increased offending, although some variation was found depending on the type of crime considered. Similarly, there was some consistent evidence that non-traditional family structures and family dysfunction (e.g., domestic violence) were all associated with increased risks for offending. In terms of parental characteristics, it was

difficult to assess the consistency of evidence due to the different types of characteristics considered; however, there was some evidence that lower levels of education, unemployment and criminality were associated with increased offending. Furthermore, the relationships between parents and children emerged as influential in the maltreatment-offending association, especially due to their mediating or moderating effects. Similarly, there was some consistent evidence that relationships with peers influence the offending behavior of maltreated youth, although due to the different aspects of these relationships that were measured, it is difficult to pinpoint which aspects are most influential.

### *Contextual factors*

Contextual factors are discussed in this section and include factors such as neighborhood or community poverty, residential stability and ethnic heterogeneity. Contextual factors were considered in 16 studies (25.8%). The most common factor explored was neighborhood or community poverty (N = 13; 21.0%) but in several studies, the relative contribution of these variables were not clearly stated (Mersky et al., 2012; Smith et al., 2008; Thornberry et al., 2001; Thornberry et al., 2010). In other studies, no associations were found (Ireland et al., 2002; Mersky & Reynolds, 2007; Mersky & Topitzes, 2010; Tyler et al., 2008).

However, there was some evidence that neighborhood poverty was influential in predicting offending behavior, with Bright and Jonson-Reid (2008) finding associations with delinquency for males and females, Smith et al. (2005) finding associations with both general and violent offending, and Nikulina et al. (2011) finding associations with adult arrest. However, in the final study, when neighborhood poverty was added to a model with family poverty and neglect, only the latter two risk factors remained significantly associated with arrests, indicating their relative importance over neighborhood poverty.

The most comprehensive study using several contextual risk factors was undertaken by Schuck and Widom (2005). Although arrests were more prevalent for those from disadvantaged neighborhoods, residential stability only had marginal effects and in the opposite expected direction (greater residential stability was associated with an increase in arrests). Neither ethnic heterogeneity nor concentrated advantage accounted for any unique variance. Although childhood maltreatment remained a significant risk factor for later arrests despite controlling for these neighborhood characteristics, moderation analyses revealed that arrest rates were greater among maltreated victims from neighborhoods characterized by greater residential stability. When maltreatment was broken down



into subtypes, it was found that concentrated disadvantage increased the risk of arrest for victims of neglect, but decreased the risk for sexually-abused youth.

Verrecchia et al. (2010) examined a range of neighborhood risk factors, but these were combined to create a composite measure of community risk, thus the unique effects of these risk factors cannot be assessed. Nonetheless, it was found that greater community risk was indirectly associated with offending through behavioral and academic problems. It was also associated with neglect and neglect severity, and these risk factors also exerted direct effects on delinquency. Finally, Lemmon (2006) explored the influence of urban size on offense severity and concluded that risk was increased for those residing in smaller urban cities.

Although there were some consistent effects found the negative effects of neighborhood poverty, due to the small number of studies that considered contextual factors, as well as the different ways in which these were measured or conceptualized, it is difficult to form any firm conclusions about their overall role in the maltreatment-offending association.

### **3.2.6 Discussion**

Identifying factors that either mitigate or exacerbate risk is important for the development and implementation of effective prevention and early intervention strategies to prevent delinquency and offending in those who have experienced maltreatment. This systematic review is, to the best of our knowledge, the first of its kind and provides insight into the main findings of research conducted, to date, regarding the maltreatment-offending association. The included studies are among the most rigorously designed studies in the area, and reflect researchers' commitment to exploring and testing more complex models to clarify the nature of the maltreatment-offending link (Malvaso, Delfabbro, & Day, 2015). Nonetheless, this review illustrates the high level of variability that exists between studies, and inconsistencies in the range of variables considered and how these are measured. This not only hinders our ability to compare findings across different studies, but also reduces our ability to collate evidence about the contribution of different risk factors.

Despite differences in definition, measurement and the range of risk factors considered, this body of research does lend support to the idea that offending behavior is a consequence of the effects of a number of co-existing risk factors other than maltreatment, as well as interactions between the two. This is entirely consistent with ecological theory

and can be illustrated with reference to some of the more comprehensive studies included in this review. First, the study by Smith et al. (2005) is one of the most comprehensive analyses of the effects of maltreatment on offending because these researchers explore both the type and timing of maltreatment (along with several other risk factors), as well as three different outcomes (self-reported general and violent offending and officially recorded arrests) across two different time frames (late adolescence and early adulthood). Although adolescent maltreatment, neglect, and physical abuse were all significantly associated with several offending outcomes in both time periods, all other risk factors (with the exception of family poverty) were also related to several outcomes. These included gender, ethnicity, parental education, caregiver changes, and community poverty, with previous offending having the largest effects on all offending outcomes in both time periods. These findings indicate that risk factors span individual, social and contextual domains to influence the development of offending behavior.

Two other studies can be used to illustrate how maltreatment experiences interact with other risk factors to influence risk of offending. Topitzes et al. (2011) found that the maltreatment-offending association was fully mediated by educational and behavioral factors for males, but only partially mediated the relationship among females. This suggests that for males, and in part for females, maltreatment gives rise to a number of other risk factors which are then associated with offending. It is also likely that unmeasured factors explained the lack of full mediation in the female model, indicating that other untested experiences contribute to the maltreatment-offending association among females. The study by Schuck and Widom (2005) offers evidence for the moderating effects of a number of variables, with maltreated children from more disadvantaged but stable neighborhoods at increased risk for arrest, especially for those who had experienced neglect. Again, and consistent with ecological theory, the results from this study show how individual, family, and neighborhood factors interact with each other, rendering single variable explanations of crime incomplete. It is nonetheless important to consider what is known about the impact of these factors in order to identify areas to improve theoretical explanations and opportunities for intervention.

### *Taxonomic categories of maltreatment and care experiences*

When the 'Cycle of Violence' and other victim-to-victimizing conceptualizations were first proposed, it was commonly hypothesized that the type of abuse experienced by an individual would be mirrored in the type of offense subsequently committed. Although there is some support for this idea, overall, the evidence considered in this review suggests

that associations exist for all subtypes of maltreatment. Physical abuse, for example, was not the only maltreatment type found to be associated with violent offending, with neglect also emerging as an important risk factor (Mersky & Reynolds, 2007; Smith et al., 2005). Similarly, Widom and Ames (1994) found that sexual abuse did not uniquely predict sexual offending; instead, associations were found between physical abuse, sexual abuse and neglect. Although these findings should be interpreted with caution due to small numbers of sexually abused youth, they do challenge the commonly held belief that physically and sexually abused youth subsequently specialize in violent and sex crimes, respectively. These findings, along with the emergence of neglect as an important risk factor for subsequent offending, demonstrate that victim-to-victimizing hypotheses may actually encompass a broader ecological perspective in which the trauma and stress associated with any experience of maltreatment, regardless of type, may be consequential in the development of subsequent offending behavior (Grogan-Kaylor & Otis, 2003).

A methodological caveat to these findings, however, must be noted and relates to subgroup classification. It is common for children to experience multiple forms of maltreatment at the same time and it is therefore difficult to disentangle the unique effects of different types of abuse. Subtypes were often created using the most serious or commonly experienced type of abuse meaning that, for example, a youth classified as sexually abused may also have experienced neglect. These limitations may obscure the true effects of different abuse types on subsequent offending. Similarly, although there is consistent evidence that neglect leads to adverse effects, neglect is not a homogenous category. Rather, it can be broken down into distinct forms including educational, physical, and emotional neglect. Therefore, there is a need to develop more sophisticated ways of testing the contributions of different types of maltreatment to offending outcomes. Relatedly, few studies examined other factors associated with abuse type that might be influential (e.g., victim-perpetrator relationships), although, researchers are beginning to include these considerations in their analyses. For example, Ogloff et al. (2012) examined the association between sexual abuse and later offending, and also considered the number of perpetrators and whether the abuse involved penetration. Similarly, different types of abuse may have different effects at different ages and future research exploring these possibilities will be useful for further elucidating outcomes.

Inconsistencies in the definitions and classification of maltreatment severity, chronicity, frequency, and recurrence possibly contributed to the mixed evidence found for these dimensions of maltreatment on offending outcomes (Feiring et al., 2007). Clearly,

consistent and reliable measures need to be developed if findings across studies are to be compared. It is also possible that, as suggested by Smith and Thornberry (1995), maltreatment that comes to the attention of authorities is, by definition, of sufficient severity to be considered to increase the risk of subsequent delinquent or offending behavior. Therefore, further exploration of these constructs, as well as the use of consistent approaches to classification is warranted. Besides discrepancies in definition and measurement, there may be other explanations for the inconsistent findings. For example, it is possible that the cumulative effects of maltreatment are linked with poorer outcomes because these individuals have been exposed to adverse situations for longer periods of time. On the other hand, it is possible that those who have experienced cumulative harm are more likely to come to the attention of authorities and are therefore more likely to receive interventions or services that can help to mitigate their risk for further adverse outcomes.

In terms of the timing of maltreatment, Thornberry, Smith, Ireland and colleagues provide convincing evidence (across several studies) that the adverse effects of maltreatment are most pronounced when it either commences or continues into adolescence. Several explanations have been advanced to account for the more pervasive effects of adolescent maltreatment, including: the effects of childhood maltreatment diminishes over time; child protection involvement or service provision curtail longer term effects; recency effects (i.e., outcomes are more strongly linked to proximal maltreatment experiences); and adolescence as a particularly vulnerable developmental period in which adjustment is intensified by puberty and increasingly complex relationships (Mersky et al., 2012; Smith et al., 2005; Thornberry et al., 2001; Thornberry et al., 2010). However, the only known study to attempt replication of these findings in a different sample produced less salient evidence, and as suggested by the title of their article, maltreatment appears to be “unsafe at any age” (Mersky et al., 2012). Another issue with the timing of maltreatment is that we often do not truly know the age of onset of maltreatment; rather, we assume this information based on the age at first allegation, contact with the child protection system or substantiation of abuse. With this in mind, it is not necessarily true then that the first allegation of maltreatment is akin to the age of onset of maltreatment. Therefore, although there may be some evidence that maltreatment commencing in adolescence has more adverse effects, the age of onset of maltreatment may have been sooner and needs to be distinguished from age at first allegation or substantiation. It is clear then that further exploration is necessary, and it will also be important to examine

how the timing of maltreatment interacts with other taxonomic categories beyond type by extending analyses to include interactions with severity and chronicity.

There is some strong evidence that certain placement profiles exacerbate the risk of offending for certain young people in out-of-home care (OOHC), the most pervasive of which include older age at time of placement, particular placement types and placement instability. However, what is less clear is the order or timing of these different risk factors and how they interact with other adverse experiences or behaviors. For example, there has been a lot of contention in recent literature that the emergence of delinquent behavior is not a result of placement in OOHC per se; instead, it is the stability of these placements that exacerbates pre-existing behavioral problems (Cashmore, 2011; Malvaso & Delfabbro, 2015). This argument is also applicable to discussions concerning the impact of placement type; that is, is offending behavior more prevalent in congregate or group home settings because young people with more problematic or disruptive behaviors are more likely to enter such care arrangements or does the type of placement serve to intensify problems that existed prior to the young person entering placements? Indeed, there is evidence to suggest that young people placed in care due to behavior problems are more likely to experience group home placements (DeGue & Widom, 2009) and are more likely to offend than individuals placed in care for other reasons (e.g., Vinnerljung & Sallnäs, 2008). However, there is also some evidence that placement instability precedes delinquency (Goodkind et al., 2012; Ryan & Testa, 2005). One of the main issues pertinent in both of these studies, however, is their reliance on official records of delinquency. Although it was found that instability preceded delinquency, it is possible that these young people displayed earlier problematic behavioral patterns that had not yet reached the threshold for juvenile justice involvement but still contributed to their experience of placement instability (e.g., conduct problems). However, DeGue and Widom (2009) found that the effects of placement instability extended into adulthood, with a greater number of placement moves associated with adult arrest even after controlling for early behavioral problems and arrests as juveniles.

In terms of the inconsistent evidence found for placement length or duration, two possible explanations can be advanced. Young people who have stayed in placements for extended periods of time may have come into the system at a younger age. It has been found that those who enter the system at a younger age typically enter due to abuse, whereas older children typically enter care due to behavioral issues (Malvaso & Delfabbro, 2015). Therefore, it is plausible that young people who have been in care for longer

periods of time were the subjects of early intervention which serves as a protective factor. On the other hand, because young people who come into care early have typically been the subjects of severe mistreatment, it is possible that they are at increased risk for adverse outcomes, especially if their time in care was also associated with instability or placement in residential or congregate care. Both of these factors that have also been found to increase the risk of offending.

### ***Other individual, social and contextual factors***

There was a lot of variation in the range of individual, social and contextual factors considered by the authors of the included studies. In terms of individual risk factors, there appears to be some fairly robust evidence for the effects of age of onset (i.e., older youth are more likely to offend) and ethnicity (i.e., individuals from minority ethnic backgrounds are more likely to offend). In relation to age of onset, findings are consistent with criminological literature that suggests offending is generally higher during adolescence (Cusick & Courtney, 2007). However, what appears to be lacking in the studies is a deeper examination of differences between maltreated and non-maltreated youth in terms of age of commencing their criminal careers. Only one study appeared to explore this idea in greater detail (although some findings were at the bivariate level). Rivera and Widom (1990) showed that maltreated children experienced their first arrest at earlier ages than controls, with violent offenders commencing their delinquent careers at an earlier age than non-violent offenders. These findings are important when interpreted in conjunction with literature that suggests young offenders are at greater risk for entering the adult correctional system and engaging in more serious and violent crimes (Burns et al., 2003; Maxfield et al., 2000). Rivera and Widom (1990) also found that age at first arrest was significantly associated with higher numbers of both overall offenses and violent offenses. Similarly, it was not a surprising finding that youth from ethnic minority backgrounds were more likely to offend; however, it was interesting that Smith et al. (2005) found that Hispanic and African American youth were more likely to be arrested according to official records but not self-reported outcomes. Indeed, the majority of the included studies used official records to measure offending outcomes. This points to possible biases associated with official records – minority status youth are known to be over-represented in official records of both maltreatment and crime—and this may at least in part be responsible for the strong associations found.

There appeared to be a lot of variation in evidence for other risk factors, and this

might be in part due to inconsistencies in the ways in which constructs were measured. Nonetheless, taken together these studies are beginning to shape evidence for a number of intervening factors that might help to explain the maltreatment-offending association. For example, there appears to be some evidence for the protective role of education and positive parenting practices in mitigating the risk for offending. On the other hand, mental illness, and both family and neighborhood poverty appear to exacerbate risk. However, there are a number of factors that are known to be associated with offending that appeared relatively infrequently in these studies. For example, the number of studies that considered conduct, drug and alcohol problems, and contextual factors in general were relatively few, indicating that further research is needed to elucidate the effects of these factors in the maltreatment-offending association. Nonetheless, the studies indicate the overall need to continue to explore beyond individual risk factors, and to not only consider factors from social and contextual domains, but to consider how aspects from each of these domains interact and combine to mitigate or exacerbate risk. This is important for the development and implementation of interventions designed to reduce offending.

#### ***Applying a conceptual model to explain the maltreatment-offending association***

The use of an ecological framework has enabled the identification of risk and protective factors that occur at different levels of a person's ecology; however, it has also demonstrated that, based on the large number of studies included in this review, the literature appears to be no closer to understanding whether particular risk or protective factors (or combinations of factors) over others are more or less influential in the maltreatment-offending association. Although ecological theory has been useful for organizing the evidence on this topic, it would be more helpful to apply a specific conceptual framework to better explain how different maltreatment experiences, along with other individual, social and contextual risk factors, interact and ultimately lead to offending behavior. The obvious starting point would be to draw on psychological or criminological theories of maltreatment and offending.

As suggested by Casey (2011), many psychological and criminological theories are static and leave unanswered some important questions about the varying patterns of criminal behavior. For example, what differentiates young people who never commit a crime from those who desist at an early age or those who continue into adulthood? Rather than documenting between-individual variations (e.g., why poor people commit more crimes than wealthy people), developmental and life-course (DLC) theories of crime

incorporate aspects of ecological theory and seek to explain individual differences in criminal behavior (e.g., why most poor people do not commit crimes while some do). Similar to ecological theory, the DLC perspective postulates that human development is multiply determined by interconnections between different levels of a person's ecology, e.g., the individual, biological and psychological level, the social, familial and peer groups level, and the contextual or socio-cultural level. The critical stance of DLC theories is that the basis of human development occurs as a function of the relationship between each level, rather than any individual level in isolation. Therefore, instances of change at any given level will result in changes across the other levels.

Developmental and life-course theories have also been used to explain adverse outcomes experienced by maltreated youth (e.g., Cicchetti & Toth, 1995) and, specifically, the criminal outcomes of maltreated youth (Agnew, 1992). However, the developmental approach differs from the life-course perspective on one important feature. The developmental approach asserts that development is age-graded and hierarchical in nature and suggests that maltreatment occurring in the earliest stages of development is more consequential because it inhibits subsequent age-appropriate development (Ireland et al., 2002). The life course approach places more emphasis on variable and exogenous influences over time and how proximal events may be more consequential than distal experiences. Although life-course theories still recognize the effects of childhood experiences, they assert that adolescent and adult events may be more consequential in the development of criminal behavior. Indeed, some evidence for these theories has been found in this review, i.e., studies considering the timing of maltreatment.

Overall, what these dynamic perspectives demonstrate is that criminal behavior is too heterogeneous to be explained by any one theory or any one set of risk or protective factors. This might help to explain why, in terms of the maltreatment-offending association, there is not a lot of consistency in the evidence for particular risk factors and how, why and when these factors influence outcomes. The difficulty in synthesizing this heterogeneous literature lies in the multi-level and nested nature of the risk factors and their association with later offending, that is, most of the risk factors identified are often part of a constellation of risks that are difficult to examine separately. However, that is not to say that attempting to understand these risk factors is redundant considering that their influence may vary depending upon individual experience and the critical developmental periods at which they are present, but our understanding of the maltreatment-offending phenomenon might be better informed by more detailed explorations of the transactions



between the individual, social and contextual levels that can mediate behavioral pathways. This could also help to shed light on the conundrum that although most maltreated children are not destined to become offenders, a high proportion of offenders have histories of maltreatment.

A specific example of how a DLC framework might guide future research in this area can be demonstrated based on the studies featured in this review. DLC theories emphasize the role of individual and psychological processes, but also how social and environmental contexts might contribute to these psychological processes. However, it is apparent that the studies included in this review have not considered this aspect of maltreatment experiences in depth. For example, acknowledging that youth are active agents in their own development is critical to understanding how an individual's subjective perception of their maltreatment experiences might differ from the objective event itself (Newberger & De Vos, 1988). The vast majority of the studies included in this review examined criminal outcomes as a function of the properties of the objective maltreatment experience alone (e.g., type or timing of abuse). Such analyses are limited to the surface features of maltreatment experiences and, therefore, the ability to consistently predict behavior is also limited because individual interpretations of maltreatment experiences are not taken into consideration. Only one study included in this review considered maltreated youths' interpretation of their experiences in their analyses (Feiring et al., 2007). The implications of including these perspectives into research is to not only predict behavior that would otherwise not have been foreseeable, but to also develop treatment programs that are aimed at addressing distorted thought patterns that arise from these experiences.

At the same time and as emphasized by DLC theories, for such interventions to be successful, the focus cannot only be on individual psychological and cognitive beliefs. Social and environmental contexts both play a role in contributing to these psychological processes and can influence both the continuation of maladaptive thoughts and behavior, as well as supporting more adaptive processes (e.g., coping strategies). For example, the study by Feiring et al. (2007) demonstrated how abuse-specific shame and self-blame attributions led to subsequent delinquency through anger and affiliations with deviant peers. It illustrates how individual processes, such as internalizing symptoms (shame and self-blame) and externalizing behavior (anger), can be reinforced by social relationships (association with deviant peers). Similarly, a responsive environment may be able to promote a young person's ability to deal with their maltreatment experiences (e.g., through positive parenting; Tyler et al., 2008). Therefore, interventions that not only take into

account the multiple determinants of criminal behavior but also acknowledge that the determinants will be different for each individual might hold more promise for treatment.

An example of an intervention, which is consistent with an ecological conceptualization of behavior, is multisystemic therapy (MST; Henggeler, Melton, Brondino, Scherer, & Hanley, 1997). There is empirical evidence for the success of MST in reducing antisocial behavior because it is both comprehensive and individualized (Henggeler et al., 1997). For example, both physical abuse and offending behavior has been linked to the characteristics of the child (e.g., behavioral problems), the parent (e.g., substance abuse), the family (e.g., poor social support) and the broader context (e.g., neighborhood poverty). The success of MST has been attributed to the fact that it aims to address risk factors from these multiple domains (as identified by DLC and ecological theories), but also to the fact that the provision of services takes place in the individual's natural ecology (at home, at school and in the community). For maltreated youth presenting with antisocial behavior, MST may be a viable alternative to out-of-home care placements by helping youth stay with their families through the provision of intensive support (Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010). This is because MST is individually tailored to ameliorate several key ecological factors, rather than solely focusing on the individual's behavior problems. Borduin et al. (1995) found that the success of MST was due not only to the fact that juvenile offenders were able to receive a mental health service that might have otherwise been inaccessible, but also because it led to change across other key systems that have been linked with antisocial behavior. In this study, MST was found to reduce parent symptomatology and to empower family members through support and skill building. In other studies, MST has also been found to improve peer relations (e.g., Henggeler, Melton, & Smith, 1992). Taken together, these studies demonstrate that by applying a multifaceted approach to assessment and treatment and tailoring the intervention to meet the needs of the individual and his or her family, interventions such as MST can successfully reduce offending behavior.

### **3.2.7 Conclusion**

The most important insight gained from this review is that, as consistent with ecological theory, child maltreatment does not occur in isolation. There are a multitude of factors that contribute to the maltreatment-offending association, from variations in maltreatment experiences and individual differences in behavior, to relationships with

family, caregivers and peers, and finally to the broader neighborhoods and communities in which youth reside. However, a critical issue is that because the relationship between maltreatment and offending is heterogeneous it is difficult to apply any one conceptual framework or theory to sufficiently explain the phenomenon. The developmental and life-course perspective does offer a comprehensive and dynamic explanation and might be especially useful for guiding and developing interventions, such as multisystemic therapy, because it acknowledges the variability and individuality in human development. Unfortunately, the interface between theory and practice is not always straightforward nor is it adequate. Greater effort must be made to disseminate and translate information from the academic realm to inform both practice and policy initiatives in order to improve outcomes for victims of maltreatment.

### 3.2.8 Online supplementary material

Table 3.4. *A Detailed Description of the Included Studies' Main Findings, Sample Size, Measure of Offending, Utilization of Comparison Groups and Control Variables*

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Widom & Massey (2015)	1575	OR, A	Y	4	Mixed	CPA and neglect was associated with increased arrest rates for sex offenses among males (not females); however, no significant associations were found between CSA and the outcome.
Jung et al. (2014)	356	SR, A	Y	6	Mixed	Maltreatment was not related to arrests, convictions, incarceration, property and person crimes, crimes over past year and crimes ever; however, was associated with crimes against society. Male gender, SES, marital status, minority race significantly associated with various offending outcomes.
Kolivoski et al. (2014)	794	OR, J	N	5	Mixed	Placement factors differed according to five juvenile detention involvement groups, e.g., congregate care only significant in the chronically involved group. Other factors associated with offending included drug and alcohol system and mental health system involvement, gender and race.
Goodkind et al. (2013)	17,471	OR, J	N	5	Mixed	Out-of-home care was associated with juvenile justice for full sample, along with gender, race, mental health services and interactions with gender, race and substance abuse services. For the placement sample only, all placement factors associated with

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Smith et al. (2013)	846	OR, SR, A	Y	4	Increased offending, mediating effects	offending, however, interactions were also found, e.g., congregate care predicted juvenile justice for girls and white youth. Maltreatment was significantly associated with criminal and violent behaviours, however, its impact on official arrest and self-reported general and violent crime was weakly mediated (reduced) by education variables.
Jonson-Reid et al. (2012)	5994	OR, J	Y	0	Increased offending	Chronicity associated with increased delinquency petitions at bivariate level only, and was not examined at multivariate level.
Lee et al. (2012)	971	OR, SR, J, A	Y	2	Mixed	Maltreatment predicted violence in adolescence, but not in adulthood. Low SES and minority racial status also predicted violence, in both adolescence and adulthood.
Mersky et al. (2012)	1539	OR, SR, J, A	Y	9	Increased offending	Maltreatment increased risk for overall delinquency, and violent, drug and property offending. Timing of maltreatment varied, with strong associations between childhood and adolescent maltreatment and juvenile offending, and strong associations with childhood maltreatment and adult crime, but weaker effects for adolescent maltreatment on adult crime.
Ogloff et al. (2012)	5436	OR, A	Y	2	Increased offending	CSA victims were more likely to have recorded offences and charged offences than control subjects matched on age and gender. True for both males and females, although associations were stronger for females when considering charges for threatening violence and assault. Sexual and violent offences were more strongly associated with CSA male victims.

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Ryan (2012)	5528	OR, J, A	N	2	Mixed	Evidence for association between some placement factors and arrest (e.g., reason, number and type of placement) but not for others (e.g., age at time of placement, length of placement). Male gender and minority race also associated with arrest.
Topitzes et al. (2012)	1451	OR, J, A	Y	4	Increased offending, mediating effects	In main effect analyses, maltreatment (0-11) was associated with all indicators of juvenile/adult violence for the full sample and most outcomes in the male and female subsamples. However, the relationship between maltreatment and violence was fully mediated by other factors for males, and partially mediated by other factors for females.
Yampolskaya & Chung (2012)	5720	OR, J	N	9	Mixed	Type of maltreatment was not associated with juvenile justice involvement; however, the number of placements experienced was positively associated with offending. In addition, several mental health disorders, male gender, age, and African American background were positively associated with offending. The strongest predictor overall was conduct disorder.
Bender et al. (2011)	1179	SR, J	N	9	Not significant	Risk of maltreatment did not significantly affect youths' changes in delinquency over time. Found no mediating effects for depressive and PTSD symptoms of change in delinquency over time.
Nikulina et al. (2011)	1004	OR, A	Y	6	Increased offending	Neglect was a unique predictor of adult arrest; however, family poverty was also predictive of arrest in this model.

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Topitzes et al. (2011)	1539	OR, J, A	Y	3	Mixed, mediating effects	Although maltreatment significantly predicted delinquency for males but not females, it significantly predicted adult arrest conviction for both genders. However, the relationship between maltreatment and adult arrest was fully explained by other factors for males, and partially mediated by other factors for females.
Yampolskaya et al. (2011)	13212	OR, J	N	3	Mixed	CSA, but not other maltreatment types, and maltreatment chronicity, not severity, were associated with placement in a detention centre. Only maltreatment chronicity, but not severity or type, was associated with placement in a juvenile justice facility. Male gender, age at first maltreatment report, and minority racial status were all positively associated with both placement in juvenile justice detention centres and facilities.
Baskin & Sommers (2010)	2429	OR, J	Y	3	Mixed	Type of maltreatment showed mixed results, e.g., CPA was positively associated with violent and non-violent arrests, but not total arrests, CSA was negatively associated with total and violent arrests, and neglect with violent arrests only. Group home placement was associated with total and non-violent arrests, while foster family placement was associated with non-violent arrests only. Strongest predictors were placement instability, length and age at time of placement. Youth who were older at placement, who stayed in the system longer and who had at least one placement change were more likely to be arrested for violent and non-violent crimes as well as to

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
						be charged for their crimes. No gender associations; however, white youth were more likely to be arrested than black youth.
Mersky & Topitzes (2010)	1539	OR, A	Y	10	Increased offending	Unique associations between maltreatment and incarceration found, as well as a negative association between female gender and incarceration and a positive association with family welfare receipt.
Postlethwait et al. (2010)	1134	SR, J	N	5	No maltreatment variables tested.	Depression and harsh discipline increased the probability of delinquency for females. For males, higher levels of substance abuse were associated with decreases in delinquency.
Ryan et al. (2010)	13396	OR, J	N	2	Mixed	CSA and neglect were associated with reduced delinquency among females. No effects for maltreatment types were found for males. Delinquency was increased for females with 4+ placements and for males with 3+ placements. Staying in the system longer and experiencing group home placement increased the risk of delinquency for both genders. Males and African Americans who experienced kin placements were at increased risk for delinquency, whereas a decreased risk of delinquency was found for Hispanic males and females in kinship care. Strongest predictor overall for delinquency among males and females was entering care after age 11.
Thornberry et al. (2010)	907	OR, SR, A	Y	19	Mixed	Adolescent maltreatment increased the risk for official arrest/incarceration and self-reported general and violent offending



Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
						in early adulthood, whereas childhood-limited maltreatment was not associated with these outcomes.
Verrecchia et al. (2010)	632	OR, J	N	3	Increased offending	Supervisory neglect and the severity of the neglect were associated with delinquency. However, it was found that other behavioural and academic risk factors partially mediated the neglect-delinquency association. Furthermore, a range of other familial and contextual factors were associated with delinquency through these behavioural and academic factors.
DeGue & Widom (2009)	772	OR, J, A	N	1	Mixed	Compared to no placement, OHC placement was weakly but positively related to adult criminality. Placement instability and prior delinquency were significantly associated with increases in adult criminality. Gender differences were also found, with males more likely to experience arrest than females. No gender interactions were found in explaining combined juvenile and adult arrests, but males who experienced placement due to delinquency and abuse/neglect were more likely to be arrested as an adult only, and females who were placed due to abuse/neglect only were less likely to be arrested as an adult. Furthermore, interactions were found between gender and placement type.
Bright & Jonson-Reid (2008)	3473	OR, J	Y	5	Increased offending,	Maltreatment and poverty are better predictors of delinquency than maltreatment alone; however, gender differences were observed. Non-white youth and youth with emotional disturbances were at

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
					moderating effects	increased risk for delinquency in both male and female models. When examining status petitions only, non-white males and both males and females with learning disabilities were at increased risk. Furthermore, higher income decreased the risk of status offenses among males. In maltreatment subsamples, gender differences were again observed and interactions were found with maltreatment substantiation status, number of reports and types of welfare services.
Doyle (2008)	23000	OR, A	N	3	Increased offending	Children placed in foster care were at greater risk for arrest, conviction and incarceration than children who remained at home.
Grogan-Kaylor et al. (2008)	1180	SR, J	N	14	Mixed	CPA, but not CSA or neglect, was associated with delinquency. No significant effects were found for either in-home or out-of-home care services. However, a number of other risk factors predicted delinquency, including older age, male gender, receipt of child welfare services, decreased parental monitoring, poorer parental-youth and peer relationships, and youth trauma and psychopathology.
Ryan et al. (2008)	5238	OR, J	N	2	Mixed	The strongest predictors of delinquency were experiencing group home placement and placement changes due to running away behaviours, being male and of a minority racial status. Being placed in care due to CPA (compared with CSA, emotional abuse and neglect) and remaining in care for longer periods of time also increased the risk for delinquency.

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Smith et al. (2008)	1000	OR, SR, J, A	Y	7	Increased offending	Maltreatment associated with increases in official arrest records, as well as self-reported general and violent offending in early adulthood.
Stewart et al. (2008)	5849	OR, J	N	0	Mixed	Compared to children whose maltreatment was limited to their childhood years, those with maltreatment trajectories that began or continued into adolescence were more likely to offend as juveniles.
Tyler et al. (2008)	360	SR, J	N	3	Increased offending, indirect effects	Although both direct and indirect (through school engagement) were found for neglect on juvenile delinquency for males, neglect was only indirectly associated with delinquency for females through school engagement. Positive parenting was also indirectly associated with delinquency through school engagement for both males and females, and running away for females. CPA and CSA were unrelated to delinquency.
Vinnerljung & Sallnas (2008)	700	OR, A	N	2	Increased offending	Although unique effects were found for maltreatment on early adult crime, male gender was the strongest predictor. Additionally, although positive effects were found for placement breakdown, age at placement and secure care placement, being placed in care due to behavioural problems was also associated with crime.
Feiring et al. (2007)	160	SR, J	N	1	No maltreatment variables tested.	Among victims of CSA only, stigmatisation and internalizing symptoms were related to delinquency through anger and affiliation with deviant peers. Anger also exerted direct effects on delinquency.

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Mersky & Reynolds (2007)	1539	OR, J, A	Y	11	Mixed	Maltreated children were more likely than non-maltreated children to commit violent offenses; however, they were not more likely to commit nonviolent offenses. Both CPA and neglect were associated with increases in violent and nonviolent offenses. Maltreatment was a more consistent predictor of both violent and non-violent offenses among males, but associations were also found for females. Moderation effects were also found between maltreatment and public assistant receipt; maltreated children from families receiving assistance were more likely to have violent petitions than maltreated children from less disadvantaged families.
Salzinger et al. (2007)	200	SR, J	Y	7	Increased offending, mediating and moderating effects	The relationship between CPA and violent delinquency was mediated by adolescent attachment to parents and verbal and physical abuse in relationships with parents. Interactions between CPA, delinquency of friends and abusive relationships with best friends moderated the CPA-delinquency relationship. Male gender was also found to be a risk factor for later delinquency.
Lemmon (2006)	632	OR, J	Y	2	Mixed	Maltreatment recurrence was significantly associated with youth's initiation, continuation and severity of delinquency. However, in the subsample of maltreated youth only, placement in out-of-home care reduced the effects of maltreatment recurrence on chronic and violent offending.
Widom et al. (2006)	1196	OR, J, A	Y	4	Mixed	Although direct effects of maltreatment on violence was found for men, results showed that a number of factors contribute to the

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
						maltreatment-violence associations for both men and women. Influential factors included problematic alcohol use and aggressive behaviour. Furthermore, other risk factors, such as minority racial status, parental criminality and drug use, and low SES, also contribute to the development of violent behaviour, regardless of maltreatment.
Ryan & Testa (2005)	4085-18676	OR, J	N	1	Mixed	For both males and females, type of abuse is not related to delinquency; however, being older at time of maltreatment, minority racial status, and experiencing recurrent maltreatment increased the risk of delinquency. When examining a subsample of placed youth only, a number of risk factors were identified for males (older age at time placement, African American background increasing risk, placement instability); however, only maltreatment recurrence increased the risk for placed females. Furthermore, male victims of CPA were less likely to have a delinquency petition.
Schuck & Widom (2005)		OR, J, A	Y	3	Increased offending, moderating effects	The association between childhood maltreatment and offending was moderated by neighbourhood disadvantage and stability. No gender and racial interactions were found.
Smith et al. (2005)		OR, SR, J, A	Y	8	Mixed	Maltreatment in adolescence increased the odds for official arrest, and self-reported general and violent offending in both late adolescence and early adulthood. Various other risk factors, including race, gender, and community poverty contributed to

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
						offending outcomes. The strongest predictor, however, was previous offending. CPA was associated with violent offending in both late adolescence and early adulthood, CSA was associated with general offending in early adulthood only, and neglect was associated with arrest in both adolescence and adulthood, and general and violent offending in adolescence.
Wall & Barth, (2005)	739	SR, J	N	10	No significant effects	Older age, female gender, below-average social skills, and a low sense of caregiver relatedness were associated with increased delinquency. Maltreatment type was not significant and also did not differ significantly by gender. An interaction between discipline and caregiver relatedness was found; unharsh discipline and better relatedness to their caregivers was associated with decreased delinquency.
Grogan-Kaylor & Otis (2003)	1575	OR, J, A	Y	4	Mixed	Although neglect was associated with increased adult arrests, CPA, CSA, and being removed from home were not significant predictors. Children involved with Child Protective Services for “other” reasons (e.g., guardian was unable to care for the child for medical, mental health, financial and incarceration reasons) were also had increased arrest rates. Child’s age, race and gender were also associated with arrests.
Siegel & Williams (2003)	206	OR, J, A	Y	2	Mixed	Bivariate associations found that victims of CSA were more likely than matched controls to engage in violent and runaway offenses, but not property or drug offenses as juveniles. Maltreated youth and

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
						controls did not differ in general juvenile arrest rates. CSA victims were more likely to be arrested as adults, and had significantly greater arrest rates for violent and drug offenses. Multivariate analyses showed that CSA still uniquely predicted juvenile arrests for violent offenses and any arrest in adulthood; however, race was the strongest predictor for juvenile violent offending. Dependency hearings (a proxy for family violence) also increased the risk of juvenile and adult offending.
Swanston et al. (2003)	106	SR, OR, J	Y	4	Mixed	CSA uniquely predicted self-reported juvenile criminal behaviour but not official records of convictions. Gender, SES, age and family structure were unrelated to either offending measure.
Ireland et al. (2002)	1000	SR, OR, J, A	Y	6	Mixed	Childhood-only maltreatment was not related to any measure of delinquency with the exception of self-reported violent crime; however, persistent and adolescence-only maltreatment were associated with increases in several measures of delinquency and was thus a more consistent predictor of delinquency. Male gender and minority race were also associated with offending outcomes.
Jonson-Reid (2002)	36653	OR, J	N	3	Mixed	There was evidence for some maltreatment and placement factors increasing risk of juvenile corrections involvement (e.g., older age at time of maltreatment, entering care) but not others (e.g., maltreatment type, substantiation and number of reports). Decreased risk was found for victims whose parents were the perpetrators. The highest risk was found for children entering foster care for reasons

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Stouthamer-Loeber et al. (2002)	503	OR, J	Y	20	Increased offending, moderating effects	other than abuse/neglect. Interactions were found: non-white girls were less likely to offend and white children receiving in-home services or foster care were more likely to offend. A subsample of youth receiving services was examined; victims of CSA and non-White children whose parents were perpetrators were at decreased risk, but girls receiving mental health services were at increased risk. Maltreatment has unique effects on persistent serious delinquency; however, not living with biological parents and caretaker unemployment also increased delinquency risk. When interactions were considered, maltreatment no longer had a unique effect on delinquency, but a significant interaction was found between maltreatment and not living with biological parents.
Taussig (2002)	214	SR, J	N	17	Mixed	CPA, but not CSA or neglect, was associated with increased delinquency. Low perceived classmate support and poorer behavioural conduct was associated with increased in delinquency, and social acceptance was associated with decreased delinquency.
Stouthamer-Loeber et al. (2001)	506	OR, SR, J	Y	3	Mixed	Three delinquency pathways were examined: authority conflict, overt and covert pathway. Compared to controls, maltreated youth were more likely to display behaviours characteristics of the first two pathways. Maltreated youth were also more likely to have increased petition for property offenses but not violent offenses.
Thornberry et al. (2001)	738	SR, J	Y	6	Mixed	Late childhood-only and adolescence-only, but not early childhood-only and persistent maltreatment, were associated with increases in



Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Jonson-Reid & Barth (2000)	2268- 18229	OR, J	N	2	Mixed, moderating effects	general delinquency in early adolescence. In late adolescence, adolescence-only and persistent maltreatment were associated with increased delinquency. CPA was found to increase delinquency for victims of both childhood-only and any adolescent maltreatment, and neglect increased delinquency for victims of child-only maltreatment in early adolescence. CPA and neglect were only associated with delinquency in late adolescence for victims of adolescent maltreatment. CSA has no significant effect at either outcome stage. Adolescent incarceration was predicted by CPA, neglect (not CSA), placement at age 12-15, multiple placements and spells in care, and placement experiences supervised by probation. When maltreatment type was considered with number of spells in care, the effect of maltreatment type disappeared. Interactions were found between type of care experienced, gender and race.
Widom & White (1997)	1190	OR, J, A	Y	5	Mixed	Abuse/neglect was significantly associated with non-violent arrests for males, and non-violent, violent and overall arrests for females. Being white reduced the risk of arrest for both males and females. Parental drug/alcohol use, welfare receipt and arrest was not associated with any arrest outcome, with the exception of welfare receipt for non-violent arrests among males.
Maxfield & Widom (1996)	1575	OR, J, A	Y	4	Mixed	Being male, older, African American, and experiencing CPA and neglect (but not CSA) were associated with increased arrests for violent crime (juvenile or adult).

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Weiler & Widom (1996)	1141	OR, SR, J, A	Y	5	No significant findings	Although child maltreatment significantly predicted both official and self-reported measures of violence, after introducing a measure of psychopathy, maltreatment status was no longer significant. Victims of maltreatment were also more likely to score higher on the measure of psychopathy compared to the control group, and in turn psychopathy predicted violence.
Smith & Thornberry (1995)	1000	OR, SR, J, A	Y	5	Mixed	Maltreatment was significantly associated with official records of delinquency; however, maltreatment was only significant in predicting moderate and violent self-reported delinquency (but not serious, general or minor delinquency). Indicates that maltreatment exerts an influence on more serious forms of delinquency only.
Ireland & Widom (1994)	1575	OR, J, A	Y	4	Mixed	Childhood maltreatment was significantly associated with adult, but not juvenile, arrests for drug and alcohol related offenses (although maltreatment was associated with general juvenile delinquency). Only male gender predicted juvenile drug/alcohol arrests. Although male gender, older age, minority racial status and lower SES were all associated with increased general juvenile delinquency, only age and gender exerted significant influences on adult drug/alcohol arrests. An indirect path from maltreatment, juvenile arrests and adult drug/alcohol arrests was observed. For gender and race specific analyses, maltreatment was associated with increased drug/alcohol arrests in adulthood for females but not for males, and for white but not black individuals.

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Widom & Ames (1994)	1575	OR, J, A	Y	4	Mixed	CSA, compared to CPA or neglect, was not a unique predictor of juvenile delinquency or adult criminality. All three types of maltreatment were associated with increased risk of arrest for sex crimes in adulthood; however, victims of CSA and neglect were more likely to be arrested for prostitution while CPA victims were more likely to be arrested for rape or sodomy.
Leiter et al. (1994)	2896	OR, J	Y	8	Mixed	Children with substantiated reports of maltreatment were more likely to have delinquency petitions, but children with unsubstantiated maltreatment did not differ on the outcome compared to a control group of school children. However, when compared to a control group of poor children, substantiation status did not predict delinquency outcomes, but children with unsubstantiated reports of maltreatment were more likely to have delinquency petitions compared to controls. Male gender, great number of maltreatment reports, older age at first report, living in a home with no biological parents, but not race, family size or poverty, also increased the risk for delinquency.
Zingraff et al. (1993)	2886	OR, J	Y	4	Mixed	Maltreated children, compared to a sample of school children, were at increased risk for general and status offenses but not property of violent offenses. When compared to a sample of poor children, maltreatment predicted status offenses only. Controls for age, gender, race and family structure has varying effects in the different

Author (date)	Sample size	Offending detail	Comparison group	Controls (N)	Effect for maltreatment?	Main findings
Widom (1991)	772	OR, J, A	N	6	Mixed	models, but overall accounted for the direct influence of maltreatment on offending for most types of crime. Placement in out-of-home care itself was not a risk factor for delinquency or adult criminality; however, child placed due to abuse/neglect and delinquency (compared to children with no placements and those placed due to abuse/neglect only), and those who experienced a mixture of foster care and other placements (compared to those not placed or placed in foster care only), were at increased risk. The risk of arrest increased with age at time of placement and number of placement moves, and decreased with duration of placement.
Rivera & Widom (1990)	1575	OR, J, A	Y	4	Increased offending	Maltreated youth, as well as males and black youth, were at increased risk for violent offending. Maltreated youth began their delinquent careers earlier, however, were no different from controls in regards to age of arrest for first violent arrest or continuity of offending.
Widom (1989)	1575	OR, J, A	Y	4	Mixed	Maltreated youth were at increased risk for adult criminality and violence compared to matched controls; however, the two groups did not differ for adult arrests of child maltreatment.
Runyan & Gould (1985)	220	OR, J	N	6	No significant findings	Placement in foster care was not significantly associated with juvenile delinquency.

*Note.* CPA – child physical abuse. CSA – child sexual abuse. CEA – child emotional abuse. OHC – out-of-home care. SES – socioeconomic status. OR – official records. SR – self-report. J – juvenile. A – Adult.

Table 3.5. *A Detailed Description of the Number of Studies that Considered Different Maltreatment, Placement, Individual, Social and Contextual Factors*

Maltreatment variables	N	Placement variables	N	Individual factors	N	Social factors	N	Contextual factors	N
Overall	42	Overall	21	Overall	31	Overall	27	Overall	16
Type	26	Type	15	Gender	56	SES/poverty	35	Neighborhood/ community poverty	13
Chronicity/severity	13	Instability	13	Ethnicity	56	Parent/caregiver characteristics	24	Neighborhood violence	2
Timing	11	Length Age	9	Age	33	Family structure	15	Residential stability	1
			7	Behavioral/emotiona l problems	18	Peer relations	5	Ethnic heterogeneity	1
		Placement only	3	Education	10	Parent-/caregiver- child relationship	4	Arrest rate	1
				Mental health	9			Urban size	1
				Substance misuse	4				
				Low birth weight	4				
				Marital status	1				
Health status	1								

## **4 Methodology for the Child Protection and Youth Justice (CPYJ) project**

This chapter will describe a data linkage project that was undertaken in order to address the principal aims outlined in Chapter 1. The chapter begins with some background information concerning the role and value of administrative records and this is followed by a detailed description of the data sources that were obtained. There is then a summary of the sampling strategy and linking processes and a conclusion section that outlines the aims of three studies based on the data that will be presented in Chapter 5.

### **4.1 Background**

The data linkage of administrative records has been commonly used to examine the link between experiences of maltreatment in childhood or adolescence and subsequent engagement in offending behaviour. Although there are limitations associated with this approach, it nonetheless offers a way to obtain objective insights into the relationships between variables drawn from different parts of the social welfare system. Here the focus is on investigating the association between child protection and youth justice through a data linkage project conducted in South Australia.

Over the last decade, research in this area has been directed towards gaining a deeper understanding of how variations in maltreatment experiences might reduce or exacerbate the risk of offending. Child protection records can facilitate these types of analyses because they contain important information about the type, timing and recurrence of maltreatment, as well as factors relating to service provision, including data related to placement in out-of-home care (OHC). This information can be used to determine which factors play an important role in predicting offending among victims of maltreatment, in addition to distinguishing between different types of crime (for example, violent and non-violent offences). Although official records of maltreatment do not capture all instances of child abuse and neglect (only those reported to official authorities), researchers have argued that the use of these types of reports are necessary in longitudinal studies because the date of maltreatment can be established and used to maintain the correct temporal order between associations with offending (Smith et al., 2008).

An important finding from previous research is that the majority of young people who experience abuse or neglect do not go to commit crimes. It is therefore important to determine why this is the case and what other factors might play a role in the pathway from

maltreatment to offending. The influence of other factors, such as intelligence, mental health and substance use, and how they might mediate or moderate the maltreatment-offending association, is less well understood. For this reason, administrative records obtained for the purposes of this project were also linked with survey assessment data collected for each individual who entered a secure care (detention) facility in South Australia over a 17-year period. In this connection, this project is rare in Australia because it not only contains official records of maltreatment, placement in OHC, and youth convictions, but also includes detailed self-report information on a range of criminogenic needs. This is the first project of its kind in South Australia and, to the best of our knowledge, in Australia.

## **4.2 Description of the Data Sources**

Data for this project were obtained from two sources: South Australia's Department for Child Protection and the Department for Communities and Social Inclusion's Youth Justice agency. A detailed description of the data collected from these sources is given below, followed by an explanation of the data linkage and sampling strategy used. The data linkage project was supported by an approved ethics application made to the University of Adelaide, and also received written support from the Chief Executive of Families SA (now the Department for Child Protection) and the Director of Youth Justice.

### **4.2.1 Child Protection data**

Data for all individuals born between 1982 and 1997 who were recorded as subjects of child protection matters by the Department for Child Protection were obtained from the Department's Client Information System (CIS). Two sets of data were extracted by staff in the Department and provided to the author of this thesis in a de-identified format: 1) Reports of child protection matters including details on notifications, investigations and substantiations of maltreatment, and 2) Data relating to OHC services. Both sets of data included demographic information (age, sex, and ethnicity) and the child protection reports data also included postcodes for the area in which the young person was believed to be residing at the time of report. The variables available for analysis are summarised in Table 4.1.

Table 4.1. *Summary of Child Protection Variables*

<b>Notification data</b>	<b>Placement data</b>
Notifications (number and type <sup>a</sup> )	Placement (number and type <sup>b</sup> )
Investigations (number and type)	Age at first placement
Substantiations (number and type)	Start date of each placement
Age at first notification, investigation and substantiation	End date of each placement
Age at last notification, investigation and substantiation	

<sup>a</sup>Type includes reports of physical abuse, sexual abuse, emotional abuse, and neglect.

<sup>b</sup>Type includes foster care, residential care, kinship care, and other.

#### **4.2.2 Youth Justice data**

Between the years of 1995 and 2012, every young person who entered a Youth Justice facility in South Australia was assessed using a standardised instrument known as the Secure Care Psychosocial Screening (SECAPS; Putnins, 1995)<sup>1</sup>. The SECAPS was a comprehensive assessment survey based predominantly on self-report. The assessments were conducted on an individual-basis by youth workers, social workers and psychologists and lasted approximately 30 minutes in duration. Item responses, test scores and assessor comments were entered into the SECAPS electronic database post-assessment.

The purpose of the SECAPS was to provide a brief but broad assessment of a variety of factors relating to criminogenic needs and risk, together with self-harming risk and some responsivity factors (such as literacy, numeracy and intelligence). Basic demographic information (age, gender, and ethnicity) was also collected. During the time period that SECAPS was used for assessing youth, 4080 assessments were conducted with 2854 individuals. Details about the information collected are presented in Table 4.2. More information about the background and development of SECAPS can be found in Thompson and Putnins (2003).

<sup>1</sup> In a minority of cases, assessments were not always conducted with those who entered a secure care facility. Reasons for this related to types of orders served or the length of stay (i.e., those expected to remain in secure care for less than a few days or who were serving orders in the community) or the physical and mental state of individuals. In these latter instances, assessments were to be conducted at a later date; however, it is acknowledged that some of these assessments may have been missed.



Table 4.2. *Summary of SECAPS Areas of Assessment and Measures*

Social background characteristics	Individual characteristics		
	Education, employment and recreation	Substance use and mental health	Behaviour
Death of parent	IQ (Raven's matrices)	Alcohol use and consumption	Anger and aggression
Parental separation	Literacy (Concision Word Reading Test)	Illicit drug use and consumption	Hyperactive and disruptive behaviours
Relationship with parents	School expulsions or suspensions	Offending under the influence	Offending motivation
Family history of crime	Highest level of education	Indicators of depression	
Family history of substance abuse	Employment	Suicide ideation and attempts	
Household conflict	Involvement in sport, recreation or leisure activities		
Peer criminality			

There was one major limitation of the SECAPS data: conviction or offence records were not included. Thus, in order to obtain official records of offence details from the Justice Information System (JIS) in South Australia, a university ethics application was submitted and approved, with approval also obtained from the director of Youth Justice. It was initially proposed that a staff member of the Youth Justice Psychology Services team was to extract the requested information; however, due to resource constraints, an agreement was reached to employ the author of this thesis as a trained volunteer in order to perform the data extraction. Data were extracted over a period of six months using a unique numerical identifier (JIS pin) to access computerised offence records of individuals assessed using the SECAPS. Records were accessed individually and offences were counted if records indicated a conviction or the incident was proven or agreed to, but not officially recorded as a conviction. Proven or agreed offences are those that have been legally sustained but the young person did not receive a formal conviction. This occurs in accordance with South Australia's emphasis on diversion as stipulated by the 1993 Young Offender Act. Matters that had been dismissed, not proceeded with, or committed to trial in which the defendant was subsequently found not guilty were not counted. The type of conviction was recorded, along with the age at the time of the individual's first conviction. Although JIS describes the specific type of offence committed, information was recorded according to the Australian New Zealand Standard Offence Classification (ANZSOC) system. Table 4.3 summarises the ANZSOC codes and some examples of the types of offences included under each code. A more detailed description of these offence categories can be obtained from the Australian Bureau of Statistics (2011).

Although JIS is a computerised system, it is over 25 years old and it is not possible to extract summary data. Therefore, it was not possible to easily obtain a count of the number of convictions made for specific types of offences committed by an individual. Due to time constraints and the need to search the records of each SECAPS case individually, the type of offence committed was recorded to indicate whether a person had ever been involved in a specific type of crime. For example, if an individual had recorded convictions for both assault and robbery, a 1 would be recorded under each of these categories, while all other categories would be coded with a 0. If an individual had more than one conviction of a particular type (e.g., convicted twice of robbery on two separate occasions), a 1 would still be placed in that category.

Table 4.3. *Australian New Zealand Standard Offence Classification (ANZSOC) Code Names, Numbers and Descriptions*

Number	Code name	Examples of offences included within code
01	Homicide and related offences	Murder, attempted murder, manslaughter, driving causing death
02	Acts intended to cause injury	Serious and common assault, infliction of injury
03	Sexual assault and related offences	Aggravated and non-aggravated, non-assaultive offences against a child, child pornography, sexual servitude
04	Dangerous or negligent acts endangering persons	Dangerous or negligent operation of a vehicle, neglect or ill treatment of person under care
05	Abduction, harassment and other offences against the person	Kidnapping, deprivation of liberty, false imprisonment, threatening behaviour
06	Robbery, extortion and related offences	Aggravated and non-aggravated, demand money with menaces, blackmail
07	Unlawful entry with intent/burglary, break and enter	Ram raid, smash and grab, home invasion
08	Theft and related offences	Motor vehicle theft, theft from a person, intellectual property and retail premises, receive or handle proceeds of crime, illegal use of property
09	Fraud, deception and related offences	Forgery and counterfeiting, unlicensed person practicing trade/profession, false representation, identity fraud, embezzlement, misappropriation
10	Illicit drug offences	Import or export, deal or traffic, manufacture or cultivate, possess or use

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11	Prohibited and regulated weapons and explosives	Import or export, sell, possess or use, manufacture or modify, unlawfully obtain, misuse, deal or traffic
12	Property damage and environmental pollution	Fire or explosion, graffiti, damage or kill flora/fauna, tampering, arson, bill posting, vandalism, sacrilege, contaminate commercial goods, air, water, noise, soil and environmental pollution
13	Public order offences	Disorderly or offensive conduct, trespass, riot and affray, possess articles of disguise, possess any object or instrument used for theft/burglary or to destroy/damage property, hoaxes causing public nuisance, betting, gambling, liquor, tobacco, censorship, prostitution offences, offences against sexual standards, cruelty to animals
14	Traffic and vehicle regulatory offences	Driver licence, vehicle registration and roadworthiness, and pedestrian offences
15	Offences against justice procedures, government security and government operations	Breach of custodial order, community based, violence or non-violence orders, resist, hinder or bribe police or government officials, illegal immigration
16	Miscellaneous offences	Defamation, libel and privacy, public health and safety, commercial/industry/financial regulation

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### 4.3 Sampling Strategy and Data Linkage

Each young person who entered the child protection or youth justice systems was given a unique identification number. This number was common to both systems because, at the time that these data were recorded, child protection and youth justice were housed within the same government department (Department for Families and Communities). These numerical identifiers were used to match the individuals' child protection and youth

justice records, with data merging performed using SPSS (Statistical Package for the Social Sciences).

The sampling strategy used in this project is based on a historical birth cohorts design to allow for the longitudinal analysis of data. Initially, child protection information for all individuals born between 1977 and 1997 was to be obtained because this would capture the complete child protection histories of all individuals assessed by SECAPS, as well as providing a comparison sample of individuals who were reported to child protection but not assessed by SECAPS. However, child protection records were considered unreliable prior to 1982, with the majority of records preceding this year not computerised. The sample was thus restricted to include only individuals born after 1982, which resulted in the exclusion of 785 SECAPS cases for which complete child protection histories could not be verified. The final birth year (1997) for child protection data extraction was selected in order to ensure that the majority of individuals with SECAPS assessments would have reached their 18<sup>th</sup> birthdays. This was done to ensure that the risk of maltreatment and the potential to be involved in youth offending during the childhood and adolescent years could be captured for all individuals up to the age of 18. However, a small number of individuals assessed by the SECAPS were excluded because they had not reached their 18<sup>th</sup> birthdays (N = 30).

After these exclusions, the final youth justice sample (N = 2045) included in this data linkage study represented 71.5% of individuals who entered a Youth Justice facility between 1995 and 2012. As expected, the excluded group differed significantly from the included group in terms of age, but also differed in terms of gender. Individuals in the excluded group were significantly older than the included group at the time of their first assessment (M = 35.81, SD = 1.67 and M = 26.55, SD = 3.91, respectively),  $t(df = 2698.21) = 87.82, p < .001$ . A significantly greater percentage of females were assessed in the cohort born post 1982 (16.3%) compared to those born prior to 1982 (7.5%),  $\chi^2(df = 1) = 33.98, p < .001$ . This finding is consistent with the rising rates of female offending in more recent years (Australian Institute of Criminology, 2012), and this sample is arguably a more accurate representation of contemporary offending. The groups did not differ according to any of the other assessment variables.

#### **4.4 Summary of Studies using the CPYJ Data**

Based on the CPYJ project, three sets of analyses were undertaken to address the aims of this thesis as outlined in Chapter 1. The first analysis examined the overlap

between the child protection and youth justice populations in South Australia. The main aim of this study was to examine how variations in substantiated maltreatment experiences (including type, timing, recurrence and placement in OHC) related to overall convictions after controlling for demographic factors (gender, ethnicity, and a measure of socioeconomic disadvantage).

The second analysis examined the moderating role of gender, ethnicity and placement experiences in explaining the associations between substantiated maltreatment and five different categories of convictions (including overall convictions, and specifically, violent, property, drug and breach related convictions). It aimed to provide additional insight into the way different placement experiences, such as the type, timing, duration and stability of placements, related to convictions, as well as how these experiences varied according to gender and ethnicity.

The third study examined the role of maltreatment and placement factors after including other known individual and social correlates of crime in statistical models aimed at predicting violent convictions. It was based on the subset of data from CPYJ project pertaining to young people with convictions only. In utilising this particular sample, child protection and placement histories were explored in conjunction with individual and social factors obtained through the SECAPS assessments in order to determine the best overall predictors of violent convictions.

## **5 Studies arising from the Child Protection and Youth Justice (CPYJ) Project**

In this chapter, the analyses based on the data from the CPYJ project discussed in the previous section are presented in three individual papers. The first paper was published in the journal *Child Abuse & Neglect*, the second in *Children & Youth Services Review*, and the third has been submitted for publication and is currently under review. These papers are presented in the format in which they were submitted for publication and therefore reflect the requisite sections, style and language for publication in the respective journals.

## 5.1 Publication: The child protection and juvenile justice nexus in Australia: A longitudinal examination of the relationship between maltreatment and offending

### 5.1.1 Statement of authorship

Title of Paper	The child protection and juvenile justice nexus in Australia: A longitudinal examination of the relationship between maltreatment and offending.
Publication Status	Published.
Publication Details	Malvaso, C.G., Delfabbro, P.H, Day, A. (2017). The child protection and juvenile justice nexus in Australia: A longitudinal examination of the relationship between maltreatment and offending. <i>Child Abuse &amp; Neglect</i> , 64, 32-46. doi: 10.1016/j.chiabu.2016.11.02.

#### *Principal Author*

Name of Principal Author (Candidate)	Catia Gaetana Malvaso		
Contribution to the Paper	Designed and conceptualised the study, cleaned and linked the data, created variables, completed the data analyses, interpreted the results and drafted the manuscript.		
Overall percentage (%)	80		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/02/2017

#### *Co-Author Contributions*

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Paul Delfabbro		
Contribution to the Paper	Contributed to the conceptualisation of the analysis, assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

Name of Co-Author	Andrew Day		
Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017



### 5.1.2 Abstract

There is convincing evidence that many young people who are in the justice system have had contact with child protection services and that victims of childhood maltreatment are at increased risk of subsequent youth justice involvement. In Australia, however, there have been few longitudinal studies that have examined these associations and relatively less is known in this area. This study examines the overlap between the child protection and youth justice involvement in South Australia, and determines how substantiated maltreatment and variations in these experiences (e.g., the type, timing and recurrence of maltreatment) relate to criminal convictions as a youth. The results show that although the majority of child-protection involved youth do not become convicted offenders, the odds of subsequent convictions are significantly greater both for those with notifications and substantiated maltreatment and for those who had been placed in out-of-home care. Multivariate analyses revealed that the strongest predictors for receiving a conviction among maltreated youth were: male gender, Aboriginal and Torres Strait Islander ethnicity, experiences of physical abuse, a greater number of substantiations (recurrence), experiencing maltreatment that commenced in childhood and continued into adolescence, and placement in out-of-home care. The mechanisms through which maltreatment might be linked with behavior are then considered, along with directions for future research in this area.

**Keywords:** child abuse; child protection; youth justice; convictions; offending

### 5.1.3 Introduction

Studies that have compared groups of non-maltreated youth, or which have used general population estimates for comparison, have concluded that the relative risk of youth offending is increased among maltreated youth (Baskin & Sommers, 2010; Bright & Jonson-Reid, 2008; Widom et al., 2006). And yet, findings about the strength of the association between maltreatment and youth offending have been shown to systematically vary according to the specific research methodology that is adopted, particularly in relation to whether the design is retrospective or prospective (Malvaso et al., 2015; Wilson et al., 2009). Retrospective analyses (e.g., Flannery, 2001) usually involve taking a sample of offenders and examining the likelihood that they have been previously involved with the child protection system or have experienced maltreatment, whereas prospective methods (e.g., Thornberry, Ireland & Smith, 2001) typically involve analyses of data collected from community samples or samples of child protection involved or maltreated youth to determine the likelihood that they will subsequently become young offenders. Although retrospective analyses deepen our understanding of the possible accumulation of risk factors for young offenders relative to youth in the general population, prospective examinations provide more valid insights into the predictive relationship between maltreatment and co-existing socio-demographic factors on future offending behavior. Such prospective analyses clearly show that only a small proportion of children subject to abuse are at risk of subsequent offending behavior. Furthermore, these studies have identified a range of factors other than, or in combination with, maltreatment (such as gender, ethnicity and socioeconomic status) that can influence this relationship (for a review see Malvaso, Delfabbro & Day, 2016).

Maltreatment experiences are not homogenous; young people experience different types of maltreatment, at different times, and at varying levels of severity or chronicity. These variations, and how they are associated with offending outcomes, have been the subject of longitudinal research (Mersky & Reynolds, 2007; Thornberry et al., 2010; Widom & Massey, 2015), although many of these studies used only a single category of maltreatment (e.g., neglect; Verrecchia et al., 2010) or a composite measure that combines different types of maltreatment into a single aggregated category (e.g., Smith et al., 2013). There have been relatively few considerations of the consequences of multi-type maltreatment, or the experience of more than one type of maltreatment. As a result, determining the unique effects of different types of maltreatment on offending is limited. However, associations have been reported between physical and sexual abuse and offending (Mersky & Reynolds, 2007; Smith

et al., 2005; Widom & Ames, 1994), with neglect also increasingly identified as a strong predictor (Mersky & Reynolds, 2007; Smith et al., 2005; Widom & Maxfield, 1996).

Another area that has attracted the attention of researchers is the effect of maltreatment recurrence (sometimes also referred to as chronicity or severity) and the timing of maltreatment (Lemmon, 2006; Mersky et al., 2012; Ryan & Testa, 2005; Verrecchia et al., 2010). Recurrence is commonly measured by the number of maltreatment incidents, reports or substantiations accrued by an individual. However, various issues in the definition and measurement of recurrence have made it difficult to compare findings across studies and these problems might help to explain inconsistent findings in this area (for a review see Malvaso et al., 2016). Consistent with theories of cumulative harm, it is plausible that repeated maltreatment is linked with poorer outcomes due to extended, and potentially more severe, exposure to maltreatment (Masten & O'Dougherty Wright, 1998). Alternatively, the effects of recurrent maltreatment may be attenuated through the intervention of services, such as placement in out-of-home care (OHC; Lemmon, 2006). However, a number of studies have also demonstrated that placement in OHC leads to an increased risk of a range of negative behavioral outcomes in youth, especially in relation to juvenile justice involvement (Baskin & Sommers, 2010; Doyle, 2008; Goodkind et al., 2012; Ryan, 2012). Although some of these adverse outcomes are likely to be a direct consequence of maltreatment and other confounding risk factors, it might be that placement compounds initial behavioral difficulties, thus increasing the risk of delinquent behavior over time.

In terms of the timing of maltreatment, most previous studies have only considered the age at time of first maltreatment report or substantiation, with some reporting that as the age at time of maltreatment increases, so does the risk of offending (Bright & Jonson-Reid, 2008; Leiter, Myers, & Zingraff, 1994). However, it is also important to note that although age at time of substantiation has often been used as a proxy for age at time of maltreatment, this indicator might reflect other underlying confounding factors. For example, it might be that maltreatment reported and substantiated later in childhood is indicative of a later age of onset of maltreatment. Alternatively, it might also be that there has been a delay in maltreatment recognition or that the reported incident took some time to reach a point of severity to justify a substantiation. Some types of maltreatment may also be more readily identified or investigated earlier than others to allow for substantiation (e.g., neglect is often more difficult to identify, quantify or substantiate compared to instances of physical or sexual abuse where tangible evidence in the form of injuries might

be present). Other studies have sought to examine the timing of abuse in more detail by breaking it down into three groups: childhood-limited maltreatment, adolescent-limited maltreatment, and persistent maltreatment (i.e., maltreatment occurring both in childhood and adolescence). Studies by Thornberry, Ireland, Smith and colleagues, for example, have provided evidence that maltreatment that either starts or continues into adolescence is more consequential in the development of offending behaviour as opposed to maltreatment that is limited to the childhood years (Smith et al., 2005; Thornberry et al., 2010; Thornberry et al., 2001). However, another study that investigated this issue in a similar way concluded that childhood-limited maltreatment was also associated with offending (Mersky et al., 2012).

It is clear from the preceding literature that the effects of maltreatment on youth offending behavior are not simple and theoretical explanations of the mechanisms that underpin the maltreatment-offending association are often poorly articulated. Although a number of psychological and criminological theories of offending have been advanced (for a review see McGuire, 2002), it might be that pathways from maltreatment to offending are too heterogeneous to be explained by any single set of risk or protective factors, or any one theory. This is one of the main premises of developmental and life course (DLC) theories which propose that human development is multiply determined by interconnections between a person's environment and their individual cognitive decision-making processes, with these influences varying over the course of the lifespan (Farrington, 2007). For example, from a developmental perspective, it has been suggested that maltreatment occurring in the early childhood years is more critical because it disrupts age-appropriate development (Cicchetti & Toth, 1995). Although not undermining the importance of negative childhood events, a lifecourse approach emphasizes the salience of events and situations occurring in adolescence and adulthood in changing behavior (Sampson & Laub, 2005). This perspective proposes that proximal events may be more influential than distal experiences, and this has been used to explain why maltreatment in adolescence might be more consequential in the offending behavior of youth. As suggested by Ireland et al. (2002), although neither approach describes whether maltreatment that persists from childhood to adolescence has the most averse influence on adolescent behavior, it is likely that the primacy of maltreatment in early childhood combined with other exogenous influences in adolescence results in the most disruptive behavior for victims of persistent maltreatment.

These theoretical orientations remind us that it is important to continue to explicate the effects of variations relating to specific experiences, such as maltreatment. One of the most widely accepted ways to examine this complex relationship is through data linkage – a technique used to connect pieces of information that relate to the same person, family, place or event at a population level. Although limited to official or administrative records that are already collected, data-linkage methods are one of the few strategies that can be used to obtain objective insight into the relationship between variables drawn from the different parts of the social welfare system.

In general in Australia, there have been few longitudinal studies that have examined the relationship between child protection and youth justice. A notable exception is a prospective and longitudinal administrative data linkage project led by Stewart and colleagues (the Queensland Linkage Project; QLP; Stewart et al., 2015), which has exemplified the heterogeneous nature of the maltreatment-offending problem in Australia and, as consistent with previous research, has documented the negative effects of adolescent and chronic maltreatment (Stewart et al., 2008). These researchers have also demonstrated the importance of data linkage projects as a continuous data collection method, with the capacity to avoid measurement error and attrition due to study drop-outs (Stewart et al., 2015). As noted by these researchers, these important features of linked administrative data studies enable further advancement of research driven by DLC theories because they continuously capture data on some of the most vulnerable people who often drop out of longitudinal research of this nature. Furthermore, data linkage methods allow for the integration of data sources beyond child protection and corrections (for example, the QLP will also include data from the mental health system) and allows researchers to add data when and as it becomes available, therefore providing a way of analyzing outcomes across systems and over the life course. Data for the QLP were drawn from one jurisdiction only and given the considerable variation that exists between both child protection and youth justice across jurisdictions, there is still a clear need to collect local data in Australia. This is not only relevant to service development in each separate jurisdiction, but to any cross jurisdictional understanding that can inform the further development of criminological theory. For example, the Australian youth justice system differs from that in other countries around the world in so far as in some States it is informed by a welfare model when dealing with young people who commit crime (Day, 2011). At the heart of this approach is the consideration of the best interests of the young person, contrasting with some of the more punitive driven justice models that operate in

parts of Europe and the United States (Muncie, 2008). Furthermore, both Australian justice and welfare systems are unique in terms of the over-representation of Aboriginal and Torres Strait Islander (ATSI) young people (Doolan, Najman, Mills, Cherney, & Strathearn, 2013).

In this study, we will describe a dataset which links child protection and youth justice system information from an Australian jurisdiction, South Australia (SA).

Specifically, we aim to address the following research questions:

- 1) To what extent do the child protection and youth justice systems overlap in South Australia and how does this differ when examining the overlap prospectively and retrospectively?
- 2) What are the odds that a child protection involved youth will subsequently have at least one conviction for a crime during their adolescent years compared to youth in the general population?
- 3) How do demographic characteristics, such as gender, ethnicity and socioeconomic status, maltreatment experiences and placement in OHC differ between maltreated young people with subsequent crime convictions and those without any convictions?
- 4) To what extent does substantiated maltreatment, and variations in maltreatment experiences, predict youth crime convictions after controlling for relevant demographic factors and placement in out-of-home care.

Based on the previous literature we developed a number of hypotheses for investigation: (1) The majority of young people with child protection notifications, substantiations, and placement experiences will not have convictions for offences (prospective approach); (2) The majority of young people with convictions for offences will have histories of child protection notifications, substantiations or placement experiences (retrospective approach); (3) The odds of offending will be significantly greater for young people with notifications, substantiations and placement experiences compared to a general population estimate; (4) Factors relating to substantiated maltreatment will be significant predictors of youth offence convictions after controlling for demographic factors; and (5) After considering placement in out-of-home care, the relationship between maltreatment-related factors and convictions will be attenuated.

#### 5.1.4 Method

##### *Data sources*

Data were obtained from two sources (South Australia's statutory child protection and youth justice agencies). Two sets of data were obtained from the child protection database: 1) Records of notifications, investigations and substantiations for child maltreatment, and 2) Records of placement in out-of-home care. Official conviction records and offender self-report data were obtained from the youth justice agency. The datasets were linked using a common numerical identifier and further information about each dataset, as well as the linked dataset, is described below.

##### *Child protection data*

Child protection data were obtained for all individuals born between 1982 and 1997. Data recorded and extracted included demographic information (gender, ethnicity, a measure of socioeconomic disadvantage). This latter measure was based on postcode that the child was residing in at the time of the child protection notification and was transformed into a composite indicator of socioeconomic status using Socio-Economic Index For Area (SEIFA) codes developed by the Australian Bureau of Statistics; ABS; 1991. These indexes are developed using information collected from community censuses conducted every five years and utilize data on education, income, employment and housing to create scores that rank areas based on relative socio-economic advantage and disadvantage. The child protection information included the number and type of notifications and substantiations (including physical, sexual, emotional abuse, and neglect), and age at notification or substantiation. It must be noted that notifications include all reports made to the child protection authority in South Australia. This means that all child protection matters and notifier concerns were included regardless of whether they were screened in for further investigation or screened out because they did not meet the threshold for further investigation. The information is recorded into a database by qualified social workers. Maltreatment type is recorded based on definitions used in South Australia's Child Protection Act (1993).

Demographic variables were dichotomized as follows: gender (female = 0, males = 1), ethnicity (non-ATSI = 0, ATSI = 1), socioeconomic disadvantage (above the 25<sup>th</sup> percentile = 0, below the 25<sup>th</sup> percentile = 1). Each type of maltreatment was also dichotomized as 0 (type of maltreatment not notified or substantiated) and 1 (type of

maltreatment notified or substantiated). Maltreatment type was also used to create a multi-type maltreatment variable (the experience of two or more types of abuse or neglect). Number of notifications or substantiations was used as a continuous measure of maltreatment recurrence. Age at first notification or substantiation was used as a continuous measure, but was also used with age at last notification or substantiation to group maltreatment timing into childhood-limited maltreatment (young people for whom notifications or substantiations were made exclusively prior to the age of 11), adolescent-limited maltreatment (notifications or substantiations made exclusively after the age of 12), and persistent maltreatment (notifications or substantiations made both prior to and after the age of 12).

Information relating to all young people entering Out-of-Home Care (OHC) between 1982 and 1997 was also collected (N = 9,844). Information extracted for the OHC sample included: gender, ethnicity, type of care placed in (including family-based arrangements such as foster or kinship care, and group-based arrangements such as residential care), and the start and end dates of each placement.

#### *Youth justice data*

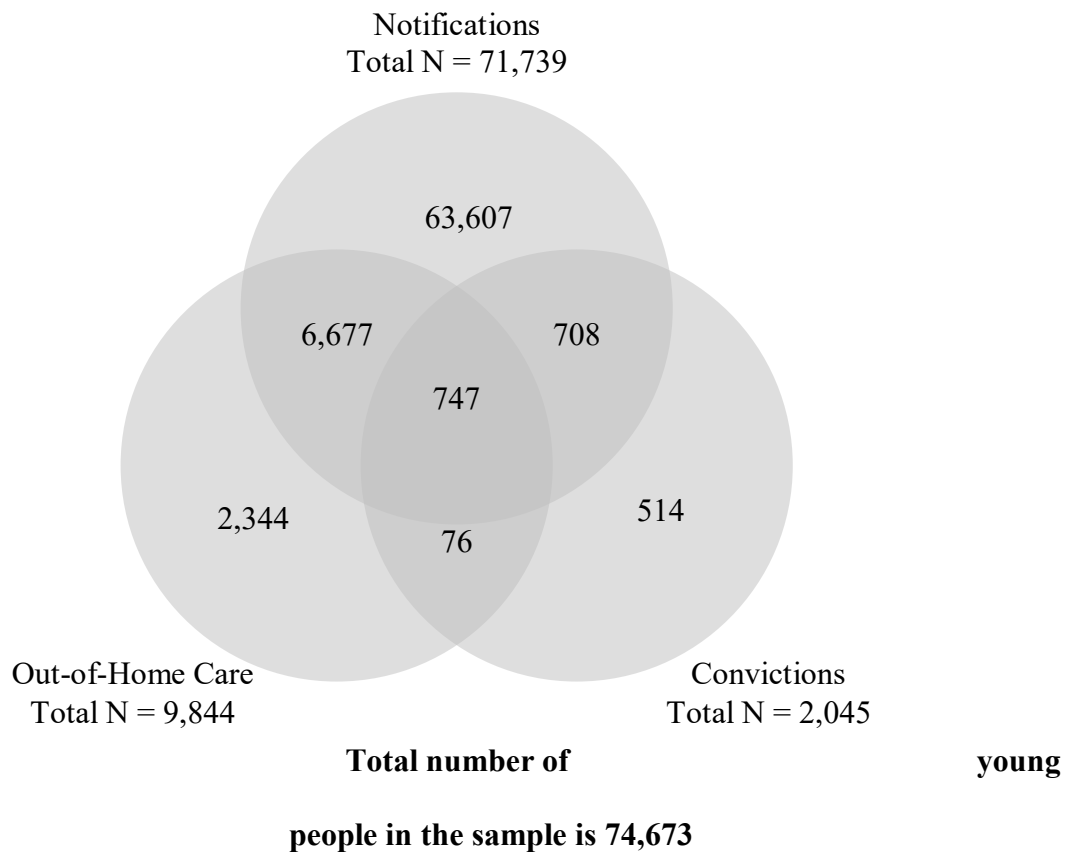
Between the years of 1995 and 2012, almost all young people who entered a secure care facility in South Australia were assessed using a standardized instrument known as the Secure Care Psychosocial Screening (SECAPS; Putnins, 1999). The SECAPS is a self-report screening assessment that collates client background information and a variety of factors relating to criminogenic need. Over the 17-year period, 4,080 assessments were conducted with 2,860 individuals. Of these 2,860 young people, 2548 (89.1%) were male, and 402 (14.1%) were female. The original SECAPS data did not include the number or types of offenses committed by those who were assessed, therefore each individual's computerized official youth records were linked in using a unique numerical identifier. Cases were counted if the young person had been convicted, or if the case had been proven or agreed to but without a recorded conviction (a common occurrence for young people involved in crime for the first time). Cases were excluded if they had been dismissed, committed to trial but the defendant was subsequently found not guilty, or the matter was not proceeded with. For brevity, cases counted are herein referred to as convictions but readers are reminded that this may include matters that were proven or agreed to without a formally recorded conviction.



## ***Procedure***

### *Data linking, sampling strategy and exclusion criteria*

Each young person who entered the child protection or youth justice systems was assigned a unique number which was common to both systems because, at the time, they fell under the same government department. These common numerical identifiers were used to match the individuals' child protection and youth justice records. The sampling strategy was based on a historical birth cohorts design to allow for the longitudinal analysis of data. Initially, all child protection information for individuals born between 1977 and 1997 were to be obtained because this would capture the complete histories of all individuals assessed by SECAPS. However, child protection records were considered to be unreliable (and the majority not computerized) prior to 1982. Therefore, the sample had to be restricted to individuals born between 1982 and 1997. This resulted in the exclusion of 785 SECAPS cases for whom complete child protection histories could not be verified. Furthermore, the final birth year (1997) was chosen in order to ensure that the majority of SECAPS participants would have reached their 18<sup>th</sup> birthdays, ensuring each individual was exposed to both the risk of maltreatment and youth crime for an equal minimum amount of time (i.e., their childhood and adolescent years). However, a small number of young people were excluded because they had not reached their 18<sup>th</sup> birthdays (N = 30). The final youth justice sample included in the data linkage was therefore representative of 71.5% of all individuals who had a SECAPS assessment between 1995 and 2012 (N = 2045). A diagram of the resultant dataset displaying the number and percentage of overlapping cases between the data sources can be seen in Figure 5.1.



*Figure 5.1.* Venn Diagram depicting the Overlap between Individuals with Child Protection Notifications, Out-of-Home Care Placements, and Convictions.

After initial descriptives are provided, further exclusion criteria were applied. First, in order to determine whether maltreatment is associated with crime as a young person, only substantiated cases of physical, sexual, emotional abuse or neglect were included. It is possible that unsubstantiated cases (notifications only) include false positives, for instance, the indication that maltreatment has occurred when it has not. Utilizing substantiated cases allows greater confidence that maltreatment has occurred and has an influence on the outcome. Second, it is difficult to control for prior youth justice involvement as a predictor of more recent involvement or convictions, therefore it is possible that in some cases youth justice involvement precedes maltreatment. In order to attempt to maintain the proper temporal order between associations and to avoid ambiguity that might arise when youth crime precedes maltreatment, cases in which the age at first offense was less than or equal to the age at first maltreatment substantiation were excluded (N = 34). The minimum and

maximum time between age at first maltreatment substantiation and age at first offense ranged from one to eighteen years ( $M = 8.31$ ,  $SD = 4.15$ ).

### *Data analysis procedures*

Several phases of data analysis were conducted. The first was a descriptive overview of the sample which established the overlap between the data sources in a way that highlights the differences between prospective and retrospective views of the data. Chi-square tests of independence determined whether the odds of crime convictions were greater for young people with notifications or who had been placed in out-of-home care compared to a general population estimate obtained from the Australian Bureau of Statistics (ABS). According to the ABS (2014), a total of 311,640 people were born during the same birth years from which our notification data were drawn (i.e., 1982 to 1997).

Further exclusion criteria were then applied and the second phase of data analysis was performed on a reduced dataset that ensured the temporal order between maltreatment and convictions and included substantiated cases of maltreatment only. Chi-square tests of independence were used to determine if the odds of conviction were greater for maltreated youth compared to a general population estimate. To determine how variations in maltreatment experiences related to convictions, a set of comparative analyses was then conducted between young people with substantiated cases of maltreatment who subsequently offended and those who did not offend. Finally, a multivariate analysis was performed using logistic regression to assess the significant and net effects of the maltreatment variables after controlling for basic demographic information (gender, ethnicity and an indicator of socioeconomic status). Four logistic regression models were fitted: the first determined the extent to which the demographic variables predicted convictions, the second determined whether the maltreatment subtypes predicted convictions after controlling for demographic information; the third introduced more complex maltreatment variables (i.e., recurrence, multi-type maltreatment and timing); and in the fourth placement in out-of-home care was added.

### **5.1.5 Results**

From 1982 to 1997 a total of 225,669 notifications were made relating to 71,739 individuals. Of these, just under half of the young people had at least one of their notifications investigated (N = 33,410; 46.6%), and just under a quarter had at least one of their notifications substantiated (N = 17,705; 24.7%). A total of 9,844 young people were placed in out-of-home care (OHC) during this same time period. There was substantial overlap between this sample of young people and those for whom notifications or substantiations for maltreatment were made, with 7,424 (75.4%) young people placed in OHC having notifications and 4,782 (48.6%) having substantiations. However, almost a quarter of young people placed in OHC did not have any records of notifications or substantiations (N=2,420; 24.6%). Summary characteristics are displayed in Table 5.1.

Table 5.1. *Descriptive Statistics for Notifications, Substantiations, and Out-of-Home Care Placement Samples*

	Notifications		Substantiations		Out-of-home care placement	
	(N = 71739)		(N = 17705)		(N = 9844)	
	N	(%)	N	(%)	N	(%)
<i>Demographics</i>						
Male	33448	(44.8)	8333	(47.1)	5311	(54.0)
Females	38012	(50.9)	9286	(52.4)	4507	(45.8)
Aboriginal and Torres Strait Islander ethnicity	6925	(9.7)	2617	(14.8)	1851	(18.8)
Below 25 <sup>th</sup> percentile for socioeconomic disadvantage	16207	(22.6)	4520	(25.5)	-	-
<i>Type of maltreatment</i>						
Physical Abuse	30032	(41.9)	7412	(41.9)	2297	(23.3)
Sexual Abuse	23202	(32.3)	4196	(23.7)	859	(8.7)
Emotional Abuse	22093	(30.8)	3560	(20.1)	1217	(12.4)
Neglect	29045	(40.5)	6438	(36.4)	2605	(26.5)
<i>Multi-type maltreatment</i>						
One type	42803	(59.7)	14284	(80.7)	3034	(30.8)
Two or more types	28936	(40.3)	3421	(19.3)	1748	(17.8)
<i>Maltreatment substantiated</i>						
Yes	17705	(24.7)	-	-	4782	(48.6)
No	54034	(75.3)	-	-	5062	(51.4)
<i>Placement in out-of-home care</i>						
Placed	7424	(10.3)	4782	(27.0)	-	-
Not placed	64315	(89.7)	12923	(73.0)	-	-

	Notifications (N = 71739)		Substantiations (N = 17705)		Out-of-home care placement (N = 9844)	
	M	(SD)	M	(SD)	M	(SD)
Number of notifications, substantiations or placements	3.10	(4.26)	1.62	(1.28)	4.07	(5.49)
Age at first notification, substantiation or placement	8.51	(4.88)	5.84	(4.23)	6.33	(4.75)

*Note.* Numbers and percentages reported in this table reflect individuals (each person born between 1982 and 1997). For the maltreatment types, cases were counted if an individual had experienced at least one notification or substantiation for this type of maltreatment from age 0 to 18.

*Question 1: To what extent do the child protection and youth justice systems overlap in South Australia and how does this differ when examining the overlap prospectively and retrospectively?*

Prospective and retrospective views of the data are shown in Figures 5.2 and 5.3. As consistent with the hypotheses 1 and 2, although the majority of child protection involved youth did not subsequently have convictions for crimes in adolescence (N = 70,284; 98.0%), a large proportion of young offenders had child protection histories (N = 1,455; 71.1%).

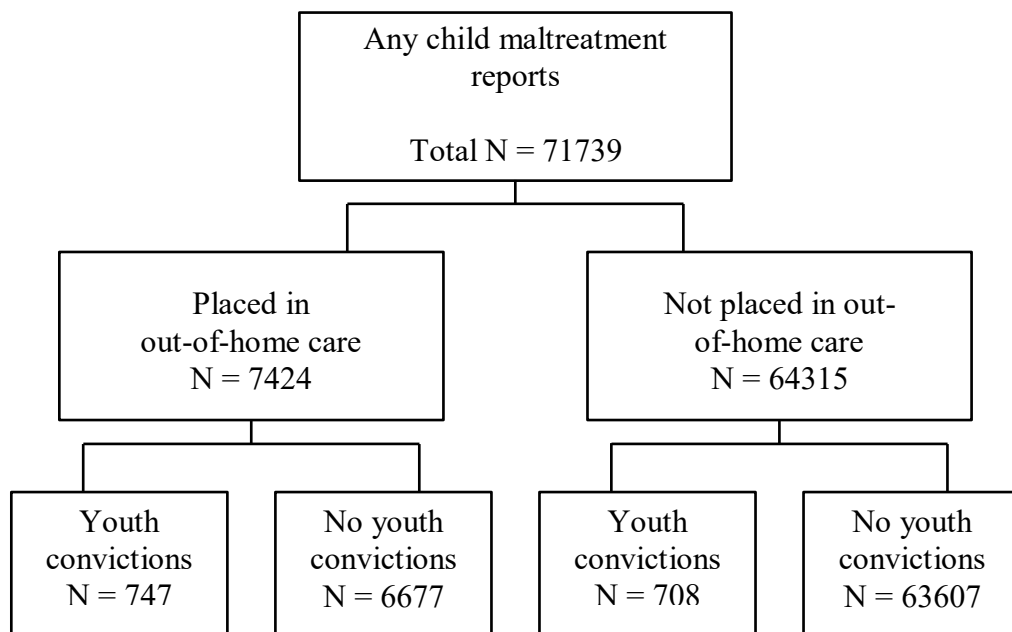


Figure 5.2. A Prospective View of the Data

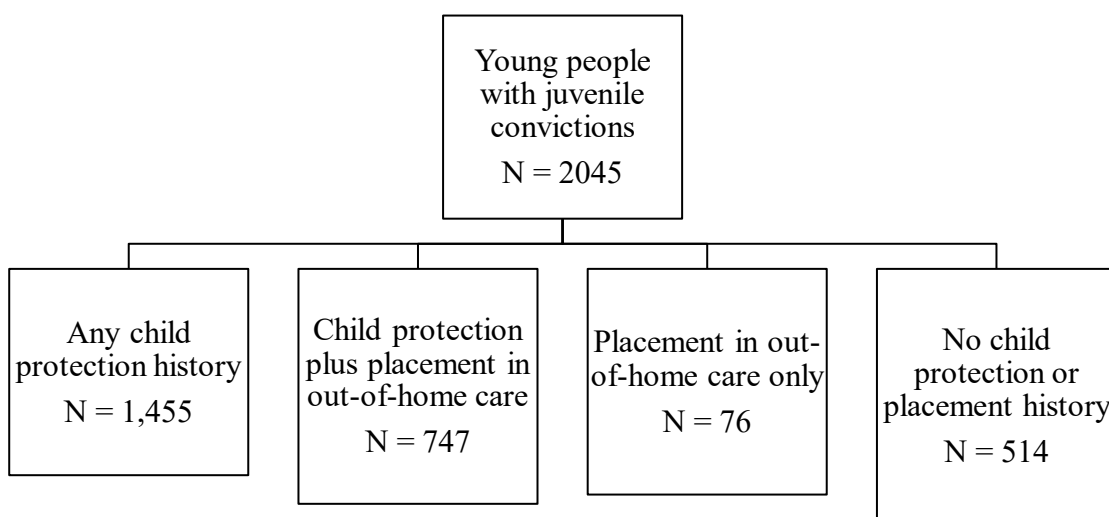


Figure 5.3. A Retrospective View of the Data

*Question 2: What are the odds that a child protection involved youth will subsequently have at least one conviction for a crime during their adolescent years compared to youth in the general population?*

As indicated in the methods section, ABS statistics were used to generate a general population estimate in order to determine the odds that a child protection involved youth would subsequently have convictions compared to youth in the general population. The percentage of young people with notifications who had received convictions (2.0%) was much lower than for those without notifications (20.1%). A chi-square test of independence indicated that this proportional difference was significant,  $\chi^2$  (df=1, N = 74673) = 3459.56,  $p < .001$ . However, we recognize that those without notifications in this sample (e.g., those placed in out-of-home care for reasons other than maltreatment) are not the most appropriate comparison group because they are still a high risk population, therefore the population estimate was used to determine the odds of a notified young person subsequently being convicted compared with youth in the general population. Further comparisons with the general population estimate showed that the overall odds of conviction were 8.38 times higher for young people with notifications. Hypothesis 3 was thus supported.

In terms of placement in out-of-home care (OHC), the majority of young people who were placed did not also have youth convictions (N = 9,021; 91.6%) whereas a small number did (N = 823; 8.4%). It was also found that the majority of young people with convictions did not have a history of OHC placement (N = 1222; 59.8%), although over a third did (N = 823; 40.2%). However, the percentage of young people with convictions was comparatively higher (8.4%) for those placed in OHC than for those without a placement history (1.9%). The association was significant,  $\chi^2$  (df = 1, N = 74673) = 1345.39,  $p < .001$ . As consistent with our hypothesis, compared to our general population estimate, the odds of conviction were 22.4 times higher for young people placed in OHC.

Although these analyses are useful for establishing the overlap between child protection notifications, OHC placement and youth crime, they provide us with limited insight into the question of whether experiencing maltreatment increases the odds for subsequent crime convictions as a youth. In order to explore this, more refined analyses were undertaken to examine the association between substantiated maltreatment and convictions.



The vast majority of young people with at least one substantiated case of maltreatment did not subsequently have records of youth convictions (N = 17010; 96.1%), although a small number did (N = 695; 3.9%). Similarly, looking retrospectively at the sample of young people with convictions, the majority did not have any history of substantiated maltreatment (N = 1,316; 64.3%), although just over a third did (N = 695; 34.0%). However, the percentage of young people with convictions was comparatively higher (4.1%) among those with substantiated cases of maltreatment than those without substantiated cases of maltreatment (2.3%). This association was significant,  $\chi^2$  (df = 1, N = 74639) = 165.66,  $p < .001$ . The odds of subsequently having a conviction were 9.1 times higher for those with substantiated cases of maltreatment compared to the general population.

The data were further analyzed in order to determine the odds that young people with *both* substantiated cases of maltreatment and placement in OHC (N = 4,782) would have convictions as a youth. The majority of maltreated youth who were also placed in care were not subsequently convicted of a crime (N = 4282, 89.5%), and the majority of young people with convictions also did not have histories of maltreatment and placement (N = 1545, 75.6%). However, the percentage of young people with convictions was still comparatively higher (10.5%) for those who were maltreated and placed than for those with substantiations but no OHC placement (2.2%). This association was statistically significant,  $\chi^2$  (df=1, N = 74,639) = 1142.38,  $p < .001$ . The overall odds for conviction were 21.5 times higher for young people who had been maltreated and also placed into OHC compared to individuals in the general population.

Due to the large size of the sample, effect sizes (Phi and Cramer's V) were calculated for the chi-square statistics. These ranged from .15 to .22, indicating generally small effects.

*Question 3: How do demographic characteristics, such as gender, ethnicity and socioeconomic status, maltreatment experiences and placement in OHC differ between maltreated young people with subsequent crime convictions and those without any convictions?*

Maltreated boys had more convictions than maltreated girls (6.6% compared with 1.6%),  $\chi^2$  (df = 1, N = 17585) = 282.54,  $p < .001$ . Similarly, maltreated young people of ATSI backgrounds had more convictions than young people from other backgrounds (9.3% compared with 3.0%),  $\chi^2$  (df = 1, N = 15096) = 231.85,  $p < .001$ .

Comparisons between the type of substantiated maltreatment and convictions (Table 5.2) show that the odds of being convicted for a crime as a youth are higher for physical abuse, emotional abuse and neglect victims; however, young people who had been sexually abused had lower odds for convictions. Greater odds of conviction were found for poly-victims (compared to those who had substantiations for only one type of maltreatment), those whose maltreatment persisted from childhood through to adolescence, and those placed in OHC. Conversely, young people whose maltreatment was limited to their childhood years (before age 11) and those whose maltreated was limited to their adolescent years (age 12 or beyond) had lower odds for youth convictions. Maltreated young people who were subsequently convicted of a crime had a greater mean number of substantiations and were younger at the time of their first substantiation compared to maltreated young people who were not subsequently convicted (see Table 5.3).

Table 5.2. Comparisons of Maltreated Young People With and Without Youth Crime Convictions (Categorical Variables)

Variable	Convictions		No convictions		$\chi^2$ (df=1)
	N	(%)	N	(%)	
Below 25 <sup>th</sup> percentile for socioeconomic disadvantage	250	(38.8)	4258	(28.9)	29.24***
Physical abuse	382	(55.0)	7009	(41.3)	51.32***
Sexual abuse	107	(15.4)	4086	(24.1)	27.75***
Emotional abuse	166	(23.9)	3388	(20.0)	6.41**
Neglect	387	(55.7)	6041	(35.6)	116.53***
Multi-type maltreatment	278	(40.0)	3139	(18.5)	198.04***
Childhood limited maltreatment	135	(19.4)	8910	(52.5)	292.08***
Adolescent limited maltreatment	48	(6.9)	1989	(11.7)	15.15***
Persistent maltreatment	520	(74.8)	6455	(38.0)	378.37***
Placed in out-of-home care	476	(68.5)	4282	(25.2)	635.20***

Note. \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.3. *Comparisons of Maltreated Young People With and Without Youth Crime Convictions (Continuous Variables)*

Variable	Convictions		No convictions		t(68053)	Cohen's <i>d</i>
	M	(SD)	M	(SD)		
Number of substantiations	2.54	(2.09)	1.59	(1.23)	11.92***	0.55
Age at first substantiation	5.09	(3.81)	5.86	(4.24)	5.20***	0.19

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

*Question 4: To what extent does substantiated maltreatment, and variations in maltreatment experiences, predict youth crime convictions after controlling for relevant demographic factors and placement in out-of-home care.*

Four logistic regression models were fitted. The first determined the extent to which the demographic variables predicted convictions; the second determined whether the type of maltreatment still significantly predicted convictions after controlling for demographic factors; the third determined whether other maltreatment factors (i.e., multi-type maltreatment, maltreatment recurrence, and timing of maltreatment) predicted convictions; and, finally the fourth model determined whether placement in OHC predicted convictions after controlling for maltreatment-related risk factors.

Data for 17,390 young people were available for analysis and the final model correctly classified 95.8% of cases, indicating that it was successful in identifying true cases of convictions. As shown by Model 1 in Table 5.4, all of the demographic factors significantly predicted convictions. Being a female was associated with a 77% reduced likelihood of subsequently being convicted of a crime as a youth. On the other hand, having an ATSI background was associated with an almost three times greater likelihood of subsequent youth convictions. Similarly, living below the 25<sup>th</sup> percentile for socioeconomic disadvantage was associated with a 34% greater likelihood of convictions.

After controlling for these demographic factors, all four maltreatment subtypes significantly predicted youth convictions (Model 2). Young people who experienced physical abuse or neglect had over twice the likelihood of youth convictions, and those who experienced sexual or emotional abuse had a 61% and 31% increased likelihood of convictions. Gender, ethnicity and socioeconomic disadvantage still significantly predicted convictions in the same way as Model 1. As exemplified by the reduction in the -2 log-

likelihood ratio (4780.54 in Model 1 to 4654.14 in Model 2), the addition of the maltreatment subtypes enhanced the model; however, the reduction was minimal and indicates that the addition of these variables did not greatly improve the predictive ability of the model.

In the third model, additional variables that distinguish maltreatment experiences were introduced. After the addition of these variables, gender, ethnicity and socioeconomic disadvantage remained significant predictors of convictions. Of the abuse types, only emotional abuse remained a significant predictor, with young people who had experienced this type of abuse found to be at a 33% decreased likelihood of convictions. It was also found that as the number of substantiations increased (maltreatment recurrence), the likelihood of convictions also increased by 16 per cent. Similarly, young people who experienced more than one type of maltreatment (multi-type maltreatment) had a 35% increased likelihood of convictions; however, this factor only approached statistical significance ( $p = .07$ ). Age at first maltreatment substantiation was not associated with convictions. Inspection of multicollinearity diagnostics (eigenvalues and variance proportions) indicated that there was a high proportion of shared variance between the maltreatment subtypes and with the multi-type maltreatment variable, and between age at first substantiation, childhood-limited, adolescent-limited and persistent maltreatment. Correlated predictors in regression models are likely in social science research (Ludlow & Klein, 2014) and one solution is to omit one of the collinear variables; however, there are no statistical procedures for knowing which variable to omit (Field, 2009). Each maltreatment subtype was thus entered separately into the regression model and no significant changes to the overall model were identified. This led to the retention of the original model because of the need to ensure that interpretation of coefficients for relevant variables was possible with the range of other factors (as a whole) taken into account. However, when physical abuse and neglect were entered separately into the model they were both found to be significant predictors of convictions, increasing the odds of conviction by 32% and 34%, respectively ( $p < .001$ ). Furthermore, entered separately, multi-type maltreatment (experiencing two or more types of maltreatment) was associated with a 55% increase in odds of convictions ( $p < .001$ ).

Age at first substantiation, childhood-limited, adolescent-limited and persistent maltreatment were also entered separately into the model to further explore the influence of timing on convictions. Entered on its own, age at first substantiation was not significantly associated with convictions. Childhood-limited maltreatment was associated

with a 73% reduced likelihood of convictions ( $p < .01$ ), whereas maltreatment limited to the adolescent years was not significantly associated with convictions. Persistent maltreatment was associated with a 3.34 times greater likelihood of convictions and is shown in the table because it had the greatest associated odds with convictions. The addition of these variables resulted in a further reduction in the -2 log likelihood ratio (4403.38).

In the final model (Model 4), a variable indicating whether a maltreated young person had been placed in OHC was added. Placement in OHC was associated with an almost five times greater likelihood of youth convictions. In this model, gender and ethnicity remained as significant predictors of convictions, experiencing emotional abuse was still associated with a 35% reduced likelihood of convictions and maltreatment recurrence was associated with a 1% increased likelihood of convictions. Multi-type maltreatment and age at first substantiation were no longer significant predictors (even after being entered separately); however, maltreatment limited to the childhood years only was associated with a 74% reduced likelihood of convictions (not shown in the model but entered separately due to multicollinearity issues). Persistent maltreatment was still associated with a greater than three times increased likelihood of convictions, and adolescent-limited was still not significantly associated with convictions. Similarly, entered separately, physical abuse was still associated with a 26% increased likelihood of convictions. The -2 log likelihood ratio was significantly reduced in this model compared to Model 1, indicating that the addition of the placement variables contributed to a better prediction model for convictions. However, the number is still quite large and therefore a large amount of unexplained observations in the data remain.

To assess consistency of findings, we ran a model in which the order of the variables was reversed. That is, we entered maltreatment subtypes first, followed by the demographic factors. Slight changes in the odds ratios for the maltreatment subtypes were observed after the demographic factors were added to the model, in particular for neglect (OR was reduced from 3.20 to 2.56); however, the interpretation of findings remained the same.

Table 5.4. Odds Ratios and Confidence Intervals for Predictors of Youth Crime Convictions Among Maltreated Young People

Variable	Model 1		Model 2		Model 3		Model 4	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Constant (B)	-2.903***							
Gender	0.23***	[0.19, 0.27]	0.23***	[0.19, 0.29]	0.22***	[0.18, 0.27]	0.22***	[0.18, 0.27]
Ethnicity	3.18***	[2.68, 3.79]	2.82***	[2.36, 3.38]	2.49***	[2.07, 2.99]	2.40***	[1.99, 2.90]
Socioeconomic disadvantage	1.38***	[1.17, 1.63]	1.34**	[1.13, 1.58]	1.26**	[1.06, 1.49]	1.28**	[1.07, 1.52]
Physical abuse			2.30***	[1.93, 2.75]	1.23	[0.91, 1.68]	1.13	[0.83, 1.55]
Sexual abuse			1.61***	[1.27, 2.04]	0.96	[0.69, 1.34]	1.01	[0.72, 1.40]
Emotional abuse			1.31**	[1.08, 1.59]	0.67**	[0.49, 0.92]	0.65**	[0.47, 0.90]
Neglect			2.56***	[2.14, 3.06]	1.20	[0.87, 1.66]	0.99	[0.71, 1.38]
Maltreatment recurrence					1.16***	[1.09, 1.22]	1.07**	[1.01, 1.13]
Multi-type maltreatment					1.35†	[0.94, 1.92]	1.23	[0.85, 1.76]
Age at first substantiation					1.00	[0.99, 1.00]	0.99	[1.00, 1.00]
Persistent maltreatment					3.34***	[2.76, 4.03]	3.11***	[2.57, 3.77]
Placement in OHC							4.41***	[3.67, 5.31]
-2LLR		4884.61		4748.38		4483.22		4218.26

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . †  $p < .1$ . OHC – out-of-home care.

### 5.1.6 Discussion

The aims of this study were to describe the extent to which child protection and youth justice populations crossover and to determine the extent to which substantiated maltreatment predicts convictions. Consistent with the hypotheses, contrasting methodological approaches to the analysis revealed that, although a large proportion of young people who had convictions also had child protection histories (retrospective view), the majority of child protection involved youth did not go on to offend (prospective view). However, the odds of being convicted were greater for young people who had notifications and for those who had been placed in out-of-home care when compared to the general population. We also found that young people who had their maltreatment substantiated were more likely to be convicted of a crime as a youth than those in the general population. Furthermore, young people who had been maltreated and placed in OHC were also more likely to have convictions. These findings are consistent with our hypotheses and previous research on this topic, and although the effect sizes were generally small, they provide some validation of a link between maltreatment and youth crime convictions in this Australian sample.

This study highlights the contrast between prospective and retrospective sampling when examining the maltreatment-offending association. Although maltreated young people are at increased risk for subsequent convictions compared to the general population, this association, as reflected through the absence of officially recorded youth convictions for the vast majority of maltreated youth, is by no means deterministic. On the other hand, the retrospective analysis highlights the fact that many young offenders have child protection backgrounds.

Although approaches to ameliorating the consequences of maltreatment are likely to differ between systems, it is clear that a collaborative approach is needed. For example, juvenile justice service responses rarely identify the mental health consequences of maltreatment as a primary focus of intervention. On the other hand, the child protection response to young people with problematic or disruptive behaviors has also been examined. There have been studies published both in Australia and the United States that suggest that young people with child protection or care backgrounds are subject to distinct disadvantages including: greater police attention for, and the criminalization of, behaviors that would usually be dealt with by parents in family homes (Cashmore, 2011; McFarlane, 2010); a decreased likelihood of receiving probation for first time offences (Ryan et al.,



2007); and, a greater likelihood of placement in juvenile justice facilities in the absence of other appropriate accommodation (Cashmore, 2011). Therefore, organizational structures which differentiate between those services that respond to the care and protection needs of children and young people, those that address adolescent mental health problems, and those that focus on reducing engagement with the criminal justice system, may not adequately address the needs of young people in this area. It is clear that a collaborative approach characterized by the development of more integrated and coordinated services responses is warranted.

Multivariate analyses indicated that the strongest predictors of convictions were: gender, ethnicity, socioeconomic disadvantage, child physical abuse (CPA), child emotional abuse (CEA), maltreatment recurrence and timing, and placement in OHC. In particular, the odds of convictions were more likely for maltreated males, individuals from Aboriginal or Torres Strait Islander and those who were living below the 25<sup>th</sup> percentile for socioeconomic disadvantage. Those who experienced CPA were more likely to be convicted, whereas those who experienced CEA were less likely to be convicted. Individuals with a higher number of maltreatment substantiations, whose maltreatment persisted from childhood through to adolescence, and who were placed in OHC were all more likely to have convictions.

A recent systematic review of risk factors influencing the maltreatment-offending association identified a large number of studies which demonstrate the high risk of offending among males and young people from minority backgrounds or ethnic groups (Malvaso et al., 2016). However, gender and ethnic differences were also found to vary according to the outcomes measured and were differentially associated with maltreatment and placement profiles. For example, Ryan et al. (2010) found that, although both males and females placed in congregate care were at increased risk for youth delinquency, females placed in foster care were also at increased risk whereas males placed in kinship were more likely to offend as a youth. Furthermore, Ryan and Testa (2005) found that only African American males, not females, who were placed in OHC were at increased risk for youth delinquency.

It is also possible that other factors associated with gender or ethnicity may have indirect effects on offending outcomes. For example, Tyler et al. (2008) found that experiences of neglect were differentially associated with school engagement for males and females which was, in turn, associated with delinquency (i.e., neglect was associated with greater school engagement for males and less school engagement for females).

Evidently, the relationships between gender, race and offending are far more complex than simple main effects and further exploration of subgroup and interaction effects are warranted in future research. In light of these differences, it is also recommended that gender-specific and culturally-specific risk or needs assessments and interventions are considered (Casey, Day, & Gerace, 2016). Similarly, it is important to recognize the impact of broader socio-political influences. For example, colonization and the lack of policies encouraging self-determination and access to opportunities in Indigenous communities in Australia has indisputably contributed to the entrenched disadvantage and suffering of ATSI peoples (Kelly, Dudgeon, Gee, & Glaskin, 2009).

A range of maltreatment related factors were found to influence the odds of conviction, and these factors were consistent with findings from previous studies. Although identifying these risk factors are important, it has been suggested that current theories need to be broadened to encapsulate how the trauma and stress associated with any experience of maltreatment may lead to criminal pathways (Grogan-Kaylor & Otis, 2003), as well as developing theories that can explain the specific mechanisms, such as specific traumatic stress reactions (Finkelhor, Ormrod, & Turner, 2007) that underpin the association between different maltreatment subtypes and different types of crime.

Although associations have been observed between all maltreatment subtypes and offending behavior, in this study only two subtypes of maltreatment significantly predicted convictions (after controlling for demographic and other maltreatment-related variables). Experiencing child physical abuse (CPA) was found to increase the odds of subsequently being convicted of a crime, whereas child emotional abuse (CEA) was found to decrease the odds. A number of previous studies have reported a link between CPA and delinquency or offending behavior (Grogan-Kaylor et al., 2008; Taussig, 2002; Tyler et al., 2008). CPA has been found to influence cognitive and social development in a number of adverse ways through links with poor impulsive control, emotional regulation issues, aggression, mental illness, and substance misuse. In turn, the pervasiveness of these issues have been proposed to increase the risk for delinquent or criminal behavior (Swogger et al., 2011). For example, it has been found that victims of CPA are more likely to process social cues in a biased manner and these biased cognitive patterns play a mediatory role in the association between CPA and violent behavior (Dodge, Pettit, Bates, & Valente, 1995). The biases more commonly accessed by victims of CPA included attaching hostile attributions to the intention of others, accessing retaliatory aggressive responses, and viewing aggressive behavior as morally acceptable. It is therefore important that future

work continues to elucidate the mechanisms that contrive links between CPA and offending so that they can be translated into criminogenic needs and targeted through interventions.

Compared to CPA, child emotional abuse (CEA) is relatively understudied. This may be because CEA is more difficult to define, detect, quantify, and substantiate in the absence of more tangible evidence of trauma found in cases of physical or sexual abuse. After controlling for (arguably) more serious abuse types or experiences, it is not surprising that CEA was associated with a decreased likelihood of convictions. However, this does not mean that it should be ruled out completely as a contributing factor to the maltreatment-offending association. It has been recognized that CEA does not often occur in isolation but is likely to be accompanied by other forms maltreatment. For example, Trickett, Mennen, Kim, and Sang (2009) found that of emotionally abused youth, over three-quarters also experienced neglect. In the current sample, just under a third of the young people with substantiated cases of CEA also had substantiations for neglect. Exploring the co-occurrence of different maltreatment subtypes, as well as interactions with recurrence and timing, will contribute to a deeper understanding of how such variations in maltreatment experiences relate to developmental outcomes. This was attempted to an extent in this study by measuring the effects of multi-type maltreatment, which was positively associated with convictions at the bivariate level and at the multivariate level before adding placement in OHC to the model. However, further exploration of the different combinations of abuse subtypes and how these are associated with offending will further elucidate the nature of this relationship.

It is interesting that CPA, which was the most common type of maltreatment reported and substantiated in this sample, was associated with an increased risk of convictions, while CEA, which was the least common, was associated with a decreased risk. Methodological reasons, such as rarity of reporting, might be associated with decreased power in detecting significant associations for some abuse subtypes. However, it could also reflect the historical time period selected for the child protection data extraction in this study. In more recent years, neglect has been cited as the most common type of maltreatment above CPA and, in terms of the maltreatment-offending literature, it is emerging as a strong predictor of delinquency and crime (Grogan-Kaylor & Otis, 2003). This could be attributed to greater professional and community awareness surrounding the signs, symptoms and consequences of more surreptitious forms of maltreatment.

Therefore, continuing to explore the long-term consequences of all maltreatment subtypes is important.

Maltreatment recurrence, or an increased number of maltreatment substantiations, was also a significant predictor of convictions. It is likely that maltreatment recurrence is an indicator of cumulative harm – the experience of chronic or repeated incidents of maltreatment, both within just one type of maltreatment or across several different types. Consistent with theories of cumulative harm, it is understandable that young people who continue to accrue experiences of maltreatment will be more exposed to the negative effects of complex trauma, especially in the absence of intervention. In turn, these experiences might put young people at increased risk for adverse outcomes, such as youth convictions, compared to victims of isolated incidents of maltreatment or whose experiences have been interrupted through early intervention. Future research should further explore interactions between recurrence and maltreatment types or multi-type maltreatment in order to determine whether it is the accumulation of a specific type of maltreatment, or several types, which are associated with offending outcomes. Furthermore, the type of recurrent abuse might help to explain associations with convictions. For example, neglect cases often involve parents who are involved in criminal activity or who have substance abuse problems. From a social learning perspective, the increased risk for victims of recurrent maltreatment could at least in part be explained by the modelling of behavior from parents.

Persistent maltreatment was one of the strongest predictors of youth convictions in this study. Furthermore, after controlling for placement in out-of-home care, the initial childhood-limited maltreatment was associated with a decreased likelihood of convictions. These findings point to the potentially protective effects of placement in out-of-home care for individuals who experience maltreatment in their childhood years only. It has been found that those who enter due to abuse are typically younger, whereas older children typically enter due to behavioural or emotional problems as well as maltreatment (Delfabbro, Barber, & Cooper, 2001). As Malvaso and Delfabbro (2015) suggested, it might be that the early intervention received by abused children at a younger age serves as a protective factor. This has implications for our understanding about the importance of timing in maltreatment experiences and contributes further to arguments surrounding the pervasiveness of maltreatment in adolescence. However, no significant multivariate associations were found between adolescent-limited maltreatment and convictions, indicating that it might not be the developmental timing of maltreatment that is

consequential in offending. Instead, as consistent with the idea of cumulative harm or recurrent maltreatment, it could be that the extended or chronic exposure to maltreatment that starts in childhood and continues into adolescence leads to increases in adverse behaviors such as offending.

Finally, placement in OHC was the strongest predictor of youth convictions in our final analyses. It has been previously found that placement in OHC can be a protective factor because it mitigates the consequences of maltreatment through intervention and the prevention of further adverse experiences (DeGue & Widom, 2009; Lemmon, 2006). Conversely, several studies have found that OHC placement is associated with increases in delinquent or offending behavior (Goodkind et al., 2012; Ryan & Testa, 2005). It is also acknowledged that those most likely to benefit from OHC placement are those who enter the system at an early age, those who typically enter due to reasons of abuse (Delfabbro et al., 2001). Those who enter care later tend to do so for a combination of reasons other than maltreatment, such as behavioral or conduct problems. These young people may have had extended exposure to adverse living situations or experiences that exacerbate their conduct issues, putting them at further risk for more serious behaviors such as youth offending. It is therefore important to explore other placement factors, such as the age at entrance into care, in order to further explicate the relationship between system experiences and youth offending.

Although young people enter care primarily due to reasons of abuse or neglect, other young people enter due to care and protection needs unrelated to maltreatment. For example, we found that across the 15-year birth cohort approximately 2000 young people included in our full dataset experienced out-of-home care placements but did not have any notifications for maltreatment. A number of reasons were identified to explain why some young people entered care without notifications, including situations where parents had suddenly died, were institutionalized due to mental health problems, or were imprisoned. Other young people entered on Voluntary Custody Arrangements when their parents or guardians were unable to care for them due to their own illnesses or disabilities. Another common reason concerned “adolescents at risk” or young people reported to the department because they were considered to be vulnerable or at risk; however, these reports were not included in our dataset because they did not include abuse or neglect. Instead, these reports concerned matters such as truancy from school, drug and alcohol use, risky sexual behaviors, mental health problems or disabilities, and other behavioral problems (including delinquency). Our analyses in the present study only considered

young people placed in OHC who had also had maltreatment substantiated, therefore future research should explore whether young people placed in OHC due to maltreatment differ from those entering care for other reasons, and whether this has any influence on offending behavior.

### *Limitations*

Despite its contribution to the knowledge base, this study is not without limitations. The findings are based on data sourced from official records of maltreatment, which might introduce confounds such as the subsequent involvement of child protective services. It might also magnify the effects of maltreatment on offending because it is likely that those who have come to the attention of official authorities were the most severely mistreated; conversely, the focus on substantiated cases of maltreatment may lead to an underestimation of the maltreatment-offending association by underrepresenting the true prevalence of maltreatment (Lansford et al., 2007). Nonetheless, researchers have asserted that the use of official records of maltreatment is necessary in longitudinal research in order to establish the date of maltreatment and maintain the proper temporal order between associations (Smith et al., 2008). Similarly, the youth offending outcomes used are also based on official records of convictions and it is understood that such records underestimate the true prevalence of offending and are subject to bias in the use of both police discretion and legal processes (Maxfield et al., 2000). Both official records of maltreatment and offending might reflect the disproportionate involvement of some families, or ethnicities, with official agencies (Smith & Thornberry, 1995). However, the strength of linking administrative data lies in the ability to capture objective information concerning outcomes (e.g., whether children were subjected to abuse and whether offenses actually occurred).

Furthermore, the issue of multi-collinearity in the regression analyses might have affected model estimates. As collinearity increases there are three potential problems that could arise. First, the beta values are less reliable. Second, a correlated predictor might only account for very little unique variance because another variable accounts for that same variance. Finally, if two or more predictors account for similar variance in the outcome it is difficult to assess the individual importance of each predictor. Multi-collinearity was addressed in this study by examining correlated predictors separately and entering predictors in different orders, so as to confirm the consistency of results.

A final limitation of this study is that although we controlled for sociodemographic information in our analyses, it is important to consider further the influence of co-morbid factors, especially socio-economic disadvantage. Although SEIFA is a robust measure that has been used previously in research (e.g., see Baker & Adhikari, 2007; Wise & Mathews, 2011), it reflects areas and not individuals. Therefore, our use of a composite measure of socio-economic disadvantage (SEIFA) in an individual-level study could lead to ecological fallacy in which misleading inferences are made about individuals based upon the areas in which they reside (Wise & Mathews, 2011). Wise and Mathews (2011) and Baker and Adhikari (2007) have attempted to create individual levels of socio-economic advantage and disadvantage in an attempt to resolve this issue. Although these papers highlighted incidences of diversity, Wise and Mathews (2011) found that this varied state to state, with South Australia having a relatively low incidence of diversity compared with other states in Australia. Furthermore, these papers identified some of the limitations pertaining to individual level indexes, in particular issues of applicability and the proportion of the population that would receive an index score if it were calculated on an individual level basis. The authors concluded that because SEIFA is more theoretically and conceptually rigorous and externally validated, it remains a robust measure of relative socio-economic advantage and disadvantage.

### ***Future directions***

This paper further validates the association between maltreatment and young offending using data from one Australian jurisdiction (South Australia). This is not only important for service development in South Australia in which data are collected, but to any cross jurisdictional understanding that can inform the further development of criminological theory. The findings highlight the need to continue exploring factors that influence both gender-specific and culture-specific pathways to offending among victims of maltreatment, and interaction effects between maltreatment and placement factors will be a key focus of subsequent papers. Furthermore, it is known that other individual, social and contextual factors play a role in influencing the maltreatment-offending association. A deeper understanding of these risk factors is important and our data will allow us to explore the differences between young people with convictions who have histories of maltreatment and those who do not on a range of psychological self-report measures. Numerous studies have found differential effects for maltreatment and placement factors on the type of crime committed. Future studies should endeavour to further explicate risk

associated violent versus non-violent crimes, as well as specific types of offenses (e.g., property or drug-related offenses) and the frequency or severity of involvement with crime (e.g., multiple convictions for violent crimes versus fewer convictions for non-violent crimes). Finally, the data used in this study included convictions only up until the age of 18, therefore it would be useful to integrate data on adult convictions to enable further exploration of associations into young adulthood.

### ***Conclusion***

Identifying risk and protective factors for youth offending among victims of maltreatment is important for the development of both prevention and intervention efforts, but as this body of research continues to demonstrate, the maltreatment-offending relationship is increasingly complex. In this study, a number of demographic and maltreatment-related risk factors were found to predict convictions. However, it might be that no single approach will militate against the consequences of maltreatment and that a combination of effective treatment and prevention components are needed. Furthermore, there is a pervasive lack of evidence based guidance delineating which components might be useful. It is unknown whether similar strategies can work for all young offenders or if there are salient treatment and prevention strategies for offenders who are also survivors of maltreatment. Much of the current maltreatment-offending literature focuses exclusively on risk factors, with minimal attention directed towards translating these findings into practical solutions. If we can accept that victims of maltreatment are at increased risk for subsequent young offending, then we also need to focus on how we can use this knowledge to inform effective assessment, intervention and prevention strategies.



## 5.2 Publication: Child maltreatment and criminal convictions in youth: The role of gender, ethnicity and placement experiences in an Australia population

### 5.2.1 Statement of authorship

Title of Paper	Child maltreatment and criminal convictions in youth: The role of gender, ethnicity and placement experiences in an Australian population.
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#### *Principal Author*

Name of Principal Author (Candidate)	Catia Gaetana Malvaso		
Contribution to the Paper	Designed and conceptualised the study, completed the data analyses, interpreted the results and drafted the manuscript.		
Overall percentage (%)	80		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/02/2017

#### *Co-Author Contributions*

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Paul Delfabbro		
Contribution to the Paper	Contributed to the conceptualisation of the analysis, assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
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Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

### 5.2.2 Abstract

A number of previous studies have shown that out-of-home care (OHC) placement experiences can influence the pathway from maltreatment to offending, and that these pathways may differ depending on gender and ethnic backgrounds. Even though Australian welfare and justice systems are unique in terms of the over-representation of Indigenous (Aboriginal and Torres Strait Islander) young people, there have been few Australian longitudinal studies that explore the role of placement experiences in examinations of the maltreatment-offending association. The present study uses linked child protection and youth justice data for 17, 671 young people and aims to provide insight into the way ethnicity, as well as gender, moderates the association between maltreatment, placement in OHC and youth convictions. The data were analyzed using logistic regression and the findings varied systematically depending on the type of conviction examined. There was some strong evidence that gender, ethnicity and placement factors moderated the relationship between maltreatment and convictions in general, and for violent convictions more specifically. Interaction effects revealed that placement experiences were more consequential for female than for male youth, but less consequential for Indigenous than for non-Indigenous youth. A one-size-fits-all approach to understanding, treating and preventing the consequences of child maltreatment could not be considered the most appropriate best practice given the gender- and ethnic-specific pathways found in this study.

**Keywords:** Child maltreatment; out-of-home care; youth offending; convictions

### 5.2.3 Introduction

Although there is substantial evidence that young people who have experienced childhood maltreatment are more likely to engage in criminal behavior, both as adolescents and as adults (Jonson-Reid, 2002; Ryan & Testa, 2005; Smith & Thornberry, 1995; Thornberry et al., 2010; Widom, 1989), it is also clear that the pathways from maltreatment to offending are complex (Lansford et al., 2007; Mersky & Reynolds, 2007; Smith et al., 2013; Verrecchia et al., 2010). For example, it is well established that the vast majority of young people who have experienced maltreatment do not go on to commit crime (DeGue & Widom, 2009; Widom, 1989), and a range of risk and protective factors have been shown to influence these developmental pathways (for detailed reviews see Kerig & Becker, 2015; Malvaso, Delfabbro & Day, 2016).

A life event that is frequently identified as contributing to youth crime and delinquency is placement in out-of-home, or substitute, care (OHC) (Goodkind et al., 2012; Ryan & Testa, 2005). Although this is intended to provide a safe, therapeutic and stable home environment for children who have been maltreated, those who are placed into OHC often have poorer developmental outcomes and are exposed to a range of additional risks (Sawyer et al., 2007; Vig, Chinitz, & Sbulman, 2005). While some of these outcomes are likely to be a direct consequence of the maltreatment experienced (and other previous adverse circumstances), there is also evidence that poorer outcomes, including delinquency, result when placement does not occur (e.g., victims of maltreatment who remain with their families and receive in-home services; see Bright & Jonson-Reid, 2008). As emphasized by Doyle (2013), it is clear that placement decisions represent important policy questions about removing children from their home environments. In order to ensure young people are placed in the most appropriate alternative care arrangements, a deeper understanding of the potential consequences of, and long-term outcomes associated with, different placement types is needed.

Placement experiences are not homogenous; young people are placed in different types of substitute care arrangements, at different ages and for varying amounts of time. Although there appears to be some evidence for the negative effects of placement in both foster care (e.g., Doyle, 2008) and kinship care (e.g., Ryan, Hong, Herz & Hernandez, 2010), it is placement in residential care (also known as group homes or congregate care) that appears to be most strongly associated with delinquent behavior (Baskin & Sommers, 2010; Ryan, 2012; Ryan et al., 2008).

Gender and ethnic differences have also been reported, with studies by Goodkind et al. (2012), Malvaso and Delfabbro (2015), and Ryan et al. (2010) all finding that group home or residential care placement was more consequential in the offending behavior of females than males. Both Ryan and Testa (2005) and Goodkind et al. (2012) also reported that African American males who were placed in OHC had a greater likelihood of delinquency than White males. However, in the Goodkind study, the negative effects of congregate care placement in particular were more consequential for white youth than African American youth; with the former more likely have contact with the juvenile justice system. Similarly, Jonson-Reid (2002) found that white youth who were placed in foster care were more likely to enter the correctional system than non-white youth.

It has been suggested that young people who are placed in residential care (and to a lesser extent foster care) are at increased risk of offending as a direct result of the difficult or disruptive behaviors that lead them to being placed in care. There is evidence, for example, that young people who enter care due to a combination of maltreatment and behavior problems are more likely to experience group home placements (DeGue & Widom, 2009), and that those who have behavioral problems are more likely to offend (Vinnerljung & Sallnäs, 2008). However, it is also possible that features of the placement itself can exacerbate risk. For example, being placed in close proximity with deviant peers who reinforce antisocial attitudes and beliefs may increase antisocial behavior (Grogan-Kaylor et al., 2008). Indeed, there is evidence that grouping young people with antisocial behavior together leads to increased opportunities for deviant conversations, which in turn contribute to further involvement in delinquent acts (Dishion, McCord, & Poulin, 1999; Dishion, Nelson, & Bullock, 2004; Mahoney, Stattin, & Lord, 2004).

Youth in care may also be subject to disproportionate police attention for minor incidences that would be dealt with differently in ordinary family settings (Schofield et al., 2012). In support of this suggestion, McFarlane (2010) found that property damage in care homes was one of the most common reasons that young people in OHC faced court. Furthermore, young people in OHC have been shown to experience particular difficulty in meeting bail and order conditions, creating a situation where breaches and an ongoing cycle of correctional responses are likely (Spratt & Myers, 2011). Cashmore (2011) has also described how courts in Australia are sometimes limited in their options to grant bail when foster families or care homes are unable, or unwilling, to remain involved, resulting in more youth being remanded in custody or placed in secure care. These factors have been

identified as trapping young people into a cycle of offending that they are less able to escape (Malvaso & Delfabbro, 2015; Ryan et al., 2007).

Others have argued that it is not placement in care *per se* that results in offending behavior, but that other placement characteristics, such as the age at time of first placement or the placement duration or stability, exacerbate risk (Kolivoski et al., 2014; Ryan & Testa, 2005; Yampolskaya et al., 2011). There is mixed evidence regarding the effects of placement duration. On one hand, some studies have concluded that young people who have been in OHC for longer periods of time are less likely to offend (Kolivoski et al., 2014), while on the other there is evidence that extended durations in care are associated with increases in offending (Ryan et al., 2010). However, the findings regarding age at time of first placement and placement instability are robust. That is, those who are placed in OHC at an older age, and those who experience a number of different placements, are more likely to offend (Baskin & Sommers, 2010; DeGue & Widom, 2009; Goodkind et al., 2012; Jonson-Reid, 2002; Ryan, 2012; Ryan et al., 2010; Vinnerljung & Sallnäs, 2008; Yampolskaya & Chuang, 2012). This may be because those who enter care at an older age are more likely to have pre-existing and more intense behavioral and emotional problems, and may have been exposed to child maltreatment or adverse family circumstances for longer periods of time (Delfabbro et al., 2001). Relatedly, young people with behavioral problems are more likely to experience placement changes, although a number of studies have demonstrated that placement instability often precedes problematic behavior (DeGue & Widom, 2009; Jonson-Reid & Barth, 2003). Thus disruptive or delinquent behavior may be both a cause and a consequence of placement instability, and a deeper understanding of how instability or unpredictability in placements contributes to behavior is needed.

Few longitudinal studies have considered how placement factors are related to different types of crime. As noted above, Jonson-Reid and Barth (2000) found that youth who were older in age at time of placement and who experienced multiple placement changes were more likely to be incarcerated for serious or violent offenses. Furthermore, Baskin and Sommers (2010) examined the differences between violent and non-violent arrests and found that while placement instability, older age at time of first placement, and longer periods of time in care were associated with increased risk, foster care and group home placement were only associated with an increased risk for non-violent arrests.

There is clearly a need to collect local data that can inform the development of both theory and interventions that aim to reduce the association between childhood maltreatment, placement in OHC, and offending behavior. The present study aims to

establish the links that exist between OHC and youth crime convictions in an Australian sample of maltreated young people and to examine the influences of different placement factors on a broad range of crimes. Recent reports suggest that the number of young people placed in OHC is increasing (AIHW, 2005). This is a likely consequence of increases in child abuse reports and investigations, which can be largely attributed to the legislation of mandatory reporting policies. Although these policies vary by jurisdiction, the most recent report suggested that in 2014-15, approximately 22 in 1000 young people were subject of an investigation, and 10 in 1000 were placed in OHC (AIHW, 2016).

Although the juvenile court's jurisdiction in Australia is similar to that of countries part of the United Nations *Convention on the rights of the child* (e.g., the minimum age of criminal responsibility is ten years old), the Australian youth justice system differs from some other countries in that greater use is made of a welfare model for dealing with young people who commit crime (Day, 2011). Contrasting with some of the more punitive driven models that operate in parts of Europe and the United States, welfare-informed approaches emphasize the need to consider the young person and their best interests (Muncie, 2008).

Longitudinal studies that examine the association between maltreatment, placement in OHC and offending are relatively scarce in Australia, although Australian welfare and justice systems are characterized by an over-representation of Indigenous (Aboriginal and Torres Strait Islander) young people. The entrenched disadvantage and suffering of Indigenous peoples is an undisputable broader problem within Australian society, with economic hardship, access to opportunities, and prevalence of substance abuse and mental health issues likely consequences of colonization among this cultural group. Although the trauma resulting from forced separation of some Indigenous children from their families is recognized in the Aboriginal Child Placement Principle legislated in all Australian jurisdictions (i.e., the preference to place Indigenous young people with extended family, within the Indigenous community, or with other Indigenous people), it is not always possible to adhere to this placement principle on all occasions (see Arney et al., 2015 for more detail). Therefore, this study aims to provide additional insight into the way ethnicity, as well as gender, moderates the association between maltreatment, placement in OHC and youth offending. Specifically, this study aims to examine these relationships by addressing the following research questions:

1. Do the relationships between OHC placement and convictions vary depending on gender or ethnicity?

2. Which placement factors, or interactions between placement factors and gender or ethnicity, best predict convictions?

Based on the previous literature, three hypotheses were developed for investigation: 1) Males, Indigenous young people, and those experiencing socioeconomic disadvantage will be more likely to have convictions; 2) Placement in residential care, older age at time of first placement, longer periods of time in care, and an increased number of placement changes will all be associated with a greater likelihood of convictions; 3) Placement in out-of-home care will be associated with an increased likelihood of convictions for females and Indigenous young people. The lack of previous research examining the associations between demographic characteristics, placement factors and different types of crimes make it difficult to hypothesize about interactions between these variables with regard to specific types of convictions. Consequently, this is an important area of investigation.

#### **5.2.4 Method**

##### ***Study design***

The present study utilized child protection data from 17,705 young people in an Australian state with substantiated histories of maltreatment (including physical, sexual, and emotional abuse and neglect) prior to the age 18 who were born between 1982 and 1997. Information regarding placement in out-of-home care (OHC) history (e.g., the type of placement, number of placements, duration of time in OHC, and age at time of first placement) was also collected from the child protection database. Youth crime convictions were obtained from the Justice Information System. The data were linked using a numerical identifier unique to each young person who entered the child protection or youth justice systems in this jurisdiction. The sampling strategy was based on a historical birth cohorts design to allow for the longitudinal analysis of data. For more detailed information regarding the study design and data collection procedures, see (Malvaso, Delfabbro & Day, 2017b).

Two sets of analyses were conducted. The first included the full sample of all young people for whom maltreatment was substantiated. To further analyze the extent to which variations in placement experiences influence outcomes, the second set of analyses included only those who experienced at least one OHC placement. Excluded in both analyses were any cases in which the age of the first offense was equal to or preceded age

at first maltreatment substantiation ( $n = 34$ ). This was to ensure the correct temporal order between associations by including only those cases in which maltreatment preceded offending. Furthermore, to maintain the temporal order between associations in analyses in which young people placed in OHC were included, those whose age at first offense was equal to or preceded age at first placement were excluded ( $n = 81$ ). Therefore, the first set of analyses included 17,671 young people and the second 4,677 young people.

### *Measures*

The dependent variable in this study was crime (i.e., whether a young person had ever been convicted of a crime prior to the age of 18). Convictions were also counted as crimes if the incident was proven or agreed to, but not officially recorded. This reflects the emphasis in South Australia on diversion (as stipulated in the Young Offender Act, 1993), whereby some young people do not receive formal convictions even when charges have been legally proven. Matters that had been dismissed, not proceeded with or committed to trial, but in which the defendant was subsequently found not guilty were not counted. Five categories of the dependent variable were used in this study to further explore the associations between maltreatment, placement and type of crime. First, *any conviction* is represented by a dichotomous variable differentiating between young people with at least one conviction for any type of crime and those without any convictions. *Any violent* is represented by a dichotomous variable which differentiates young people with convictions for at least one violent crime (including homicide, assault, sexual assault, and robbery) and those without violent crime convictions. Further dichotomous variables were created to differentiate between young people with at least one conviction for crimes against property (including theft, break and enter, fraud and property damage), drug offenses, and breach offenses.

A number of demographic variables were included. *Gender* is represented by a dichotomous variable differentiating males from females, *ethnicity* by a dichotomous variable differentiating between Indigenous and non-Indigenous young people, and *socioeconomic disadvantage* by a dichotomous variable differentiating between young people living below or above the 25<sup>th</sup> percentile on this indicator. This variable was created by matching the postcode in which the individual was residing at the time of the maltreatment report with a corresponding measure of socioeconomic disadvantage (Socio-Economic Index For Area; SEIFA) developed by the Australian Bureau of Statistics (ABS; 2011).



*Placement in OHC* is represented by a dichotomous variable differentiating between maltreated young people who were subsequently placed and those who were not. Several other placement factors were included in the second set of analyses. Three different placement types (*foster care*, *residential care* and *kinship care*) were each represented by dichotomous variables differentiating between those who experienced at least one placement in each type of care arrangement. Therefore, these groupings were not mutually exclusive, with those who experienced more than one type of placement included in each respective group. *Age at first placement* is the age (in years) at which the young person experienced their first OHC placement. *Duration* is the total number of years that a young person was in contact with the OHC system. *Placement changes* represents the total number of different placements experienced. Respite placements were not included in this count.

### ***Data analysis procedures***

Several phases of data analysis were conducted. First, a set of comparative analyses of independent demographic predictors was undertaken using both the full sample and placement sample to determine how maltreated young people with convictions differed from those without convictions using chi-square tests of independence. In the full sample, this was extended to include whether a young person had been placed in OHC or not. In the reduced sample, further placement characteristics were also explored to identify which factors were associated with convictions, with *t* tests used for continuous measures. These analyses are not presented in this paper but can be made available upon request (see Tables 5.11 and 5.12 in section 5.2.7). Second, different interaction terms were created with gender, ethnicity and the placement variables in order to examine their relationships with the different types of convictions. Gender and ethnicity were of particular interest in these analyses due to evidence that suggests that males and females, and minority ethnic groups (i.e., Indigenous young people in Australia), experience different pathways. The objective of the third phase of analysis was to determine the best set of predictors for different types of convictions (based on variables found to differ in the first and second phases of data analysis) using logistic regression.

### 5.2.5 Results

Summary statistics for the full sample and placement only sample are reported in Table 5.5. Further analyses revealed that maltreated males and Indigenous young people were more likely to be placed in OHC than females and non-Indigenous young people,  $\chi^2(1) = 55.98, p < .001$  and  $\chi^2(1) = 220.30, p < .001$ , respectively. Furthermore, those living below the 25<sup>th</sup> percentile for socioeconomic disadvantage at the time of their maltreatment report were also more likely to be placed,  $\chi^2(1) = 17.59, p < .001$ .

Of the 17,671 young people for whom maltreatment was substantiated, a small number had subsequent youth crime convictions ( $N = 695$ ; 3.9%). Of those who were subsequently placed in out-of-home care (OHC), the percentage of young people who were subsequently convicted of a youth crime was higher (8.4%). In the full sample of maltreated young people, property crime convictions were the most common type of conviction, followed by convictions for breaches, which was then followed by violent convictions and convictions for drug offenses. The same pattern of convictions was found for the placement sample. A summary of the number of individuals involved in each of type of conviction is displayed in Table 5.6.

Table 5.5. *Summary Statistics for the Full Sample of Maltreated Young People and those Placed in Out-of-Home Care*

	Full sample N = 17671		Placement sample N = 4677	
	N	(%)	N	(%)
<i>Demographics</i>				
Gender (males)	8304	(47.0)	2396	(51.2)
Ethnicity (Indigenous)	2606	(14.7)	984	(21.0)
Socioeconomic disadvantage (below 25 <sup>th</sup> percentile)	4508	(25.5)	1277	(27.3)
<i>Placement in OHC</i>				
Placed	4758	(26.9)	-	-
<i>Placement type</i>				
Foster care	-	-	1267	(27.1)
Residential care	-	-	481	(10.3)
Kinship care	-	-	545	(11.7)
	M	(SD)	M	(SD)
<i>Placement experiences</i>				
Age at first placement	-	-	6.31	(4.36)
Duration of contact with care system	-	-	5.01	(5.83)
Placement changes	-	-	5.58	(6.76)

*Note.* OHC – Out-of-home care.

Table 5.6. *Summary Statistics of Types of Convictions for the Full Sample of Maltreated Young People and those Placed in Out-of-Home Care*

	Full sample N = 17671		Placement sample N = 4677	
	N	(%)	N	(%)
No convictions	16976	(96.1)	4282	(91.6)
Any conviction	695	(3.9)	395	(8.4)
Any violent conviction	509	(2.9)	300	(6.4)
Any property conviction	659	(3.7)	372	(8.0)
Any drug conviction	206	(1.2)	115	(2.5)
Any breach conviction	614	(3.5)	345	(7.4)

*Question 1: Do the relationships between OHC placement and convictions vary depending on gender or ethnicity?*

It was hypothesized that placement in OHC will be more consequential for offending for females and Indigenous young people. To test this hypothesis, moderation analysis was used and the analyses were repeated for each conviction category. In the full sample, only one of the interaction models was significant; there was a significant interaction between gender and placement on any conviction, Wald (1) = 9.00,  $p < .01$ . Further analyses revealed that, as hypothesized, placement in OHC resulted in a 5.33 times greater odds of convictions for males, but a 10.15 times greater odds for females. Contrary to our hypothesis, Indigenous status did not moderate the relationship between placement in OHC and convictions.

In the placement sample, an interaction between gender and placement in residential care for any conviction approached significance, Wald(1) = 2.80,  $p = .09$ . Experiencing at least one residential care placement resulted in a 4.99 times greater odds of convictions for males, and a 7.78 times greater odds of convictions for females. Similarly, a significant interaction was found between ethnicity and placement in residential care for any conviction and violent convictions, Wald(1) = 11.86,  $p < .01$  and Wald(1) = 8.90,  $p < .01$ , respectively. Indigenous young people who experienced at least one residential care placement had a 2.73 and 3.09 times greater odds of convictions in general and violent

convictions, respectively. However, young people from other backgrounds who experienced at least one placement in residential care had a 7.37 and 7.69 times greater odds of convictions in general and violent convictions, respectively. Although gender moderated the association between OHC placement and convictions in the expected directions, contrary to our hypothesis, the odds for general and violent offending were greater for non-Indigenous youth compared to Indigenous youth.

A significant interaction was found between ethnicity and duration of contact with the care system for any convictions and violent convictions,  $Wald(1) = 6.63, p < .01$  and  $Wald(1) = 3.82, p < .05$ . It was found that as the duration of contact with the care system increased, the odds of convictions also increased for Indigenous young people (by 4% for any conviction and by 5% for violent convictions). However, for young people from other cultural backgrounds, increases in duration resulted in a 9% increase for both any and violent convictions. Similarly, a significant interaction was found between ethnicity and placement changes for any convictions and violent convictions,  $Wald(1) = 15.11, p < .001$  and  $Wald(1) = 4.60, p < .05$ , respectively. For Indigenous young people, as the number of placements increased, the odds of any conviction and violent convictions increased by 6% and 7%, respectively. However, for young people from other backgrounds, any conviction and violent convictions increased by 11% and 10%, respectively.

Finally, significant interactions were found between foster care and duration of contact with the care system for any conviction and violent conviction,  $Wald(1) = 19.46, p < .001$  and  $Wald(1) = 16.53, p < .001$ , respectively. For maltreated young people placed in foster care, as duration increased, both convictions in general and violent convictions increased by 2%. However, for those who never experienced a foster care placement, as duration increased, both convictions in general and violent convictions increased by 11%. Similarly, significant interactions between foster care placement and number of placement changes was found for any conviction and violent convictions  $Wald(1) = 7.84, p < .01$  and  $Wald(1) = 4.44, p < .05$ , respectively. Although convictions increased by 8% as number of placements increased (both in general and violent convictions) for those who experienced at least one foster care placement, it increased by 12% (any convictions) and 11% (violent convictions) for those who had not experienced a placement in foster care. Furthermore, a significant interaction was found between placement in residential care and placement changes for violent and property crime convictions,  $Wald(1) = 4.48, p < .05$  and  $Wald(1) = 4.13, p < .05$ . For maltreated young people who experienced a placement in residential care, as the number of placement changes increased, violent convictions increased by 5%.

However, it increased by 8% for those who had not experienced a residential care placement. On the other hand, in terms of property related convictions, as the number of placements increased, property crime convictions increased by 4% for those who experienced placement in residential care, but decreased by 5% for those who had never experienced placement in residential care.

*Question 2: Which placement factors, or interactions between placement factors and gender or ethnicity, best predict convictions?*

In order to examine which factors predict youth crime convictions, logistic regression analysis was used. The factors modeled were based on those found to differ significantly between maltreated young people with and without conviction determined at the bivariate level (bivariate analyses not shown in this paper but can be made available upon request; see section 5.2.7) and in the moderation analysis. Two different sets of regressions were conducted for each of the five conviction type categories – one including all youth for whom maltreatment was substantiated (N = 17,671) and the second including only those who were subsequently placed in OHC (N = 4,677). Two models were fitted for each conviction category. The first included individual predictors and the second included the significant interaction effects determined previously. Models correctly classified between 70.4% (drug convictions in the full sample) and 96.1% (violent convictions in the full sample) of cases, indicating that they were fairly successful in identifying true cases of convictions.

In the full sample (Tables 5.7 and 5.8), male gender and Indigenous cultural backgrounds were strong predictors of convictions, with the former associated with an increased odds of any, violent and property convictions, and the latter associated with an increased odds of convictions in all categories with the exception of drug convictions. Living below the 25<sup>th</sup> percentile predicted increased odds of convictions in two categories only (any and property convictions). Placement in OHC was the strongest predictor of both any convictions and violent convictions, and was associated with an almost 6 times greater odds of convictions in both categories. However, placement was not associated with property, drug or breach convictions. Only one interaction variable was significant in these analyses, indicating that the odds of having any convictions were greater for female than for male youth placed in OHC. Although the -2LLR value was reduced in the second

model, further analyses revealed that this reduction was not significant and the addition of the interaction effect did not greatly improve the predictive value of the model.

In the placement sample, similar patterns emerged in the any conviction and violent convictions categories, with male gender and Indigenous background significantly predicting convictions at the multivariate level (Table 5.9). In the initial models, all except one of the placement factors entered predicted convictions in the expected direction. For both any conviction and violent convictions, ever experiencing a placement in residential care was associated with an almost three times greater odds of convictions; however, ever experiencing a placement in foster care was associated with a 58% and 41% reduction in the odds of convictions (any and violent, respectively). As the age at time of first placement increased, convictions also increased by 12% and 13%. Finally, as the duration of time in contact with the care system and the number of placement changes both increased, convictions also increased by almost 10%. A number of interaction terms were tested in these models and, again, similar patterns emerged for both any and violent convictions. Ever experiencing a placement in residential care was found to be less consequential for Indigenous young people (associated with an almost 60% reduction in the odds of convictions in both categories) compared with young people from other cultural backgrounds. Similarly, as contact with the care system increased, placement in foster care was associated with an almost 10% reduction in the odds of convictions. This indicated that for those young people in contact with the care system for longer periods of time, placement in foster care is associated with reduced odds of subsequent crime convictions than if the young person experienced other types of placements. Finally, the interaction between gender and residential care approached significance in the model predicting any convictions, indicating that placement in residential care is more strongly associated with convictions for females than for males. As exemplified by the reductions in the -2LLR between the initial models and models with interactions, the addition of the interaction effects improved the predictive ability of the models ( $p < .01$ ).

In terms of property, drug and breach convictions, fewer demographic and placement factors significantly predicted convictions in these categories (Table 5.10). For property convictions, Indigenous backgrounds was associated with a five times greater odds of convictions. Furthermore, as age at time of placement increased, property convictions decreased by 12%. However, when the interaction between residential care and placement changes was added to the model, the association between age and convictions disappeared. This interaction effect was not significant in this model and the minimal

change in the -2LLR indicated that the addition of this interaction effect did not greatly improve the predictive ability of this model. The only predictor of drug convictions was placement in foster care, which was associated with a 46% reduction in the odds of convictions. Similarly, the sole predictor of convictions related to breach offenses was Indigenous background, with youth from this cultural background having a 13 times increased odds of these types of convictions.

Across all models, the -2LLR is still quite large (especially in the models utilizing the full sample of young people for whom maltreatment has been substantiated). This indicates that a large proportion of observations remain unexplained. Receiver Operator Curve analyses were conducted in order to determine how accurately placement variables can discriminate between those who are subsequently convicted of crimes and those who are not. Taking the full sample, the Area Under the Curve (AUC) for the test variable Placement in OHC ranged between .50 (for breach convictions) and .72 (for any and violent convictions), indicating that it is a poor test for the former type of conviction, but a fair test for the latter types. Taking the placement sample, the placement variables (e.g., type) varied from .54 (age at time of first placement for any conviction) to .73 (number of placements changes for violent convictions), again indicating a mix of poor and fair tests.



Table 5.7. *Logistic Regression Odds Ratios and Confidence Intervals for Predictors of Any Convictions and Violent Convictions: Full Sample*

	Any convictions				Violent convictions	
	Initial model		Model with interactions		Initial model	
	OR	95% CI	OR	95% CI	OR	95% CI
Gender (Males)	4.23***	[3.48, 5.15]	6.55***	[4.49, 9.59]	4.01***	[3.20, 5.02]
Ethnicity (Indigenous)	2.63***	[2.20, 3.15]	2.61***	[2.18, 3.12]	2.92***	[2.39, 3.57]
Disadvantage	1.36***	[1.15, 1.62]	1.36***	[1.15, 1.61]	1.18	[0.97, 1.44]
Placement in OHC	5.65***	[4.75, 6.72]	9.33***	[6.25, 13.94]	5.97***	[4.87, 7.32]
Gender x Placement	-	-	0.53**	[0.34, 0.83]	-	-
-2LLR		4467.97		4459.67		3541.83

Note. \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.8. *Logistic Regression Odds Ratios and Confidence Intervals for Predictors of Property, Drug and Breach Convictions: Full Sample*

	Property convictions		Drug convictions		Breach convictions	
	Initial model		Initial model		Initial model	
	OR	95% CI	OR	95% CI	OR	95% CI
Gender (Males)	2.35*	[1.13, 4.92]	1.28	[0.84, 1.97]	1.27	[0.71, 2.26]
Ethnicity (Indigenous)	3.86**	[1.33, 11.21]	1.27	[0.89, 1.81]	8.34***	[3.31, 21.04]
Disadvantage	2.71*	[1.10, 6.70]	1.29	[0.92, 1.82]	1.22	[0.72, 2.06]
Placement in OHC	1.43	[0.68, 3.00]	1.25	[0.87, 1.82]	1.16	[0.68, 1.97]
-2LLR		245.28		786.17		426.49

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.9. Logistic Regression Odds Ratios and Confidence Intervals for Predictors of Any and Violent Convictions: Placement Sample

	Any convictions				Violent convictions			
	Initial model		Model with interactions		Initial model		Model with interactions	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender (Males)	3.73***	[2.86, 4.88]	4.45***	[3.19, 6.20]	3.69***	[2.73, 4.99]	3.76***	[2.78, 5.10]
Ethnicity (Indigenous)	2.14***	[1.64, 2.78]	2.91***	[2.15, 3.92]	2.52***	[1.90, 3.35]	3.30***	[2.36, 4.60]
Disadvantage	1.33*	[1.04, 1.70]	1.31*	[1.02, 1.68]	1.13	[0.86, 1.50]	1.13	[0.86, 1.50]
Foster care	0.42***	[0.31, 0.57]	0.61**	[0.44, 0.84]	0.59***	[0.35, 0.68]	0.67*	[0.47, 0.97]
Residential care	2.94***	[2.14, 4.02]	1.94	[0.84, 4.49]	2.83***	[2.02, 3.98]	3.87***	[2.52, 5.96]
Age at first placement	1.12***	[1.09, 1.16]	1.10***	[1.06, 1.14]	1.13***	[1.09, 1.18]	1.11***	[1.07, 1.16]
Duration	1.06***	[1.03, 1.10]	1.09***	[1.05, 1.13]	1.07***	[1.04, 1.11]	1.11***	[1.06, 1.15]
Changes	1.08***	[1.07, 1.10]	1.11***	[1.08, 1.14]	1.08***	[1.06, 1.09]	1.08***	[1.05, 1.11]
Gender x Residential care	-	-	1.70†	[0.96, 3.03]	-	-	-	-
Ethnicity x Residential care	-	-	0.43**	[0.22, 0.86]	-	-	0.40**	[0.19, 0.81]
Ethnicity x Duration	-	-	0.97	[0.92, 1.02]	-	-	0.96	[0.91, 1.01]
Ethnicity x Changes	-	-	0.98	[0.95, 1.02]	-	-	1.02	[0.98, 1.05]
Foster care x Duration	-	-	0.92**	[0.88, 0.98]	-	-	0.93**	[0.87, 0.98]
Foster care x Changes	-	-	0.98	[0.95, 1.01]	-	-	0.99	[0.95, 1.03]
Residential care x Changes	-	-	-	-	-	-	1.00	[0.97, 1.04]
-2LLR		1983.52		1947.02		1661.50		1639.33

Note. †  $p < .1$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.10. *Logistic Regression Odds Ratios and Confidence Intervals for Predictors of Property, Drug and Breach Convictions: Placement Sample*

	Property convictions				Drug convictions		Breach convictions	
	Initial model		Model with interactions		Initial model		Initial model	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Gender (Males)	2.14†	[0.87, 5.28]	2.13	[0.86, 5.26]	-	-	-	-
Ethnicity (Indigenous)	5.08*	[1.15, 22.45]	4.99*	[1.13, 22.06]	1.45	[0.88, 2.39]	13.25***	[3.16, 55.59]
Disadvantage	-	-	-	-	1.37	[0.85, 2.20]	-	-
Foster care	-	-	-	-	0.54*	[0.30, 0.98]	-	-
Residential care	1.85	[0.68, 5.04]	1.49	[0.46, 4.90]	0.62	[0.33, 1.20]	-	-
Age at first placement	0.88*	[0.78, 0.99]	0.99	[0.78, 1.04]	-	-	-	-
Duration	-	-	-	-	0.99	[0.94, 1.04]	0.95	[0.89, 1.01]
Changes	0.97	[0.93, 1.01]	0.97	[0.93, 1.01]	1.00	[0.97, 1.03]	1.00	[0.97, 1.03]
Residential care x Changes	-	-	1.07	[0.87, 1.32]	-	-	-	-
-2LLR		157.60		157.22		419.47		268.19

Note. †  $p < .1$ . \*  $p < .05$ . \*\*\*  $p < .001$ .

### 5.2.6 Discussion

The relationship between maltreatment, gender, ethnicity, placement in out-of-home (OHC) and subsequent youth crime convictions was examined in this study using a birth cohort of young people from the child protection system in South Australia. Analyses were conducted using the full sample (i.e., all young people for whom cases of maltreatment were substantiated) and a reduced sample (i.e., including only those who were subsequently placed in OHC). Overall, the variables that were important in predicting crime varied depending on the type of conviction examined but there was some strong evidence that, as consistent with our hypotheses, gender, ethnicity and placement factors moderated the relationship between maltreatment and convictions in general, and for violent convictions more specifically. This work is important, not only because it validates previous findings in the area using an Australian sample, but it also extends research by examining the effects of gender, ethnicity and placement on different types of crime. By exploring how these factors are differentially related for males and females, and for Indigenous and non-Indigenous youth, this study provides an in-depth analysis of the complex relationship between maltreatment and offending. This is important for the design and implementation of services aimed at both preventing the crossover of youth between the child protection and youth justice systems and ameliorating the consequences of maltreatment.

Consistent with previous research, gender and ethnicity were strong predictors of convictions in both the full and placement samples (Goodkind et al., 2012; Jonson-Reid, 2002; Ryan & Testa, 2005). In the full sample, a significant interaction between gender and placement was found for any convictions and this showed that placement into OHC was associated with increased odds of offending for females compared to males. Although this interaction between gender and placement in residential care only approached significance in the reduced placement sample, there does appear to be support for the idea females placed in these care arrangements are also more likely to offend than males. Other research studies have demonstrated similar findings (Goodkind et al., 2012; Ryan et al., 2010). It might be that females are more sensitive to the disruptions caused by OHC placement than males; however, further research is needed to identify the mechanisms which underpin this increased risk for females. For example, is it that females are more vulnerable to the negative effects of residential care because, in response to the potential lack of safety in these settings or being placed in close proximity with other delinquent

peers, they develop coping skills and behaviors that are congruent with risky behavior? On the other hand, it is possible that females with these types of behaviors are more likely to enter these placements and the presence of these pre-existing problematic behaviors can then be used to explain the increased risk. Although Goodkind et al. (2012) found that females receiving services for substance abuse problems were less likely to be involved in the juvenile justice system, it does point to the idea that females placed in care may be dealing with other complex issues and, in the absence of appropriate support or interventions, are at increased risk for developing more serious behavior problems such as offending.

Although Indigenous status as a main effect strongly predicted convictions in most categories for both the full and placement samples, a significant interaction effect between ethnicity and residential care indicated that placement in residential care was associated with increased odds of general and violent offending for non-Indigenous youth. Although this finding might seem surprising, other studies have demonstrated similar trends, with Goodkind et al. (2012) concluding that congregate care was associated with an increased likelihood of juvenile justice system involvement for white youth compared to African American youth. Additionally, although specific to young people placed in foster care, Jonson-Reid (2002) found that white youth were more likely to enter the correctional system than non-white youth.

In Australia, it well known that Indigenous young people are over-represented in both the welfare and justice systems; however, it is also important to recognize the broader socio-political reasons that might drive this disparity. For example, it might be that there are ethnic biases in placement and policing decisions. Indeed, we found that one of the strongest effects throughout this study was that of Indigenous background on convictions for breach related offenses, indicating that Indigenous young people were over 13 times more likely to be convicted of these types of offenses compared to non-Indigenous youth. Although no published longitudinal studies could be located to validate this finding in Australia, in a review of the New South Wales juvenile justice system, it was indicated that in 2006-2007 Indigenous young people appeared in court due to breach of bail conditions more frequently than non-Indigenous young people (23.6% versus 18.9%)(Murphy, McGinness, Balmaks, McDermott, & Corriea, 2010). It has also been documented that Indigenous young people are more likely to have more informal and formal contact with the police than non-Indigenous young people, including being more likely appear in court for offences rather than being cautioned or offered police conferencing for first time

offences (Allard et al., 2010). It is then plausible that similar processes occur in situations where bail or order conditions are breached. Indeed, other studies have noted that Indigenous people are more likely to be convicted of breach offences (Baker, 2001; Gately, Ellis, & Morris, 2016). Furthermore, as suggested by Goodkind et al. (2012), it might be that this bias against Indigenous young people might actually result in a more concentrated group of non-Indigenous youth with troublesome or problematic behavior in residential care. However, it is also important not to confuse over-representation with over-surveillance, as families involved in welfare systems are likely to reside in poorer and higher risk communities (Jonson-Reid, 2002). As a result, it was expected that our measure of socioeconomic disadvantage would contain limited variability and thus was dichotomized so as to differentiate between those residing below and above the 25<sup>th</sup> percentile at the time of maltreatment substantiation. Living below the 25<sup>th</sup> percentile for socioeconomic disadvantage was found to be predictive of convictions in a number of the models in this study, indicating that these factors need to be considered in discussions around over-surveillance or cultural competency.

Other placement factors were also found to be associated with a number of different types of convictions. Placement in foster care was associated with reduced odds for any, violent and drug convictions, but was not associated with property or breach convictions. Further pointing to the protective effects of this type of placement was the significant interaction between foster care and duration found in the any convictions and violent convictions models. This indicated that for those who were in contact with the care system for longer periods of time, placement in foster care was associated with reduced odds for subsequent crime convictions compared to young people who experienced other types of placements. Maltreated young people placed in care have likely experienced aberrant and unpredictable home environments, resulting in a number of neurobiological and social consequences, including poor attachment with caregivers and peers and inhibited emotional, attention and behavioral regulation processes (Osborn, Delfabbro, & Barber, 2008). However, some of these consequences can be ameliorated when young people are placed in stable home environments with warm, patient and consistent foster carers. Those who have been in care for longer periods of time are also more likely to have entered the system earlier, and those who stay with the same carers are likely to have experienced fewer school changes.

Congruent with this is the finding that those who experienced a higher number of placements were more likely to have convictions in general, as well as violent convictions.

It has been consistently found that placement instability is strongly associated with delinquent and offending behaviors (DeGue & Widom, 2009; Goodkind et al., 2012; Kolivoski et al., 2014; Ryan & Testa, 2005). As there appeared to be no differences for the effects of placement instability by gender or ethnicity, it seems to be important to work towards stability in the OHC environments of all maltreated young people. By controlling for the temporal order of associations, it is arguable that placement instability preceded involvement in criminal behavior in this study, potentially ruling out arguments that suggest that behavior leads to placement instability. It might be that problematic behavior is both a cause and consequence of placement instability, but nonetheless stabilizing placements should certainly be one of the most important focus points of OHC interventions. The possible development of professional foster care, intensive family preservation services, and intensive therapeutic residential care services have been proposed as solutions that will see to the creation of more stable, long-term placements. However, such services have limited availability in Australia (Osborn & Bromfield, 2007). One promising service that has been gaining rapid evidence is multisystemic therapy (MST; Henggeler et al., 1997). Some of the key elements of MST include: comprehensive and individualized treatment; services provided in the young person's natural ecology (e.g., at home or in schools); and the treatment of risk factors from multiple domains (e.g., individual behavior in addition to family, social and contextual factors). Through the provision of intensive individual and family support, MST has been considered to be a viable alternative to OHC placement by assisting youth to stay at home with their families (Swenson et al., 2010). Indeed, there is evidence that MST improves access to services for young people and reduces parent symptomatology (Borduin et al., 1995), improves peer relations (Henggeler et al., 1992), and reduces criminality among siblings of offenders (Wagner, Borduin, Sawyer, & Dopp, 2014). Although these types of services are expensive, cost-benefit analyses demonstrate the long-term economic benefits of MST interventions (Borduin & Dopp, 2015).

Finally, it was found that as age at time of placement and duration of contact with the care system increased, so too did the odds of convictions in general and for violent crimes. Although mixed evidence for the effects of placement duration have been documented (Kolivoski et al., 2014; Ryan et al., 2010), it has been consistently found that youth placed in care at older ages are at increased risk for offending (Baskin & Sommers, 2010; DeGue & Widom, 2009). Extended exposure to maltreatment and other adverse circumstances, a higher prevalence of emotional and behavioral problems, and seeking

immediate gratification in response to stressful or challenging situations are among some of the reasons proposed to account for the increased risk of offending for young people placed in care at older ages (Baskin & Sommers, 2010; Delfabbro et al., 2001; Malvaso & Delfabbro, 2015). These young people are also more likely to be placed in residential care and move placements more frequently due to their behavior; therefore, the risk associated with age at time of placement may be an artifact of other placement and behavioral factors. It has also been found that these high risk placement characteristics are not only a risk factor for youthful offending, but the risks also extend into adulthood (DeGue & Widom, 2009). Therefore, the environmental and social consequences of deleterious placement experiences should be targeted early in order to interrupt offending pathways from extending into adulthood.

Overall, this study demonstrated that gender, ethnicity and placement factors moderated the relationship between maltreatment and convictions in general, and for violent convictions more specifically. However, the study is not without limitations. The data are drawn from only one Australian jurisdiction (South Australia) and are based on official records of maltreatment and offending, thus the implications and generalizability of the findings may be limited. Although beyond the purview of this study, it is also recognized that there are other important risk factors that contribute to offending pathways that were not explored in this study, including other individual, cultural and contextual characteristics. Indeed, the large -2 log likelihood ratio and poor Area Under the Curve values suggest that predicting convictions from placement variables alone is difficult, and that including other factors in these models would help us discriminate between young people who go on to offend from those who do not. Finally, delinquent youth rarely specialize in specific types of crime and it is clear that a number of the same young people were included in our different conviction categories. Future research could examine how maltreatment and placement factors relate to different combinations of convictions, or more broadly to violent versus non-violent crimes. Similarly, child protection involvement could be broken down into different categories of system involvement (e.g., notifications only, substantiations only, substantiations plus OHC placement, and placement only) to further determine if young offenders with varying levels of child protection involvement differ in terms of the types of crimes committed, as well as the risk factors that pertain to these different groups.

Despite these limitations, the findings are consistent with previous literature and have contributed to the overall body of literature by not only validating these conclusions



in a different population, but by exploring in greater detail the associations between maltreatment, gender, ethnicity and placement factors with different types of youth convictions. These should be considered in the development of treatment and prevention initiatives so that ethnic biases are not perpetuated in our systems. More broadly, a one-size-fits-all approach to understanding, treating and preventing the consequences of child maltreatment may not be appropriate. This study suggests that there is a need to meet the ethnic- and gender-specific needs of young people served by both the child protection and youth justice systems in Australia and beyond.

### 5.2.7 Online supplementary material

Table 5.11. *Bivariate Comparisons between Maltreated Young People With and Without Convictions (Categorical Variables)*

	Any conviction			Any violent conviction			Any property conviction			Any drug conviction			Any breach conviction		
	Yes %	No %	$\chi^2$	Yes %	No %	$\chi^2$	Yes %	No %	$\chi^2$	Yes %	No %	$\chi^2$	Yes %	No %	$\chi^2$
<i>Full sample</i>															
Males	78.4	45.9	282.45***	77.8	46.3	196.65***	79.4	61.1	6.72**	80.6	77.5	0.81	79.0	74.1	1.02
Indigenous	34.8	13.9	231.85***	37.7	14.1	220.02***	36.0	13.9	7.33**	38.8	33.1	2.08	38.6	6.2	22.15***
Disadvantage	38.8	28.9	29.24***	36.4	29.1	11.67**	40.0	17.6	6.78**	43.7	36.7	2.79†	39.7	32.0	1.66
Placed in OHC	68.5	25.2	635.20***	70.3	25.6	501.92***	68.7	63.9	0.37	70.9	67.5	0.77	68.4	69.1	0.02
<i>Placement sample</i>															
Males	74.9	49.2	96.18***	75.3	49.7	73.89***	76.1	56.5	4.41*	76.5	74.3	0.22	74.5	78.0	0.29
Indigenous	32.4	20.0	33.55***	35.7	20.0	41.29***	33.9	8.7	6.27**	40.0	29.3	4.27*	36.5	4.0	21.09***
Disadvantage	37.8	31.1	6.77**	35.1	31.4	1.64	38.8	22.7	2.26	45.0	34.7	3.43†	38.7	31.1	0.97
Foster care	35.9	26.3	17.15***	38.7	26.3	21.75***	35.2	47.8	1.50	21.7	41.8	14.23***	36.2	34.0	0.09
Residential care	33.2	8.2	244.79***	35.0	8.6	212.23***	33.3	30.4	0.08	19.1	38.9	14.42***	32.5	38.0	0.60
Kinship care	10.6	11.7	0.44	11.0	11.7	0.13	11.0	4.3	1.02	7.8	11.8	0.25	10.1	14.0	0.41

Note. †  $p < .1$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.12. *Bivariate Comparisons between Maltreated Young People (Placement Sample) With and Without Convictions (Continuous Variables)*

	Any conviction			Any violent conviction			Any property conviction			Any drug conviction			Any breach conviction		
	Yes M (SD)	No M (SD)	<i>t</i>	Yes M (SD)	No M (SD)	<i>t</i>	Yes M (SD)	No M (SD)	<i>t</i>	Yes M (SD)	No M (SD)	<i>t</i>	Yes M (SD)	No M (SD)	<i>t</i>
Age	6.76 (3.94)	6.26 (4.40)	2.39*	6.80 (3.90)	6.27 (4.39)	2.26*	6.66 (3.91)	8.52 (4.09)	2.22*	7.19 (3.66)	6.59 (4.04)	1.38	6.77 (3.90)	6.72 (4.22)	0.09
Duration	7.64 (5.55)	4.77 (5.80)	9.45***	7.88 (5.46)	4.81 (5.81)	8.88***	7.68 (5.58)	6.83 (5.03)	0.72	6.65 (5.21)	8.04 (5.63)	2.28*	7.40 (5.55)	9.28 (5.26)	2.25*
Changes	11.82 (11.30)	5.00 (5.86)	11.84***	12.12 (11.29)	5.13 (6.09)	10.62***	11.67 (11.12)	14.22 (13.97)	1.05	9.55 (9.15)	12.75 (11.96)	2.87**	11.43 (14.46)	14.46 (12.17)	1.78†

*Note.* Age – age at first placement (years). Duration – total time in contact with care system (years). Changes – Number of different placements experienced. †  $p < .1$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### 5.3 Publication: Maltreatment, placement in out-of-home care and other individual and social risk factors for violent offending in youth

#### 5.3.1 Statement of authorship

Title of Paper	Maltreatment, placement in out-of-home care and other individual and social risk factors for violent offending in youth.
Publication Status	Under review.
Publication Details	Malvaso, C.G., Delfabbro, P.H, Day, A., & Nobes, G. (under review). Maltreatment, placement in out-of-home care and other individual and social risk factors for violent offending in youth.

#### *Principal Author*

Name of Principal Author (Candidate)	Catia Gaetana Malvaso		
Contribution to the Paper	Designed and conceptualised the study, completed the data analyses, interpreted the results and drafted the manuscript.		
Overall percentage (%)	80		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree by Research candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	10/02/2017

#### *Co-Author Contributions*

By signing the Statement of Authorship, each author certifies that:

- i. the candidate's stated contribution to the publication is accurate (as detailed above);
- ii. permission is granted for the candidate to include the publication in the thesis; and
- iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Paul Delfabbro		
Contribution to the Paper	Contributed to the conceptualisation of the analysis, assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
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Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

Name of Co-Author	Gavin Nobes		
Contribution to the Paper	Assisted with the interpretation of the findings and provided critical feedback on the manuscript.		
Signature		Date	10/02/2017

### 5.3.2 Abstract

**Objective:** This study investigated the unique contribution that maltreatment and placement in out-of-home care variables make to violent offending when other known individual and social correlates of crime were controlled for. Data were drawn from a population that has yet to be studied (South Australia) and integrates both official child protection and youth justice records with survey information collected from young people who entered a secure care facility over a 17-year period.

**Method:** Data for 1,819 young offenders were available for analysis. Measures included: maltreatment factors (including type, timing and recurrence); placement factors (including type, age at first placement, stability and duration of placements); social factors (including family and peer risk indicators); and individual factors (including those relating to intelligence and education, substance use, mental health problems, and behavioral characteristics). The moderating effects of gender and ethnicity were explored. Logistic regression analysis was used to determine which factors were associated with violent convictions.

**Results:** Multivariate analyses showed that the strongest independent predictors of violent convictions were: aggression, anger, Indigenous status, male gender, and persistent maltreatment, with household conflict also approaching significance.

**Conclusion:** Informed by developmental and life-course theories of offending, the findings point to the need to further explore interactions between maltreatment and placement characteristics and other individual and social risk factors, as well as to further explicate distinct gender and ethnic pathways. It is clear from the multifactorial aetiology of violent offending that collaborative and integrated responses from both child protection and juvenile justice are needed.

**Keywords:** maltreatment, out-of-home care, youth offending, violence, convictions

### 5.3.3 Introduction

Violence is a global criminal justice and public health issue with widespread social and economic consequences (World Health Organisation, 2002b). Numerous studies have investigated the extent to which violent offending is related to childhood experience and, in particular to exposure to violence or abuse (for reviews see Malvaso et al., 2016; Wilson et al., 2009). In general, this research shows that the risk for violent offending is greater among victims of maltreatment, although it is recognized that this association is often likely to be moderated or mediated by a range of psychological and social factors. It is clear that only a small proportion of victims of abuse go on to commit violent offences and it might be that not all forms of child and adolescent abuse are equally associated with subsequent offending. The aim of this study was to examine the extent to which maltreatment experiences are associated with violent crime convictions after controlling for other individual and social risk factors. In this paper, we start by reviewing the methodological approaches that have been adopted to investigate these associations, as well as the principal explanations that have been advanced.

Relatively few detailed studies of maltreated young people have been undertaken using juvenile justice data (Ryan, 2006). Many of these studies have been limited to determining the prevalence of maltreatment or victimization histories in young offender samples (for a review see Wilson et al., 2009), although some studies have considered recidivism rates among young offenders who have a history of maltreatment or out-of-home care (OHC) placements (Huang, Ryan, Sappleton, & Chiu, 2015; Ryan, 2006; van der Put & de Ruiter, 2016). In other studies, maltreatment history has been considered as a potential covariate but it has not usually been the primary focus (e.g., Archwamety & Katsiyannis, 1998). There has also been some work that has considered links between victimization and other outcomes (for example, mental health problems) among incarcerated youth, but most do not examine how these outcomes relate to offending patterns (e.g., Coleman & Stuart, 2010).

Potentially more informative are longitudinal studies which have examined associations between maltreatment, OHC, and subsequent violent offending in adolescence and adulthood (see Malvaso et al., 2016 for a review). However, many of these studies utilize data collected from the general population and, although such studies are broadly informative, they are often not able to capture very many young people who have experienced abuse. As a result, maltreatment is often analyzed as a composite measure in a way that combines different types or aspects of maltreatment into a single category. Thus,

it is often difficult to determine the effects of different types of abuse as well as its timing or recurrence. Nonetheless, in the few studies that have considered specific types of maltreatment, links have been identified between child physical abuse or neglect and the perpetration of violent crime (Mersky & Reynolds, 2007; Smith et al., 2005; Widom & Maxfield, 1996). These studies have found that juvenile and adult offending is more common among individuals who have experienced more than one type of maltreatment (also referred to as multi-type maltreatment) that persists from childhood to adolescence or is recurrent.

One of the most interesting findings emerging from these studies is the difference in risk for offending based on the timing of maltreatment. Some studies have suggested that maltreatment that either starts or continues into adolescence is more consequential than maltreatment limited to the childhood years (Smith et al., 2005), whereas others have asserted that childhood-limited maltreatment is also a critical factor in juvenile offending (Mersky et al., 2012). It is clear that further research is needed to clarify how maltreatment that occurs at different stages of development influences the likelihood of engaging in offending behavior. Two theoretical explanations have been advanced to explain these potential differences. A developmental perspective suggests that maltreatment that occurs in early childhood is critical because it disrupts age-appropriate development (Ireland et al., 2002). These experiences have been found to compromise attachment and self-regulation processes, which in turn are associated with poorer social outcomes such as aggression or association with negative peers (Cicchetti & Toth, 2016). On the other hand, the life course perspective emphasizes the role of more proximal experiences in the course of development (Sampson & Laub, 1993). For example, strain theory emphasizes the role of retaliatory responses (e.g., anger and aggression) that arise as a way to cope with unwanted, negative emotions associated with abuse experiences (Agnew, 1992). These maladaptive behaviors then result in additional strain due to their deteriorating effects on interpersonal relationships, education and employment options (Kerig & Becker, 2015).

Similarly, even though a number of studies have explored how different placement experiences are associated with delinquency or juvenile arrests more generally, few longitudinal studies have considered how these experiences relate specifically to violent offending. For example, Lemmon (2006) reported that, although maltreatment recurrence predicted violent juvenile offending, this association was attenuated if the young person had subsequently been placed in foster care as a response to the abuse. Baskin and Sommers (2010) found that, although group home placement (or residential care) predicted

both overall arrests and arrests for non-violent crimes, it was not associated with arrests for violent crimes. Finally, DeGue and Widom (2009) found that young people who had never been placed, or who were placed only in foster care, were less likely to have been arrested for violent crimes in adolescence or adulthood. Placement in foster care in addition to other types of care, as well as other non-foster care arrangements, were not associated with violent crime arrests. There is also some evidence that young people placed in care at an older age and those who experience placement instability are at increased risk for arrest or incarceration for violent crimes (Baskin & Sommers, 2010; Jonson-Reid & Barth, 2000; Widom, 1991).

However, the underlying mechanisms responsible for explaining how or why certain placement experiences increase or reduce risk are less understood. Only a few studies have examined the role of maltreatment and placement in conjunction with other individual and social risk factors apart from socio-demographic factors (e.g., gender, ethnicity or socioeconomic status). A review of risk factors that have been shown to play a role in mitigating and exacerbating risk in prospective and longitudinal studies of the maltreatment-offending association has outlined the important role that individual and social factors play in determining which victims of maltreatment are more likely to subsequently engage in offending behavior (Malvaso et al., 2016). In terms of individual risk factors, behavioral or emotional problems (e.g., anger, aggression and poor social skills), factors relating to education (e.g., poor academic achievement or school engagement, impaired learning or reading abilities), mental health problems (e.g., depression, posttraumatic stress disorder and psychopathy), and substance misuse problems have all been found to exacerbate risk. With respect to social factors, parental separation or residing in single-parent families, parental characteristics (e.g., lower levels of education, substance use, mental health problems or criminality), and poor parent-child and peer relationships were also found to increase risk. Consistent with developmental and life-course (DLC) theories of offending, it is clear that behavior is influenced by a range of risk factors from multiple ecological levels and these influences can vary across the course of development (Cicchetti & Toth, 2016; Piquero, 2015b). Furthermore, from a developmental victimology perspective, not only does the developmental timing of various victimization experiences influence outcomes, but individual differences in responding to these experiences can also influence the way these risk factors translate into outcomes (Finkelhor & Kendall-Tackett, 1997).



The importance of exploring the mediating and moderating role of these risk factors is demonstrated in two studies. First, Mersky and Reynolds (2007) controlled for a number of individual and family background factors (including low birth weight, single-parent family structure, over-crowding, and maternal unemployment) but found minimal effects for these covariates on violent delinquency outcomes. However, extending analyses to include violent convictions in adolescence and adulthood in a second study, Mersky et al. (2012) found that the maltreatment-violence association was fully mediated by externalizing behaviors, peer social skills and environmental stability in males, and was partially mediated by externalizing behaviors in females. It could be that because social background factors are often correlated with maltreatment (i.e., those controlled for in the first study), their contribution to further explicating the maltreatment-violence association is not as significant as other individual risk factors (i.e., the factors explored in the second study). Alternatively, exploring a combination of background factors and other individual and social processes within the one study might provide a more complete picture.

From these studies it is also clear that gender is an important moderating factor. Relatively few studies, however, have explored how ethnicity might moderate the maltreatment-violence association while also controlling for other individual and social factors. One exception is a study by Goodkind et al. (2012), in which it was found that substance abuse service receipt was associated with an increased likelihood of juvenile justice involvement for white boys, but a decreased likelihood for African American boys. Given the steady increases in female incarceration in more recent years (Kimonis et al., 2010), and that ethnic minority groups tend to be over-represented among violent offenders, a more detailed analysis of the moderating effects of gender and ethnicity is necessary. Researchers have suggested that theoretical perspectives on the role of race or ethnicity in particular are underdeveloped (Piquero, 2015a). Although there is a need for longitudinal research to further examine the processes that might explain why individuals from minority ethnic groups are over-represented in offending or crime statistics (e.g., differential enforcement or the tendency for police to patrol certain areas or to stop or arrest individuals of color), further exploration is needed to determine whether different maltreatment, placement or other individual or social risk factors can distinguish between young offenders from minority or other ethnic backgrounds. For example, as suggested by Moffit (1993), antisocial behavior might be elevated among minority groups due to the underlying problems of poverty or prejudice whereby the stress and strain placed on these families results in disadvantage, poorer educational attainment and unemployment.

It is important that we understand the complex interplay between these risk factors in order to design and implement effective treatment frameworks. Generally, treatment for juvenile offenders is directed towards addressing dynamic risk factors with the potential to be altered (e.g., substance abuse problems, mental health issues, or externalizing behaviors such as anger or aggression), rather than focusing on static or historical risk factors, including experiences of maltreatment (van der Put & de Ruiter, 2016). However, as indicated above, these risk factors are also common antecedents or consequences of abusive or neglectful experiences. Therefore, although these factors might be useful in explaining the increased risk for offending found among victims of maltreatment, it is possible that treatment targeted solely at altering these risks might not be as fruitful as interventions which also target the cause or triggers of this behaviour, that is, experiences of maltreatment (or the trauma associated with maltreatment). Further explication of these associations is important, not only for informing policy and practice that can assist in ameliorating the consequences of maltreatment and violence, but also for preventing the initiation and continuation of violent offending over the life course.

### *The present study*

Although there is substantial literature on the relationship between maltreatment and offending, relatively few studies have used Australian data to explore this issue. An exception is a data linkage project led by Stewart and colleagues (the Queensland Linkage Project; QLP; Stewart et al., 2015). Studies utilizing data from the QLP have demonstrated not only the heterogeneous nature of the maltreatment-offending association in Australia, but also the importance of understanding distinct gender and ethnic pathways (Broidy et al., 2015), especially since the Australian youth justice system is unique in terms of the over-representation of Indigenous (Aboriginal and Torres Strait Islander) young people (Doolan et al., 2013).

The present study is based on a subset of data drawn from a larger longitudinal project in which child protection and youth justice system information were linked using records from an Australian jurisdiction (South Australia). This project was based on a 15-year birth cohort of individuals involved in the child protection system (ranging in involvement from those with notifications for abuse or neglect to those placed in OHC), whose records were subsequently matched with conviction records and survey information obtained from the Youth Justice system. The subset of data used in the present study includes data relevant to young people who entered custody arrangements under Youth

Justice supervision over a 17-year period. There are two advantages in utilizing this particular sample: first, the potential child protection and placement histories of a large sample of young offenders are captured, and second, the data includes not only official records of convictions but also self-report information relating to the individual and social characteristics of these individuals. This self-report information has not been previously analyzed in combination with maltreatment and conviction records. Although all of the data were extracted retrospectively based on a historical birth cohorts design, it does allow for a quasi-longitudinal analysis whereby the correct temporal order between child maltreatment and violent convictions is maintained. However, by working backwards from the sample of offenders for whom detailed self-report information has been captured, it is also possible to identify factors that further distinguish violent and non-violent offenders while still taking into account maltreatment and placement experiences. This is important because the difficulty in prospectively identifying violent offenders has been consistently shown in the literature; however, findings from retrospective analyses have provided us with additional insight into the age of onset and versatility of violent offenders (Piquero, 2015b).

Previous longitudinal analyses of the broader dataset have found that experiencing child physical abuse or multi-type maltreatment, recurrent maltreatment, maltreatment that persists from childhood to adolescence, and placement in OHC increases the risk for subsequent convictions for any crime in adolescence (Malvaso, Delfabbro, & Day, 2017b). The findings from a second study (Malvaso, Delfabbro, & Day, 2017a) indicated that placement in residential care was specifically associated with an increased risk of violent convictions (especially among non-Indigenous young people), whereas placement in foster care was associated with a reduced risk. Furthermore, as the age at time of first placement and number of different placements increased, the risk for conviction of violent offences also increased. Therefore, the main aim of this study was to compare violent and non-violent offenders on a number of individual and social risk factors, as well as to determine any differences in maltreatment or placement experiences between these groups, in order to identify the best overall predictors of violent crime convictions.

Thus, in this study we sought to contribute to, and expand upon, the current knowledge base on the maltreatment-violence link in several ways. The first objective was to investigate what is currently known from the literature in an Australian sample in order to determine consistency. The second objective was to advance knowledge beyond the effects of composite measures of maltreatment or placement by exploring how the type,

timing and recurrence of maltreatment, as well as how the type, timing and stability of OHC placements, influence the risk for violent crime convictions. Third, we aimed to determine the unique contributions of these variables in the presence of a range of other known individual and social correlates of crimes, including family- and peer-based risk factors, intellectual ability and education, substance abuse, mental illness, and behavioral problems. Our final objective was to explore factors that have a moderating effect on the maltreatment-violence association, in particular how gender and ethnicity might moderate this association, and whether maltreatment type interacts with other individual risk factors to influence the risk of violent crime conviction. Interactions tested were informed by the findings of previous studies as discussed above (for example, previous research has demonstrated links between abuse and anger or aggression).

Based on the broader literature and the previous findings from analyses carried out on this dataset, two main hypotheses were investigated: (1) Maltreatment risk factors would remain associated with violent convictions after controlling for other individual and social risk factors; and (2) Placement factors would attenuate the association between maltreatment risk factors and violent convictions. The minimal research on interactions between gender, ethnicity, maltreatment and other factors makes it difficult to hypothesize about interactions between these variables with regard to violent convictions. However, these analyses are included because they may contribute to further refinement of knowledge in this area.

### **5.3.4 Method**

The present study utilized self-report data and official records of convictions for 1,819 young people who entered custody arrangements under Youth Justice supervision in South Australia between 1995 and 2012. The self-report measures were drawn from a standardized assessment instrument known as the Secure Care Psychosocial Screening (SECAPS; Putnins, 1999). SECAPS was used to collate client background information and a variety of factors relating to criminogenic need. If a young person was assessed more than once, the individual's first assessment was used in this study. The dataset also includes official records of youth crime convictions and official child protection records (if any) for each individual prior to the age of 18. Child protection records included: 1) All records of substantiations for four types of child maltreatment (physical, sexual and emotional abuse, and neglect); and 2) Records of out-of-home care (OHC) placements

(type of placement, number of placements, duration of time in OHC, and age at time of first placement). The data were linked using a common numerical identifier. To ensure the correct temporal order between associations, 226 young people were excluded because their age at first conviction was equal to or less than their age at first maltreatment substantiation. For further information about the larger data linkage study from which this sample was drawn, see (authors names left out for the purposes of blind review).

### *Measures*

The dependent variable in this study was represented by a dichotomous indicator which differentiated young offenders with convictions for at least one violent crime and those without any violent crime convictions prior to the age of 18. Violent convictions were counted if records indicated a conviction for homicide, assault, sexual assault or robbery, and were also included if the incident was proven or agreed to, but not officially recorded as a conviction. Proven or agreed offences are offences that have been legally proven but the young person does not receive a formal conviction. This reflects the emphasis in South Australia on diversion (as stipulated in the Young Offender Act, 1993). Matters that had been dismissed, not proceeded with, or committed to trial in which the defendant was subsequently found not guilty were not counted.

Independent variables included self-reported demographic, individual and social measures as well as official records of maltreatment and placement in OHC. Two demographic variables were included: *gender* was represented by a dichotomous variable differentiating males from females; and *ethnicity* by a dichotomous variable differentiating between Indigenous and non-Indigenous young people.

Individual and social risk factors were broken down into several groups. Family and peer risk indicators included several dichotomous variables: *parental death* (genetic mother or father has passed away); *parental separation* (had parents who were not living together); *family history of crime* (had a parent or sibling who is or has been in trouble with the law); *family history of substance abuse* (had a parent or sibling who has or had substance use problems); *household conflict* (lived in households characterized by lots of fights/arguments); *mother-child/father-child/stepparent-child relationship* (had poor relationships with their mother/father or with a stepparent); *peer criminality* (association with peers who are in trouble with the law).

Individual risk factors were further broken down into the following subcategories: intelligence and education; substance use; mental health problems; and behavior problems.

Intelligence and education included the following dichotomized variables: *intellectual ability* (scores above borderline on the Raven's progressive matrices; Raven & Court, 1998); *school problems* (had dropped out or been suspended/expelled/excluded); *reading difficulties* (scores below 10 on the Australian normed Concision Word Reading Test; Andrews, 1965).

Substance use included the following dichotomized variables: *overall substance use* (had used alcohol, marijuana, hallucinogens, sedatives, narcotics, stimulants, inhalants or other in the last four weeks prior to assessment); *regular drug use* (use of any of the above drugs at least once a week during the last six months); *drugs by injection* (had ever injected drugs); *problematic alcohol use* (consumed three or more drinks on days when drinking); and *problematic marijuana use* (had one or more smokes on days when using marijuana). Substance use classifications were based on NHMRC guidelines.

Mental health problems included two dichotomous measures of depressive mood states. *Current depressive mood* was endorsed if the young person selected 3 or below on a 10-point scale (where 0 = worst feeling possible/very depressed and 10 = best feeling possible/very happy) and *chronic depressive mood* was endorsed if the young person (who selected 3 or below on the previous measure) indicated they had been feeling this way for weeks, months or years. *Hopelessness* was endorsed if a young person responded "agree completely" or "agree a fair bit" to the statement "I feel that I have nothing to look forward to – my future is hopeless". Two measures relating to suicide were included: *suicide ideation* was endorsed if a young person reported having thoughts of committing suicide in the past week, and *suicide attempt* was endorsed if a young person reported having tried to kill themselves in the past.

Behavior problems included dichotomous measures of anger and aggression. *Anger* was endorsed if a young person reported having a bad temper. *Aggression* was endorsed if a young person reported getting into fights a couple of times a year or more frequently.

Maltreatment variables included substantiated incidents of neglect or physical, sexual or emotional abuse. Each type of maltreatment was dichotomized to differentiate between young people for whom a substantiation for each type had ever been made or not. These groupings are not mutually exclusive because most young people had experienced more than one type of abuse and therefore were included in each respective group. Maltreatment type was also used to create a *multi-type maltreatment* variable (the experience of two or more types of abuse or neglect). Number of substantiations (*recurrence*) was used as a continuous measure. Age at substantiation was used to create

three groups reflecting the timing of maltreatment: *child-limited maltreatment* (young people for whom substantiations were made exclusively prior to the age of 11); *adolescent-limited maltreatment* (substantiations made exclusively after the age of 12); and *persistent maltreatment* (substantiations made both prior to and after the age of 12).

Placement in OHC was considered only among individuals for whom maltreatment substantiations had been made prior to placement (those entering care from pathways other than child protection – for example because they were orphaned or their parents could no longer or were unwilling to care for them due to mental health or behavioral problems – were excluded because the focus is on the link between maltreatment and offending). Placement type included three dichotomous variables differentiating between those who had ever experienced placements in *foster care*, *residential care*, and *kinship care*. These groupings are not mutually exclusive as many young people experienced more than one type of placement. *Age at first placement* is the age (in years) at which the young person experienced their first OHC placement. *Placement instability* represents the total number of different placements experienced. Respite placements were not included in this count.

### ***Data analysis procedure***

Data analysis was conducted in several phases. First, a descriptive overview of the sample is presented and the overall likelihood of maltreated or placed young people having violent crime convictions was determined using chi-square tests of independence. Second, a set of comparative analyses of independent demographic, individual, social, maltreatment and placement variables was undertaken to determine how violent offenders differed from non-violent offenders. These analyses are not presented in this paper but have been included as part of the online supplementary material (see Tables 5.15 and 5.16 in section 5.3.8). Third, a number of interaction terms were created using gender, ethnicity, maltreatment type and other variables in order to examine any moderating effects on violent offending convictions. Finally, variables found to be significant in the second and third phases were entered into a series of logistic regressions in order to model the best overall predictors of violent convictions.

### **5.3.5 Results**

Summary statistics for the sample of offenders are reported in Table 5.13, as well as comparisons between males and females, and Indigenous and non-Indigenous offenders, on the variables of interest. A higher proportion of females and Indigenous young people had convictions for violent crimes compared to males and non-Indigenous offenders. A number of differences were found between males and females, and Indigenous and non-Indigenous offenders, in terms of family and peer, individual, maltreatment and placement risk indicators, and these differences were used to inform the subsequent moderation analysis.



Table 5.13. *Descriptive Statistics of Independent Variables among the Full Sample of Offenders, Male/Female, and Indigenous Subsamples*

	Full sample (N = 1819)	Males (N = 1540)	Females (N = 278)	Indigenous (N = 485)	Non-Indigenous (N = 1334)	Male vs. Female	Indigenous vs. Non-Indigenous
	N (%)	N (%)	N (%)	N (%)	N (%)	$\chi^2$	$\chi^2$
Any violent crime convictions	1205 (66.2)	1000 (64.9)	204 (73.4)	353 (72.8)	852 (63.9)	7.51**	12.64***
<i>Family and peer risk indicators</i>							
Parental death	249 (13.7)	211 (13.7)	37 (13.3)	97 (20.0)	152 (11.4)	0.03	22.30***
Parental separation	1090 (59.9)	911 (59.2)	179 (64.4)	297 (61.2)	793 (59.4)	2.69	0.48
Family history crime	1068 (58.7)	882 (57.3)	185 (66.5)	360 (74.2)	708 (53.1)	8.10**	65.18***
Family history substance abuse	860 (47.3)	688 (44.7)	171 (61.5)	280 (57.7)	580 (43.5)	27.06***	28.47***
Household conflict	329 (18.1)	251 (16.3)	78 (28.1)	67 (13.8)	262 (19.6)	36.27***	8.39**
Mother-child relationship	169 (9.3)	128 (8.3)	41 (14.7)	29 (6.0)	140 (10.5)	11.57***	8.61**
Father-child relationship	222 (12.2)	176 (11.4)	46 (16.5)	43 (8.9)	179 (13.4)	5.75*	6.88**
Stepparent-child relationship	163 (9.0)	128 (8.3)	35 (12.6)	35 (7.2)	128 (9.6)	5.28*	2.47
Peer criminality	1134 (62.3)	989 (64.2)	144 (19.8)	307 (63.3)	827 (62.0)	15.48***	0.26

	Full sample (N = 1819)	Males (N = 1540)	Females (N = 278)	Indigenous (N = 485)	Non-Indigenous (N = 1334)	Male vs. Female	Indigenous vs. Non-Indigenous
	N (%)	N (%)	N (%)	N (%)	N (%)	$\chi^2$	$\chi^2$
<i>Individual risk factors</i>							
<i>Intelligence and education</i>							
Intellectual ability	365 (20.1)	310 (20.1)	55 (19.8)	127 (26.2)	238 (17.8)	0.02	15.44***
School problems	1704 (93.7)	1449 (94.1)	254 (91.4)	435 (89.7)	1269 (95.1)	2.95†	17.75***
Reading difficulty	477 (26.2)	420 (27.3)	56 (20.1)	199 (41.0)	278 (20.8)	6.19*	74.95***
<i>Substance use</i>							
Overall substance use	1538 (84.6)	1305 (84.7)	232 (83.5)	420 (86.6)	1118 (83.4)	0.30	2.12
Regular substance use	897 (49.3)	777 (50.5)	119 (42.8)	248 (51.1)	649 (48.7)	5.51*	0.88
Drugs by injection	277 (15.2)	198 (12.9)	78 (28.1)	72 (14.8)	205 (15.4)	44.69***	0.86
Problematic alcohol use	1258 (69.2)	1075 (69.8)	182 (65.5)	329 (67.8)	929 (69.6)	2.08	0.54
Problematic marijuana use	1290 (70.9)	1096 (71.2)	193 (69.4)	360 (74.2)	930 (69.7)	0.35	3.51†
<i>Mental health problems</i>							
Current depressive mood	345 (19.0)	280 (18.2)	65 (23.4)	81 (16.7)	264 (19.8)	4.14*	2.21
Chronic depressive mood	171 (9.4)	131 (8.5)	40 (14.4)	42 (8.7)	129 (9.7)	9.56**	0.43
Hopelessness	179 (9.8)	123 (8.0)	56 (20.1)	45 (9.3)	134 (10.0)	39.21***	0.24

	Full sample (N = 1819)	Males (N = 1540)	Females (N = 278)	Indigenous (N = 485)	Non-Indigenous (N = 1334)	Male vs. Female	Indigenous vs. Non-Indigenous
	N (%)	N (%)	N (%)	N (%)	N (%)	$\chi^2$	$\chi^2$
Suicide ideation	264 (14.5)	179 (11.6)	85 (30.6)	71 (14.6)	193 (14.5)	54.94***	2.31
Suicide attempt	410 (22.5)	290 (18.8)	119 (42.8)	106 (21.9)	304 (22.8)	62.61***	6.69**
<i>Behavior problems</i>							
Anger	1037 (57.0)	848 (55.1)	188 (67.6)	250 (51.5)	787 (59.0)	17.12***	7.15**
Aggression	1286 (70.7)	1110 (72.1)	175 (62.9)	341 (70.3)	945 (70.8)	9.47**	0.05
<i>Maltreatment factors</i>							
Any substantiation	695 (38.2)	545 (35.4)	149 (53.6)	238 (49.1)	457 (34.3)	33.08***	33.06***
Physical abuse	382 (21.0)	308 (20.0)	73 (26.3)	107 (22.1)	275 (20.6)	5.57*	0.45
Sexual abuse	107 (5.9)	49 (3.2)	58 (20.9)	26 (5.4)	81 (6.1)	132.91***	0.33
Emotional abuse	166 (9.1)	134 (8.7)	31 (11.2)	57 (11.8)	109 (8.2)	1.71	5.50*
Neglect	387 (21.3)	313 (20.3)	74 (26.6)	159 (32.8)	228 (17.1)	5.57*	52.29***
Multi-type maltreatment	278 (15.3)	211 (13.7)	68 (23.7)	88 (18.1)	190 (14.2)	18.38***	4.18*
Childhood-limited	281 (15.4)	267 (17.3)	14 (5.0)	80 (16.5)	201 (15.1)	27.27***	0.56

	Full sample (N = 1819)	Males (N = 1540)	Females (N = 278)	Indigenous (N = 485)	Non-Indigenous (N = 1334)	Male vs. Female	Indigenous vs. Non-Indigenous
	N (%)	N (%)	N (%)	N (%)	N (%)	$\chi^2$	$\chi^2$
Adolescent-limited	192 (10.6)	150 (9.7)	42 (15.1)	35 (7.2)	157 (11.8)	7.18**	7.81**
Persistent	767 (42.2)	577 (37.5)	189 (68.0)	261 (53.8)	506 (37.9)	89.96***	36.77***
<i>Placement factors</i>							
Ever placed	476 (26.2)	362 (23.5)	113 (40.6)	155 (32.0)	321 (24.1)	47.59***	11.48**
Foster care	170 (9.3)	124 (8.1)	46 (16.5)	55 (11.3)	115 (8.6)	15.77***	3.11†
Residential care	155 (8.5)	109 (7.1)	45 (16.2)	31 (6.4)	124 (9.3)	43.12***	3.85*
Kinship care	49 (2.7)	39 (2.5)	10 (3.6)	26 (5.4)	23 (1.7)	0.23	17.95***
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	<i>t</i>	<i>t</i>
N substantiations (recurrence)	1.44 (2.01)	1.39 (1.96)	1.61 (2.20)	1.70 (2.30)	1.32 (1.86)	1.54	2.85**
N placement changes (instability)	10.50 (10.83)	9.59 (9.96)	13.50 (12.86)	8.19 (9.94)	11.62 (11.07)	2.96**	3.27**
Age at first placement	7.87 (4.39)	7.82 (4.28)	7.96 (4.74)	7.29 (4.54)	8.15 (4.30)	0.28	2.00*

Note. †  $p < .1$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

### ***Moderation analysis***

A number of interaction terms informed by the preceding literature review were tested to determine whether associations between risk factors and violent crime convictions were moderated by gender, ethnicity or maltreatment factors. Interactions between gender and placement in foster and residential care were found, Wald (1) = 7.54,  $p < .01$ , and Wald (1) = 5.57,  $p < .01$ , respectively. Placements in foster and residential care were associated with 3.02 and 2.90 times greater likelihoods of violent convictions for males; however, these variables were not significantly associated with convictions for females. Interactions between maltreatment subtypes and individual risk factors were tested and three significant interactions were found: CPA by problematic alcohol use (Wald (1) = 5.75,  $p < .05$ ), neglect by problematic alcohol use (Wald (1) = 4.22,  $p < .05$ ), and neglect by aggression (Wald (1) = 4.02,  $p < .05$ ). Those with alcohol problems who had not experienced CPA or neglect had a reduced likelihood of violent convictions (26% and 22%, respectively). Among those who had not experienced neglect, aggression was associated with a 57% increased likelihood of violent convictions; however, for those who had experienced neglect, aggression was associated with a 2.69 times greater likelihood of violent convictions. Finally, an interaction between gender and anger approached significance (Wald (1) = 3.17,  $p = .07$ ), with anger associated with a 44% increased likelihood of violent convictions for males, but not significantly associated with the outcome for females.

### ***Logistic regression***

Logistic regression analysis was used to examine predictors of violent convictions. The modeled factors were those found to differ significantly at the bivariate level between young offenders with and without violent convictions (for more detail see the online supplementary material). Five models were fitted: the first included variables relating to maltreatment experiences; in the second, placement in out-of-home care (OHC) variables were added; demographic and family/peer risk indicators were added to the third; individual risk factors were added to the fourth; and finally, significant interaction terms were added to the fifth model. However, after inspection of multicollinearity diagnostics (eigenvalues and variance proportions) a high proportion of shared variance between child physical abuse (CPA), neglect, multi-type maltreatment and recurrence was found. Correlated predictors in regression models are likely in social science research (Ludlow & Klein, 2014) and one solution is to omit one of the co-linear variables; however, there are no statistical procedures for knowing which variable to omit (Field, 2009).

Furthermore, in the final two models (in which all the predictors and interactions had been entered) no individual predictor was found to be significantly associated with the outcomes, even though the model itself was significant. Although we applied criteria endorsed by Field (2009) for assessing collinearity (tolerance scores of below 0.1 and variance inflation factors of 10 or more), it is possible that more subtle forms of collinearity were missed. Indeed, there is some disagreement about score cut offs, with others suggesting that even small correlations between independent predictors can cause collinearity problems (Myers, 1990; Stine, 1995), and thus more stringent criteria need to be applied. Another issue is that when too many variables are entered into a regression model, significant effects might be masked. We addressed these problems in two ways. First, the aforementioned variables with high proportions of shared variance were entered into the models separately. Only CPA and neglect were significant predictors of violent convictions after Model 1, and because there was little change in the subsequent models when either CPA or neglect were entered, Table 5.14 displays the results in which only the former was added. Second, to reduce the number of variables entered into the final models, only variables with a variance inflation score lower than three and variables and interactions that were significant at the  $p < .01$  level at the bivariate level and in the interaction analyses were entered.

Data for 1,819 young offenders were available for analysis. As shown by the progressive reduction in the -2 log-likelihood ratio across the five models (Table 5.14), the addition of variables greatly improved the predictive power of the model. Consistent with Hypothesis 1, persistent maltreatment remained a predictor of violent convictions in each model (and was associated with a 33% increased likelihood of convictions in the final model). Physical abuse and neglect (not shown) were both marginally associated with violent convictions in Model 1; however, these associations did not remain significant after the addition of the placement variables in Model 2 (as consistent with Hypothesis 2).

Placement in foster care was also marginally associated with the outcome until the addition of demographic and background factors in Model 3; however, placement in residential care retained its marginal significance in predicting the outcome until the final model, indicating that maltreated individuals who had been subsequently placed in residential care were between 70% and 71% more likely to be convicted of a violent crime. Indigenous young people were also more likely to be convicted, with a 51% increase in the likelihood of violent convictions for these individuals in the final model. Young people who came from homes characterized by conflict were 42% more likely to be convicted of a

violent crime, although this association only approached significance in Models 4 and 5 after individual and interaction variables were added to the models.

The strongest predictors of violent convictions were the individual level risk factors of anger and aggression. In the final model, young people who had problems with anger or who were aggressive were 41% and 66% more likely to have convictions for violent crimes, respectively. In the final model, males were also found to have a 76% increased likelihood of violent convictions, although the interaction terms were not significantly associated with the outcome. Although it was hypothesized that maltreatment risk factors would remain associated with violent convictions after controlling for other individual and social risk factors, only persistent maltreatment remained a significant predictor and the subsequent addition of variables attenuated this effect. Although both the foster and residential care variables were no longer significant in the final model, further inspection of the regression table indicated possible multi-collinearity problems. For example, the odds ratios for these variables were still quite large; however, the standard errors (0.91 and 0.97, respectively) were also large. This could be due to the small number of offenders with maltreatment substantiations who were subsequently placed into these different care arrangements. As these estimates for the variables appear to be less stable, it is possible that the non-significant result was in fact a Type II error.

Table 5.14 Odds Ratios and Confidence Intervals for Predictors of Violent Crime Convictions

	Model 1		Model 2		Model 3		Model 4		Model 5	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Physical abuse	1.29†	[0.98, 1.67]	1.21	[0.92, 1.59]	1.25	[0.87, 1.80]	1.30	[0.90, 1.88]	1.29	[0.89, 1.86]
Persistent maltreatment	1.59***	[1.28, 1.97]	1.47***	[1.18, 1.83]	1.40**	[1.07, 1.83]	1.34*	[1.02, 1.76]	1.33*	[1.01, 1.76]
Foster care			1.50†	[0.93, 2.43]	1.55	[0.89, 2.71]	1.53	[0.86, 2.72]	3.62	[0.61, 21.31]
Residential care			0.21	[0.83, 2.29]	1.70†	[0.93, 3.12]	1.71†	[0.92, 3.17]	4.72	[0.71, 31.55]
Gender (Males)					1.35	[0.92, 2.00]	1.41†	[0.95, 2.11]	1.76*	[1.12, 2.76]
Indigenous					1.46**	[1.09, 1.97]	1.52**	[1.12, 2.06]	1.51**	[1.11, 2.04]
Parent death					1.22	[0.85, 1.77]	1.24	[0.85, 1.80]	1.25	[0.86, 1.82]
Household conflict					1.42*	[1.07, 1.90]	1.31†	[0.98, 1.77]	1.32†	[0.98, 1.77]
Anger							1.42***	[1.09, 1.84]	1.41***	[1.09, 1.84]
Aggression							1.65***	[1.26, 2.18]	1.66***	[1.26, 2.19]
Foster care x Gender									0.50	[0.13, 1.91]
Residential care x Gender									0.47	[0.12, 1.87]
-2LLR		2295.20		2285.27		1512.43		1474.00		1468.23

Note. †  $p < .1$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .



### 5.3.6 Discussion

The principal aim of this study was to examine the risk factors associated with violent crime convictions in a sample of young offenders. Specifically, we aimed to determine the extent to which exposure to maltreatment and different placement experiences could predict violent convictions after controlling for a range of other known correlates. The final regression model showed that the strongest predictors of a violent conviction were: aggression, anger, Indigenous status, male gender, and persistent maltreatment, with household conflict also approaching significance. Two primary hypotheses were tested: first, that maltreatment risk factors would remain associated with violent convictions after controlling for other individual and social risk factors, and second, that placement factors would attenuate the association between maltreatment and violent convictions. Only persistent maltreatment was a consistent predictor across all models, with the initial effects of child physical abuse (CPA) and neglect being reduced after controlling for placement variables. Placement in foster care and residential care were also significant predictors of violent crimes until other family background and individual risk factors were added to the models. Consistent with our second hypothesis, placement factors attenuated the associations between CPA and neglect and violent convictions; however, persistent maltreatment remained strongly associated with the outcome. Therefore, only partial support for the hypotheses was demonstrated.

Significant interactions were found between maltreatment and individual risk factors, with problematic alcohol use moderating the associations between violent crime convictions and both CPA and neglect, and aggression moderating the association between neglect and violent convictions. Similarly, significant interactions between gender and placement in both foster and residential care were found; however, none of the interactions were significant in the final multivariate analysis. Main effects were also found for aggression, anger and household conflict, and these risk indicators have all been found to be important predictors of crime, as well as common antecedents or correlates of maltreatment (Gover, 2002; van der Put & de Ruiter, 2016). Although the addition of family, peer and other individual risk indicators to the models were important, and attenuated the positive association found between maltreatment and placements variables and violent offending, experiencing maltreatment that persisted from childhood through to adolescence remained a strong indicator of subsequent violent convictions. These findings reflect those obtained in other studies which have also found persistent maltreatment to be consequential in the

development of both violent criminal behavior (Smith et al., 2005) and offending behavior more generally (Stewart et al., 2008).

Developmental and life-course (DLC) explanations concerning the consequences of timing in maltreatment experiences have been advanced (e.g., see Smith et al., 2005), with developmental theories positing that maltreatment that occurs in childhood is consequential because it disrupts age-appropriate development (Cicchetti & Toth, 1995), whereas life course theories assert that maltreatment occurring in adolescence is critical because it has a more proximate effect on the development of offending behavior (Sampson & Laub, 2005). Experiencing maltreatment in both childhood and adolescence would arguably have the most adverse influence on behavior; however, the reason for this association needs to be examined in greater detail. For example, victims of persistent maltreatment are likely to have had extended exposure not only to maltreatment, but also to other adverse family circumstances that might have influenced the development of antisocial behaviors (Malvaso et al., 2017b). This might be particularly relevant in cases of neglect, which often involve parents who are engaged in criminal activity or who have drug and alcohol problems. As suggested by social learning theory, the modeling and reinforcement of these behaviors by young people in these circumstances might explain the increased risk for violent convictions among victims of persistent maltreatment. Indeed, exposure to household conflict was found to be marginally associated with an increased likelihood of violent crime convictions.

It is well established that maltreatment results in neurological and psychological changes in the developing child (Mayes, 1999; Pardini & Frick, 2013; Vig et al., 2005). Social-cognitive studies have demonstrated how individuals exposed to trauma and abuse develop a propensity to perceive even trivial situations as threatening, activating anger and fight reactions. In these situations, biologically predisposed survival responses or attack behaviors are triggered, and in the longer term, these individuals are less able to regulate their emotions (in particular anger; Pardini & Frick, 2013) and are more likely to act aggressively. Indeed, anger and aggression were the two most important predictors of violent crime convictions found in this study. Further to this, aggression was more strongly associated with violent convictions for victims of neglect. From a social learning perspective, studies have also demonstrated that in households where young people are exposed to violence or who are directly abused, parents also have difficulties in regulating anger in their children, especially when they have their own emotion regulation problems (Fox et al., 2015). In terms of neglect, however, young people might not have been afforded sufficient opportunities for acquiring emotional learning strategies, such as

decreased opportunities in decoding emotional signals. Situations such as these can make it difficult for victims of neglect to recognize social cues enacted by others and could facilitate inappropriate responses, such as anger and aggression (Pardini & Frick, 2013).

Another important finding emerging from this study was that, compared to offenders who had experienced CPA or neglect, those without these experiences but who had problems with alcohol had a reduced likelihood of violent convictions. It might be then that alcohol use plays a unique role in the violent offending behavior of maltreatment victims, and this finding could also be related to the increased aggression found among victims of neglect. For example, Widom et al. (2006) found that maltreatment was indirectly associated with alcohol use through early aggressive behaviors which was, in turn, associated with juvenile and adult violent arrests among males. In the female model, however, maltreatment was directly associated with alcohol problems, which in turn was associated with violent arrests. Both alcohol use and aggressive behaviors have been identified as coping strategies adopted as a response to trauma (Schuck & Widom, 2001; Pardini, 2013), and, as well as being more broadly associated with violence, alcohol use and aggression appear to be mechanisms that are useful in explaining the higher risk of violence perpetration among victims of maltreatment. However, there might be a more proximate association between alcohol use as a coping mechanism for female victims of maltreatment, in contrast to a more distal association through aggression for male victims. Indeed, we also found some evidence that anger moderates the association between gender and violent convictions, with anger increasing the likelihood of violent convictions for males but not for females.

Although studies have explored the role of placement in OHC with offending outcomes more generally, fewer studies have considered the relationship with violent outcomes. We found that males placed in both foster and residential care had two-to-three times the odds of violent convictions, although these interactions were not significant in the final analyses. Main effects for placement in foster and residential care were also found. These findings are somewhat novel in that previous research has found that group home placement was not associated with violent arrests (Baskin & Sommers, 2010), and that placement in foster care was associated with a reduced likelihood of violent arrests (DeGue & Widom, 2009). Furthermore, in this latter study, placement in foster care in addition to other care arrangements, as well as solely in other care arrangements, were not significantly associated with violent arrests. One point of difference between DeGue and Widom (2009) and the present study is that our placement variables were not mutually

exclusive, i.e., if an individual experienced both foster care and residential care placements they would be counted in both groups. Further exploration is required to ascertain whether those who experienced only foster care placements have different outcomes. Overall, any effects for placement in OHC were reduced by the addition of other family background and individual risk factors, suggesting that these factors are potentially more important in explaining youth violent offending than placement experiences.

With respect to gender differences, DeGue and Widom (2009) reported that males placed in foster care in addition to another placement type, and those placed in other non-foster care placements had a greater likelihood of any adult arrest, whereas females placed only in foster care had a reduced likelihood; however, associations with violent arrests were not explored therefore the consistency of our findings cannot be assessed. Other studies have explored gender and placement effects with juvenile offending more broadly and have found mixed results (Goodkind et al., 2012; Ryan et al., 2010). Although placement appears to be more consequential for violent offending among boys in this study, the potentially negative or protective effects for females need further consideration. Consistent with emerging trends in the international literature (Goodkind et al., 2012), two other Australian studies have found that placement in residential care is more consequential in the offending behavior of females (Malvaso & Delfabbro, 2015; Malvaso et al., 2017a); however, the present study suggests that these associations do not necessarily help to discriminate between female offenders with and without violent crime convictions. It might be that placement plays a role in the initiation of offending for females, but not in convictions for more serious crimes.

### ***Research implications***

Overall, gender and ethnicity were found to be important contributors in explaining the risk of violent crime convictions in this study, both as main effects and in interactions with other risk factors. Consistent with a number of studies (Ryan & Testa, 2005; Smith et al., 2005; Stewart et al., 2008), both males and Indigenous young people both had increased likelihoods of violent crime convictions compared with females and non-Indigenous individuals. Understanding gender and ethnic differences in the study and treatment of violence is not only important for deepening our understanding of potentially distinct pathways, but it is also important for the development of theory. As pointed out by several researchers (Broidy et al., 2015; Piquero, 2015a), DLC theories should be expanded to focus on these diverse pathways. However, this would require more detailed

explorations of differences in the longitudinal patterns of offending in these groups. Our study attempts to provide further insight into these differences and further supports the need for integration of these gender and ethnic specific pathways into DLC theories.

Although this study contributes to the growing body of literature on the maltreatment-offending association by identifying risk factors using data drawn from a population that has yet to be studied, further research is needed to explicate the underlying processes or mechanisms responsible for transforming risk into outcomes. For example, how is persistent maltreatment related to exposure to other adverse experiences (e.g., parental substance misuse or criminality) or other types of victimization (e.g., witnessing domestic violence or bullying)? This is in line with research attempting to elucidate the consequences of poly-victimization (Finkelhor et al., 2007), and is consistent with a developmental victimology perspective that emphasizes the role of many forms of victimization and how these experiences, and individual responses to these experiences, change over the course of development (Finkelhor & Kendall-Tackett, 1997). Although this study focused on maltreatment, viewing victimization more broadly within an integrated developmental framework might provide further insight into how an individual reacts to and manages these experiences at different stages of their development.

### ***Clinical and policy implications***

Juvenile justice service responses usually do not recognize maltreatment, or the consequences of maltreatment experiences, as a primary focus for service intervention (van der Put & de Ruiter, 2016). The findings from this study highlight the potential for the development of service frameworks that integrate the consequences of maltreatment and other criminogenic needs in responding to violent offending. Overall, persistent maltreatment is emerging as an important predictor of criminal behavior, and the findings of this study strengthen the need for the assessment of, and integration of services that respond to, maltreatment among young offenders. Furthermore, there was some evidence that anger, aggression and problematic alcohol use played a moderating role in the association between maltreatment and violence. Interventions targeting these characteristics might be broadly useful for violent offenders, but specifically for offenders with histories of maltreatment. Further exploration is needed to assess whether angry or aggressive responses differ in any way between violent offenders who have experienced maltreatment and those who have not (e.g., specific triggers or different types of violent acts). Talking about maltreatment and allowing it to be processed might lead to a better

understanding of the developmental precursors of anger-related aggression, which in turn could lead to more effective treatment.

Consistent with previous research that has found that a number of risk factors play a role not only in the development of violent behavior more generally, but in the association between maltreatment and violence, the findings from this study point to the complex interactions between multiple levels of influence from a young person's ecology and the need to address a range of problems rather than focusing on any one specific risk factor. Furthermore, there is some evidence that pathways to violence differ based on gender and ethnicity. Therefore, interventions need to take into account not only the multiple determinants of criminal behavior but also acknowledge that these determinants might differ for males and females, ethnic minorities and majorities, and maltreated and non-maltreated individuals.

There is emerging evidence that multi-faceted yet individualized interventions, such as multisystemic therapy (MST; Henggeler et al., 1997), are particularly useful in reducing violent and chronic juvenile offending because they address risk factors from multiple domains. As service provision tends to occur in the individual's natural ecology, these interventions serve as viable alternatives to secure care placement by supporting families so that young people can remain living at home (Swenson et al., 2010). This further enables young people to access services that might otherwise have been inaccessible (e.g., mental health services) and strengthen more prosocial peer relations (Borduin et al., 1995; Henggeler et al., 1992). By focusing on a number of ecological factors rather than simply the young person's behavior, changes can be made across other ecological systems that ultimately support or inhibit antisocial behavior. Indeed, one study found that through support and skill building, parent symptomatology was reduced and empowerment among family members was achieved (Borduin et al., 1995), and a recent 25-year follow-up review found that the positive effects of MST extended to reduce criminality among siblings of offenders (Wagner, 2014). Although these interventions can be costly, a cost-benefit analysis of MST demonstrated lasting economic benefits indicating that policymakers and government agencies should consider these benefits in decision-making processes regarding interventions.

### ***Limitations***

Although this study identifies a number of important mechanisms that might help to explain the link between maltreatment and violent offending, several caveats need to be

mentioned. First, the study design is not prospective and does not include comparison groups of either non-maltreated individuals or individuals who have not been involved in offending. Despite using a quasi-longitudinal design in which the correct temporal order between maltreatment and convictions was maintained, causal inferences were limited and further longitudinal work is needed to replicate findings. Second, this study does not include any measure of socioeconomic status or poverty that might be useful in explaining some of the associations found. Young offenders and maltreated youth are both vulnerable populations who are disproportionately found to be from lower income families and families characterized by a number of related disadvantages (Coleman & Stewart, 2010). However, not all individuals growing up in these circumstances become involved in crime. Similarly, the majority of young people from poor families do not offend. Therefore, it is plausible that other individual characteristics play a role in the development of criminal behavior. Third, the issue of multi-collinearity in the regression analyses might have affected model estimates, resulting in less reliable findings. However, we applied more stringent criteria to assess these problems and examined correlated predictors separately to aid interpretation. Finally, although moderating effects were explored in this study, it is possible that mediation could further elucidate associations between maltreatment, other risk factors, and violent offending. Future research could endeavor to explore more complex models using structural equation modeling in order to ascertain direct and indirect pathways. Analyses could also be broken down by gender and ethnicity to further explore distinct pathways to crime for these groups.

In conclusion, no single risk factor contributes to the risk of violent crime convictions in youth. In addition to other family background and individual risk factors, maltreatment experiences appear to contribute to youth violent offending. Since criminologists have established that there is continuity from adolescent to adult offending, and that both violent offenders and victims of maltreatment are more likely to start their criminal careers earlier (further increasing their risk of perpetration of violent crimes), early intervention and prevention efforts targeting both maltreatment and juvenile offending appear necessary. It is clear that collaborative and integrated responses from both child protection and juvenile justice are needed. Harnessing expertise from both areas and working with the young people and their families appears to be a promising and economically justifiable approach to prevention before these behaviors become more entrenched in adulthood.

### 5.3.7 Online supplementary material

This online supplementary material includes analyses examining the individual and social differences between young people with and without convictions for violent crimes.

#### *Comparative analysis*

Several family and peer risk indicators were found to differentiate between young people with and without convictions for violent crimes (Table 5.15). Those with violent crime convictions were more likely to have experienced the death of a parent, have family members with substance abuse problems, come from households characterized by conflict, but were less likely to associate with deviant peers. In terms of individual risk factors, those with convictions for violent crimes had more reading difficulties, and were more likely to report problematic alcohol use and suicide attempts. Behavior problems (anger and aggression) were also more likely among young people with violent crime convictions.

Young people with and without violent crime convictions differed significantly on a number of maltreatment and placement characteristics. The former were more likely to have had at least one substantiation for maltreatment and to have a greater number of substantiations on average (Table 5.16), in addition to being more likely to have substantiations for two or more types of maltreatment, and specifically for physical abuse, emotional abuse and neglect. Although the groups did not differ in terms of maltreatment limited to either the childhood or adolescent years, young people with violent crime convictions were more likely to have experienced maltreatment that persisted from childhood through to adolescence. Those who had their maltreatment substantiated and who were subsequently convicted of at least one violent crime were also more likely to have been placed in OHC; however, they were also more likely to have been placed in all types of care arrangements (not just residential care, although placement in kinship care only approached significance). There were no differences between groups on placement instability or age at first placement.



Table 5.15. *Comparison of Young Offenders With and Without Any Violent Crime Convictions (Categorical Variables)*

	Any violent crime conviction		$\chi^2$
	Yes	No	
	(N = 1205) n (%)	(N = 614) n (%)	
<i>Family and peer risk indicators</i>			
Parental death	187 (15.5)	62 (10.1)	10.12**
Parental separation	706 (58.6)	384 (62.5)	2.65
Family history crime	714 (59.6)	354 (57.9)	0.49
Family history substance abuse	590 (49.3)	270 (44.3)	4.10*
Household conflict	236 (29.9)	93 (21.8)	9.21**
Mother-child relationship	119 (9.9)	50 (8.1)	1.45
Father-child relationship	147 (12.2)	75 (12.2)	0.00
Stepparent-child relationship	104 (8.6)	59 (9.6)	0.48
Peer criminality	735 (61.0)	215 (65.0)	2.76†
<i>Individual risk factors</i>			
<i>Intelligence and education</i>			
Intellectual ability	252 (20.9)	113 (18.4)	1.60
School problems	1127 (93.5)	577 (94.0)	0.14
Reading difficulty	334 (27.7)	143 (23.3)	4.12*
<i>Substance use</i>			
Overall substance use	1015 (84.2)	523 (85.2)	0.28
Regular substance use	582 (48.3)	315 (51.3)	1.47
Drugs by injection	196 (18.4)	81 (15.9)	1.46
Problematic alcohol use	817 (67.8)	441 (71.8)	3.09†
Problematic marijuana use	856 (71.0)	434 (70.7)	0.03
<i>Mental health problems</i>			
Current depressive mood	229 (19.0)	116 (18.9)	0.00
Chronic depressive mood	118 (9.8)	53 (8.6)	0.64
Hopelessness	117 (9.7)	62 (10.1)	0.07

	Any violent crime conviction		$\chi^2$
	Yes	No	
	(N = 1205) n (%)	(N = 614) n (%)	
Suicide ideation	192 (20.3)	72 (18.6)	0.54
Suicide attempt	307 (32.5)	103 (26.5)	4.56*
<i>Behavior problems</i>			
Anger	728 (61.0)	309 (50.6)	18.05***
Aggression	899 (74.6)	387 (63.0)	26.31***
<i>Maltreatment factors</i>			
Any substantiation	509 (40.2)	186 (30.3)	24.59***
Physical abuse	282 (23.4)	100 (16.3)	12.41***
Sexual abuse	78 (6.5)	29 (4.7)	2.25
Emotional abuse	121 (10.0)	45 (7.3)	3.61†
Neglect	286 (23.7)	101 (16.4)	12.89***
Multi-type maltreatment	206 (17.1)	72 (11.7)	9.06**
Childhood-limited	183 (15.2)	98 (16.0)	0.19
Adolescent-limited	128 (10.6)	64 (10.4)	0.02
Persistent	560 (46.5)	407 (33.7)	27.16***
<i>Placement factors</i>			
Ever placed	358 (29.7)	118 (19.2)	23.17***
Foster care	137 (11.4)	33 (5.4)	17.25***
Residential care	125 (10.4)	30 (4.9)	15.71***
Kinship care	38 (3.2)	11 (1.8)	2.88†

Note. †  $p < .1$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 5.16. *Comparison of Young Offenders With and Without Any Violent Crime Convictions (Continuous Variables)*

	Any violent crime convictions		<i>t</i>	Cohen's <i>d</i>
	Yes M (SD)	No M (SD)		
N substantiations (recurrence)	1.51 (2.07)	1.26 (1.85)	1.96*	0.13
N placement changes (instability)	10.90 (10.85)	9.31 (10.70)	1.38	0.15
Age at first placement	7.81 (4.39)	8.05 (4.71)	<1	0.05

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

## 6 Summary and Conclusions

### 6.1 Key Findings and Contributions

This thesis investigated the association between maltreatment and youth offending. Although there is a large and convincing body of evidence attesting to this link, this thesis has made a number of novel contributions to the maltreatment-offending literature. It has contributed two detailed systematic reviews on the topic, which have served both as critiques and syntheses of current knowledge in this area. Utilising official administrative records from both child protection and youth justice agencies, as well as self-report data from youth justice, this thesis then examined the association between maltreatment and youth offending in a population that had yet to be studied. In comparison to the proliferation of research conducted internationally, few longitudinal studies have focused on the maltreatment-offending association using Australian data. The development of this linked dataset and the incorporation of both self-report information and official records is the first of its kind in South Australia and, to the best of our knowledge, in Australia. Using this data, five specific research questions were examined:

1. To what extent do the child protection and youth justice populations overlap in South Australia?
2. How is substantiated maltreatment, and variations in these experiences (including the type, timing and recurrence of maltreatment) related to overall youth convictions?
3. How does placement in out-of-home care (including the type, timing, duration and stability of placements) relate to different types of convictions (including violent, property, drug and breach related offences)?
4. To what extent does gender and ethnicity moderate the association between maltreatment and convictions?
5. Are maltreatment and placement experiences related to violent convictions after accounting for other individual and social correlates of crime?

These research questions are discussed in sequence, and in the context of the theoretical and practical implications of the findings. Following this, limitations of the project and possible future directions are discussed.

### **Question 1: To what extent do the child protection and youth justice populations overlap in South Australia?**

The first study included in this thesis examined the overlap between the child protection and youth justice populations in South Australia in a way that highlighted the differences between prospective and retrospective sampling. Consistent with previous research, a prospective analysis of the data demonstrated that the majority of young people involved in the child protection system were not subsequently convicted of a crime prior to the age of 18 in South Australia. However, compared to general population estimates, the odds of being convicted were significantly greater for young people for whom notifications and substantiations of abuse or neglect were made, and for those placed in out-of-home care (OHC). Although the effect sizes were relatively small, it is clear that maltreatment is a significant risk factor for engagement in youth offending. Consistent with this, a retrospective presentation of the data demonstrated that a history of child protection involvement was common to a large proportion (almost 75%) of young people who had records of convictions.

Although the differences between prospective and retrospective sampling were demonstrated, it is also important to acknowledge that these results may not just be an artefact of the differences in study design. That is to say, the fact that most maltreated young people do not become offenders, but many young offenders have histories of maltreatment, is not an unusual, nor a necessarily contradictory finding. Relationships like these present themselves in many phenomena. For example, although many cigarette smokers do not develop lung cancer, smokers are significantly over-represented among those suffering from lung cancer (Cornfield et al., 2009). According to Cornfield et al. (2009), although a causal relationship between smoking and lung cancer is well supported, others have been critical of this direct link, with some suggesting that various etiologic factors play a role. Nonetheless, even though not all smokers subsequently develop lung cancer, smoking is an undeniable risk factor for the development of this disease.

Examples like these encapsulate the complexity in predicting outcomes from single events. Similarly, attempting to predict involvement in youth offending from maltreatment histories alone is difficult. Prospective studies have established that the pathway is not

deterministic and confirming a causal relationship becomes increasingly complex when it is clear that a number of different factors play a role in mitigating and exacerbating risk. For this reason, more complex models have been proposed to elucidate how these factors interact and the mediating or moderating processes that might influence the pathway from maltreatment to offending. Guided by the development of dynamic theories, for example the developmental and life-course (DLC) perspective, the role of individual differences in criminal behaviour are emphasised in an effort to understand why most victims of maltreatment do not subsequently engage in offending behaviours while some do. These theories aim to explain how a multitude of factors can influence pathways to offending and highlight how individual cognitive decision-making processes can shape these experiences. For example, the maltreatment-offending association might be less about the objective experience of abuse or neglect and more about how the individual responds to, or makes sense of, their victimisation.

Although it is difficult to determine which victims of maltreatment are more likely to subsequently engage in offending behaviour, the association between maltreatment and offending has now been investigated and reported in multiple studies conducted in countries around the world. Furthermore, it is well established that maltreatment is a demonstrable risk factor for a number of adverse outcomes other than youth offending. Associations have been found between maltreatment and poorer physical and mental health, interpersonal relationships, and other social circumstances (e.g., homelessness). Therefore, the causes and consequences of maltreatment are certainly pertinent public policy issues which are worthy of attention. As the evidence base continues to grow, it is reasonable to conclude that reducing child abuse and neglect will also result in better outcomes for young people, as well as resulting in reductions in youth offending. In regards to violent offending especially, although young people are the most common perpetrators of violence, the majority of violent acts are also committed against young people (United Nations, 2003). Thus, the victim-offender relationship, rather than simply explaining the pathway from child victim to adolescent or adult offender, might be broader and more cyclical in nature, with the victimisation process perpetuating over the life course. As suggested by Finkelhor and Kendall-Tackett (1997), although the collaboration between psychologists and criminologists has resulted in a sound theoretical understanding of the causes of youth offending, the causes and consequences of more generalised victimisation experiences are less understood.

Treating the association between victim and offender as a cyclical or perpetuating process might be useful in expanding our understanding of the maltreatment-offending association. In this way, the victimisation experience can be studied not only as a historical event, but can be further understood through the integration of more proximal experiences. For example, although younger children require protection because their age, dependence and physical fragility render them vulnerable to maltreatment, the maltreatment of older children also occurs but potentially for different reasons. In describing their theory of developmental victimology, Finkelhor and Kendall-Tackett (1997) suggested that adolescents are more likely to be victimised as a result of their engagement in risky behaviours. Because these young people are able to resist or defend themselves in the face of violence, they are more likely to be exposed to a number of other risks. For example, they might be more prepared to escape violence in the home by spending more time outside of these environments. In doing so, however, they tend to gravitate towards other deviant peers and adults. This increases the likelihood that they will be exposed to unsafe environments where there are further opportunities to engage in risky behaviours including, but not limited to, offending behaviour.

Therefore, justice models that focus on youth as offenders and, as a result, sanction strictly punitive responses to offending behaviour, might not be as useful as alternative models that recognise that adolescents are also victims of criminal acts or adverse circumstances. Although some States in Australia endorse a welfare approach to dealing with young people who commit crime, it is clear from the results of the first study that further collaboration between the child protection and youth justice systems is needed in South Australia. This appears to be especially critical in light of the evidence that almost 75% of young people with officially recorded convictions also had histories of involvement with the child protection system. Integrated and coordinated services that have the capacity to achieve a balance between holding youth responsible for their actions and rehabilitation are more likely to be effective than child protection or youth justice services operating in isolation. Such services can simultaneously respond to the historical and current care and protection needs of young people, address adolescent mental health problems, and focus on reducing engagement with the justice system.

**Question 2: How is substantiated maltreatment, and variations in these experiences (including the type, timing and recurrence of maltreatment) related to overall youth convictions?**

Although the difficulty in predicting youth offending from maltreatment experiences alone has been recognised, investigating the maltreatment-offending link is further complicated by previous research that has demonstrated the heterogeneity in maltreatment experiences. The type, timing and recurrence of maltreatment have all been found to have unique effects on youth offending. Therefore, the primary aim of the first study presented in this thesis was to examine how variations in maltreatment experiences influenced the odds of conviction for youth offences. Although the type of abuse has been commonly examined, relatively less is known about multi-type maltreatment or poly-victimisation. Furthermore, the findings from the second systematic literature review presented earlier in this thesis indicated that replication in the areas of timing and recurrence of maltreatment is needed in order to further understand how these features influence risk. In this way, study one aimed to advance knowledge in the field by focusing attention towards understanding the effects of different taxonomic categories of maltreatment on youth convictions, as well as exploring these associations in a population that had not been studied previously.

Despite methodological advancements, maltreatment research has been criticised for its variable and insufficient measurement of the different taxonomic categories of maltreatment (Manly, 2005). The paucity of previous research on some of these dimensions of maltreatment in studies examining the maltreatment-offending link and the ambiguous associations with outcome variables found are the likely the results, at least in part, of these difficulties surrounding definitions. As demonstrated by the second systematic literature review, operationalizing maltreatment dimensions is not simple. For example, the number of maltreatment reports or substantiations accumulated by a child has been inconsistently labelled ‘frequency’ or ‘recurrence’ across studies, with similar measurement procedures also being used as proxies for maltreatment ‘severity’ or ‘chronicity’. Furthermore, it is difficult to quantify severity; for example, is neglect occurring over several months, years or across different developmental periods more debilitating than a single, serious incident of physical or sexual abuse occurring early in childhood? Indeed, these factors could arguably have more significant effects on offending outcomes rather than the type of abuse alone.



Accordingly, one of the main contributions of this thesis is the detailed examination of maltreatment experiences in relation to timing, recurrence and multi-type maltreatment. Although replication of these findings is needed, effort was made to ensure that these variables were operationalized in a similar way to that which has been done previously in other high-quality studies in order to enhance comparability across studies. Findings from the first study highlighted the importance of investigating the role of different maltreatment experiences, other than type, when attempting to predict offending outcomes. For example, persistent maltreatment was a consistent predictor of convictions across two studies included in this thesis, and provides further justification for the need to understand how and why this characteristic negatively influences outcomes. In particular, these results raise important questions about the occurrence of maltreatment at different developmental time points over the life-course.

As mentioned previously, Finkelhor and Kendall-Tackett's (1997) theory of developmental victimology might be useful in explaining these findings further. Although this theory emphasises the role of many forms of victimisation other than maltreatment, its two main facets aim to explain how the risk of victimisation changes over the course of development, in addition to how responses to these victimisation experiences also change. By integrating victimisation experiences across distinct developmental time periods into a single framework, it provides further insight into the different developmental responses to, and consequences of, maltreatment occurring in adolescence compared to that which occurs earlier in childhood. Maltreatment or victimisation that occurs in adolescence might be more critical for several reasons. First, older children are more willing to resist their assailants, or to fight back. Second, older children are more able to escape maltreating family members by spending more time outside of the home, which could result in their exposure to other risky environments. Third, in these environments, older children might engage in other risky behaviours, such as offending, as a result of associations with negative peer groups. Finally, older children might encounter people or situations that put them at further risk and are more likely to experience victimisation by strangers or acquaintances. For those who have experienced persistent maltreatment, these proximal experiences are likely to compound vulnerabilities that have resulted from maltreatment experienced earlier in childhood, and these early vulnerabilities might also play a role in shaping the way these individuals deal with victimisation processes occurring later in adolescence. Therefore, victims of persistent maltreatment might be suffering from neurological changes or disruptions in age-appropriate development as a result of early

maltreatment, as well as dealing with more proximal victimisation processes in adolescence.

It is clear that the effects of these victimisation experiences are interrelated with a multitude of factors requiring further exploration. In order to gain a deeper understanding of these complex associations, the second and third studies presented in this thesis explored the intervening role of OHC placements, gender, ethnicity, and other individual and social risk factors in the association between maltreatment and youth offending. By elucidating the effects of different variations in maltreatment experiences, as well as these other risk factors, the findings presented can help to ascertain why some individuals go on to offend while others do not. This information can be used to develop prevention strategies and to tailor treatment approaches that can meet the individual needs of victims of maltreatment. Clear and consistent operationalization of these factors can also enhance communication between researchers and practitioners, both in child protection and youth justice, and help to translate research findings into practical applications.

**Questions 3: How does placement in out-of-home care (including the type, timing, duration and stability of placements) relate to different types of convictions (including violent, property, drug and breach related offences)?**

The need to further understand how placement in out-of-home care (OHC) experiences influence the maltreatment-offending association was clear from the outset. In study one, placement in OHC was the strongest overall predictor of youth crime convictions, and this finding prompted the subsequent analyses presented in study two. Although previous research has included similar investigations of the type, timing, duration and stability of placements in OHC and how these factors relate to offending behaviour, this study extended knowledge by investigating these effects on a range of different types of convictions. Although the results varied depending on the offence category explored, a number of findings with potential practice and policy implications emerged. First, maltreated individuals placed in OHC at an older age were at greater risk for convictions. This supports the need for early intervention. Second, consistent with the view that family-based care is preferable, maltreated individuals placed in foster care had a reduced risk for convictions whereas those placed in residential care had an increased risk. Finally, in line with research supporting the value of long-term placement stability, maltreated individuals who were in contact with the care system for longer periods of time and those who experienced a greater number of placements had increased odds for

convictions. The findings suggest that improvements in these areas could reduce the risk for convictions overall, but in particular for violent convictions and to some extent for property- and drug-related convictions.

The developmental psychopathology perspective has demonstrated how the aberrant and unpredictable home environments of maltreated individuals can adversely affect their social and cognitive development. The foundation of this perspective rests on the tenets of attachment theory, with early disruptions in attachment precipitating poorer adaptation at subsequent developmental stages. These consequences are often seen in maltreatment cases, with those experiencing abuse and neglect less able to forge healthy relationships in later life. However, Rutter, Quinton and Hill (1990) illustrated that, even if an individual fails to achieve a secure attachment to a primary caregiver in infancy, forming meaningful attachments to other caregivers later in life is possible. Therefore, intervening early and placing maltreated young people in stable home environments with patient and consistent carers might serve to compensate for these early disruptions in attachment.

However, remedying early attachment problems might not completely resolve the consequences of abuse and neglect. Here, the primary concern for practitioners and policy makers is that the emotional and behavioural problems of young people who enter care may be exacerbated rather than improved by their placement experiences. This is the source of a contentious question in the OHC literature: are placements a cause or consequence of problematic behaviour? In terms of offending, the findings from study two suggest that placement instability preceded offending by controlling for the temporal order between the associations. This finding is also consistent with previous research that contends that problematic behaviour leads to placement instability (Goodkind et al., 2012; Ryan & Testa, 2005). However, it is also likely that placement breakdowns occur in response to problem behaviour, whether this is because the behaviours are too difficult to manage or because carers are not equipped with the necessary skills, training or resources to cope effectively in these situations. Therefore, whether or not the behaviour precedes or proceeds the breakdown, stabilising placements should be prioritised.

A number of solutions have been proposed to ensure long-term and stable placements, including professional foster care, intensive therapeutic residential care, and family preservation services. These solutions all emphasise the fact that placement in OHC cannot simply be an alternative place to live; it needs to be a place where treatment occurs. Treatment serves not only to address the consequences of maltreatment, but can also be used to ensure that placement experiences do not compound mental health or

developmental problems. Another commonality across these options is the focus on improving outcomes within the environment that each individual operates, whether this is at home with their families or foster parents, at school, or in the community. Intensive family- and community-based treatments are deemed to be especially promising by wrapping services around the individual and strengthening the relationships in their surrounding networks. One treatment in particular, multisystemic therapy (MST), has gained traction in recent years and is likely to be especially relevant to the maltreatment-offending problem. MST was originally designed to treat chronic, violent or substance abusing young offenders but has now also been used in a variety of populations, including abused and neglected youth (Henggeler et al., 1992; Swenson et al., 2010). Based on ecological systems theory, change is not restricted to individual behaviour but is contextualised within the surrounding social and contextual environment. The focus is on keeping the youth with their family by providing intensive support not only to the individual, but also to his or her family members so that each is equipped with the skills and resources needed for addressing challenges that might arise.

However, an inherent limitation is the assumption that young people have families that are willing or capable of being involved in this therapeutic process. Though it is possible to implement these types of services in long-term foster care placements, others have emphasised the importance of collaboration between child protection and youth justice agencies in an effort to work towards addressing the cross-agency needs of young people exposed to both systems (Baglivio et al., 2016). Ways to improve inter-agency collaboration have been suggested, including: information sharing across systems; joint case management; dual-jurisdiction court systems; and the appointment of specialised case managers, court liaison officers, and youth probation officers that can act as mediators between the systems (Herz, Ryan, & Bilchik, 2010; Onifade et al., 2014; Wiig, Widom, & Tuell, 2003). The advantage of these options is that informed decisions about placements and treatment can be made by case management teams comprised of both child protection and youth justice workers, or specially trained staff responsible for supporting youth who have both current or prior involvement with both systems. However, the importance of training all child protection and youth justice workers on the effects of maltreatment on behaviour is emphasised. Youth justice staff members who work in secure care or custodial settings could arguably have the greatest influence on the behaviour of young people because they regularly spend the most time with them in these settings. As exemplified by Ford and Russo's (2006) *Trauma Affect Regulation: Guide for Education*

and Therapy (TARGET) intervention, programs conducted simultaneously with youth justice clients and workers might be more fruitful because they focus on the individuals as well as their immediate social ecology. These programs are broader in scope and have been found to be effective in developing awareness of, and improving responses to, emotions or behaviours that are triggered by trauma experiences by not only the young people, but also by staff members who work in a close proximity with these individuals (Kerig, 2012).

Nevertheless, in the absence of intensive therapeutic intervention and cross-agency support, it is unlikely that early problem behaviour will be addressed effectively. In turn, this might increase the risk for these behaviours to continue into adulthood, resulting in further vulnerabilities and disadvantages. Indeed, the risk of continuing to offend into adulthood given involvement in crime as a youth has been established (Burns et al., 2003; Cusick & Courtney, 2007; Maxfield et al., 2000). Therefore, understanding how placement experiences can militate against these risks is important for advancing social policy and ensuring that the services provided to victims of maltreatment result in improved outcomes. The ability to predict these outcomes could not only lead to the early identification of at-risk individuals, but could also result in better decision-making practices, targeted service provision and can help to develop prevention strategies.

#### **Question 4: To what extent does gender and ethnicity moderate the association between maltreatment and convictions?**

In more recent years, researchers have also focused on understanding how gender and ethnic differences influence the maltreatment-offending association and how this information could be used to improve intervention and prevention strategies. In relation to gender, the majority of research has focused on males. This is partly because females engage in criminal activities less frequently than males and, as a result, they are often underrepresented in studies of incarcerated or justice-involved youth. Due to the small numbers of females in mixed-gender studies, a large number of studies have instead focused on the offending behaviour of males only and, in response to the rising rates of female involvement in offending, other studies have utilised female-only samples. Although in these samples it is difficult to explore gender-specific pathways from maltreatment to offending, a number of studies have shown that it is important to identify the distinct risk factors that could influence outcomes for males and females separately (DeGue & Widom, 2009; Goodkind et al., 2012; Mersky & Reynolds, 2007; Ryan et al., 2010; Tyler et al., 2008).

Across the three studies presented in this thesis and consistent with previous research in the area, the evidence supports the notion that male gender is a significant risk factor for offending and, in particular, for violent offending. However, by exploring interactions between gender and other risk factors, further insights into gender differences were ascertained. In study two, it was found that the odds of having a conviction was greater for females who were placed in OHC compared to males, in particular for those placed in residential care. It might be that although males are at greater risk of involvement with youth justice overall, as the level of child protection involvement increases (in this case to OHC placements), offending risk might be more likely to diverge by gender. Consistent with this idea is Jonson-Reid and Barth's (2000) finding that as the level of child protection system involvement increased from investigation, to in-home services and finally to OHC placement, the risk of juvenile justice involvement increased for females but not for males.

However, it is unclear whether females placed in these settings are more likely to have pre-existing behaviour problems that exacerbate their risk for becoming involved in offending, or whether they are responding to their circumstances. To take some examples, it might be that females are more likely to use aggressive behaviour in response to risky or unsafe circumstances in placements. It could also be that females are more likely to suffer from comorbid substance abuse or mental health issues arising from their maltreatment experiences that are then compounded by placement experiences. Indeed, other studies have found that female offending is more likely to be accompanied by comorbid mental health or substance abuse issues (Bright, Sacco, Kolivoski, & Stapleton, 2016; Widom & White, 1997). Kerig and Becker (2015) also described how female offending might be better characterised as a survival or defence strategy used to cope in abusive environments as opposed to being intrinsically antisocial. These researchers contend that risky behaviours displayed by females are a result of posttraumatic stress symptoms, which is why girls are more likely to be arrested for crimes that are related more so to their own personal safety than that of others (e.g., absconding from home or placements, substance use and prostitution).

As other researchers have noted, it is plausible then that trauma experiences are more relevant for female offending and necessitate gender-specific interventions (Baglivio et al., 2016). In recent years, a number of evidence-based interventions have been developed to rehabilitate traumatised youth involved in the criminal justice system. Kerig (2012) summarised some of these theory-driven interventions, highlighting those that focus

specifically on behaviour arising from dysfunctional attachment styles as described by Bowlby's (1969) theory (e.g., Moretti, Braber & Obsuth, 2009), and family-focused interventions that attend more specifically to parent-child relationships (e.g., Kerig & Alexander, 2012). Other interventions that have been found to be effective for addressing trauma and delinquency among detained girls in particular included Smith, Chamberlain and Deblinger's (2012) intervention based on therapies delivered in foster care settings, including Trauma Focused Cognitive-Behavioural Therapy (Cohen, Mannarino, & Deblinger, 2006) and Multidimensional Treatment Foster care (Chamberlain, 2003), and Palidofsky and Stolbach's (2012) musical theatre program designed to empower girls by assisting them to voice their experiences through song and encouraging performances with their peers and wider social networks. The utility of these treatments was described in relation to their incorporation of complex trauma treatment principles, including promoting safety, developing self-regulation and information processing skills, and improving positive affect and engagement with others.

Limitations related to small sample sizes have also precluded researchers' abilities to disaggregate data by ethnicity and, as a result, theories delineating the role of ethnicity on the maltreatment-offending association are underdeveloped. As noted by Stewart et al. (2015), obtaining a representative sample that would enable comparisons between Indigenous and non-Indigenous Australians is especially difficult because the former comprise less than five per cent of our population. However, with recent advances in the use of linked administrative data, investigations into ethnic group differences have been possible (Baskin & Sommers, 2010; Bright & Jonson-Reid, 2008; Goodkind et al., 2012; Yampolskaya & Chuang, 2012). From the limited research that has been conducted in Australian populations, patterns of offending among Indigenous Australians have been found to be similar to that of minority ethnic groups across the United States (US) and Canada (Broidy et al., 2015).

In terms of the maltreatment-offending association, the focus on ethnicity across the three studies presented in this thesis represents advancement in the field, and the results also mirror the findings published internationally. That is, Indigenous Australians, similar to minorities in the US, are more likely to have convictions overall, and specifically for violent offences. Although the over-representation of ethnic minorities in the criminal justice system has been explained in part by biases in policing, it is also recognised that minority and child protection involved youth are also more likely to be living in poorer and higher risk communities resulting in over-surveillance by police. In further support of the

notion of ethnic biases in policing or adjudication processes was the finding that maltreated Indigenous youth were over thirteen times more likely to be convicted of a breach-related offence compared to their non-Indigenous counterparts. Furthermore, studies in the US have shown that mental health disorders are less likely to be identified and treated in minority youth in the juvenile justice system compared to white youth (Teplin et al., 2013), which could also help to explain the differences in outcomes found between individuals in these groups. At a broader policy level, improving access to mental health services in poorer communities might also help to reduce the racial disparities evident in the youth justice system.

Despite an increased risk of convictions for Indigenous youth, study two also provided further insight into the potential interactions between ethnicity and placement in OHC. These findings are novel in Australian research, but also advance knowledge on the broader maltreatment-offending literature by investigating how these interactions influence risk for a number of different types of offences. The findings suggested that the odds of having convictions (any and violent convictions) were specifically increased for non-Indigenous youth. This finding is consistent with recent research utilising samples from the US, with white youth placed in care more likely to enter the criminal justice system compared to African American youth (Goodkind et al., 2012; Jonson-Reid, 2002). Findings such as these have again been explained by biases in reporting of minority youth to the child protection system and by the disproportionate policing of, or level of law enforcement applied to, these individuals. It is plausible that these practices have resulted in a more concentrated group of non-minority youth with significant and complex needs in OHC. It could also be that placement services are more effective for Indigenous youth than for non-Indigenous youth with significant maltreatment histories. No other interactions were found for property, drug, or breach-related offences. This could indicate that ethnic differences are not as relevant in these types of offences, or alternatively, the smaller number of youth in some of these categories might have precluded the ability to detect significant interaction effects.

From the gender and ethnic differences ascertained in this thesis and in congruence with previous research, two broad implications are deemed important. First, understanding the unique mechanisms that underpin the association between maltreatment and offending across different gender and ethnic groups is necessary. Second, it is clear that uniform approaches to treating and preventing the consequences of both child maltreatment and youth offending does not constitute best practice. It is evident that separate theories or sub-



theories, intervention programs and preventative strategies need to be developed to explain and address gender- and ethnic-diverse pathways from maltreatment to offending. It might be that although some maltreatment experiences are common to all genders and ethnicities, there might be individual differences in the ways males and females, or youth from different ethnic backgrounds, perceive, make sense of, and respond to these experiences. Determining how these differences might mediate the association between maltreatment and offending could result in a better understanding of gender and ethnic variations in offending patterns over the life-course. In turn, this information can be used to enhance program efficacy by informing the design and development of gender sensitive and developmentally appropriate interventions. Finally, it is apparent that culturally competent approaches are needed to ensure that services delivered to minority youth are relevant, and that biased approaches to assessment or treatment are not perpetuated in the rehabilitation and prevention processes.

**Question 5: Are maltreatment and placement experiences related to violent convictions after accounting for other individual and social correlates of crime?**

With reducing violence at the forefront of the national and international agenda, the final study presented in this thesis focused on determining the aetiology of violent crime and the potential role that maltreatment plays in the development of violent behaviour. The final set of analyses presented in Chapter 5 utilised self-report data obtained from the Secure Care Psychosocial Screening (SECAPS) assessment in order to explore how maltreatment and placement in out-of-home care (OHC) factors were associated with violent convictions after accounting for other criminogenic risk factors. Because self-report survey data is rarely linked with administrative records, this study provides insight into the maltreatment-offending problem in a novel way. The findings reflected the multifactorial aetiology of violent offending, with a number of maltreatment- and placement-related risk factors found to be associated with violent convictions, in addition to other individual (anger and aggression) and social (household conflict) factors. The moderating effects of gender and ethnicity were again demonstrated, as well as interactions between maltreatment factors (substantiations for physical abuse or neglect) and individual risk factors (problematic alcohol use, anger and aggression).

Taken together, several theoretical, practical and policy-relevant implications can be drawn from the findings of the three studies presented in the previous chapter. First, the pervasiveness of persistent maltreatment is evident and, as a result, there is a need to focus

on ways to detect abuse or neglect early. Victims of persistent maltreatment are at risk for adverse outcomes for several reasons, thus early intervention is needed to reduce these consequences. These include the developmental consequences of abuse or neglect occurring early in childhood, as emphasised by the developmental psychopathology perspective, and the detrimental effects of hostile proximal experiences in adolescence, as emphasised by the life-course perspective. However, persistent maltreatment could also be associated with more chronic or severe instances of abuse or neglect, with extended exposure to maltreatment having a cumulative effect of harm for these individuals. Extended exposure to maltreatment could also be confounded, or exacerbated, by prolonged experiences of negative home environments, such as witnessing domestic violence, or harmful parenting behaviours, such as substance abuse, mental health issues, and criminality. Indeed, household conflict was associated with violent crime convictions in the final study. From a social learning perspective, extended exposure to these situations could be associated with an increased opportunity to model parents' behaviours. Therefore, detecting abuse and neglect early, preventing its continuation into adolescence and responding with the provision of effective services is imperative.

Second, the nature and quality of OHC placements must be improved. Placement in OHC was the strongest predictor of overall convictions in study one. The exploration of variations in placement experiences conducted in study two provided further insight into the negative effects of residential care placement and placement instability, and study three provided further evidence of the negative effects of residential care in increasing the risk of violent convictions. However, foster care was also found to be associated with an increased risk of violent convictions in the final study, whereas it was associated with a reduced likelihood of overall and violent convictions in study two. It is recognised that differences in sample selection have likely influenced these results and that they are not necessarily competing findings. That is, one study examined the risk of convictions in a sample of youth with placement histories, whereas the other examined the influence of placement experiences on violent convictions among a sample of offenders. Therefore, although placement in foster care might serve as a protective factor for engagement in offending in comparison to placement in other care arrangements, young offenders with histories of foster care placement are still at greater risk of engagement in violent crime compared to those who have not experienced OHC placement. These findings could also be suggestive of the idea that young offenders who have come to the attention of child protection and have had their maltreatment substantiated, resulting in OHC placements, are likely to have

suffered from the most severe or chronic forms of abuse or neglect. With these experiences, a constellation of associated risk factors are likely to differentiate young offenders placed in OHC from other young offenders.

Consistent with earlier arguments, it is important to emphasise that placement in OHC should be a therapeutic alternative that serves to improve outcomes for young people who have been removed from abusive or neglectful environments. If young people are instead exposed to unstable placements from which consistent carers are absent, or if appropriate mental health, behaviour and substance abuse treatment options are not provided, then it is possible that the vulnerabilities of youth placed in these arrangements might be exacerbated. Ensuring that placements are not a stepping-stone to delinquent pathways requires collaboration between service providers in order to plan, administer and manage interventions that can be delivered within a safe home environment.

Third, the findings across the three studies solidify the need for gender- and ethnic-specific treatment programs. As a main effect, both male gender and Indigenous status were significant predictors of convictions across all three studies. However, studies two and three demonstrated how effects vary depending on gender and ethnicity, especially with regard to placement experiences. Although study two demonstrated the negative effects of placement for girls especially, study three found that these effects also extended to males for violent convictions. These findings might suggest that placement experiences play a role in the initiation of offending for females, but in convictions for more serious crimes for males. This is consistent with the idea that females are more likely to engage in delinquent acts which Kerig and Becker (2015) labelled “survival crimes”. Such crimes include the use or dealing of illicit drugs, running away, prostitution, and petty theft, and contrast with violent crimes or acts committed against others, such as assault, which are more often perpetrated by young men.

This also points to another issue in the use of official records for capturing criminal behaviour. It could be that female offending is typified by more covert acts that are not legally sanctioned or captured by formal offence categories. Indeed, researchers have found that female offending is more likely to constitute indirect or verbal aggression and is more likely to be accompanied by comorbid mental health or substance abuse issues (Bright et al., 2016; Ryan et al., 2010; Widom & White, 1997). Furthermore, it has been found that antisocial peer associations are less influential in female offending (Piquero, Gover, MacDonald, & Piquero, 2005), which could also explain why young men are more

likely to be convicted of violent crimes resulting from group-related offences, such as fighting.

It is clear that a one-size-fits-all approach is not adequate for meeting the needs of victims of maltreatment or young offenders; rather, individually tailored responses are likely to achieve the best outcomes. However, a deeper understanding of the specific mechanisms by which gender and ethnic differences operate to influence distinct pathways from maltreatment to offending is needed. Until this empirical foundation is developed, practitioners and policy-makers will be limited in their capacity to design and implement appropriate and effective services. Nonetheless, from the burgeoning evidence-base it is clear that, at a minimum, these services should be gender sensitive, culturally competent, and developmentally appropriate.

Finally, in addition to maltreatment and placement factors, study three demonstrated that a number of other individual and family background factors contributed to violent offending among youth. It is not often that administrative records can be examined in combination with survey or assessment data, thus this study provided a rare insight into the way maltreatment and placement factors interact with individual and social risks. Findings from this study were consistent with both previous longitudinal survey research that has identified the intervening effects of a number of individual, social and contextual factors (Feiring, Miller-Johnson, & Cleland, 2007; Mersky & Reynolds, 2007; Schuck & Widom, 2005; Tyler et al., 2008) and theories which emphasise the role of influences from multiple ecological levels in shaping risk (Cicchetti & Toth, 1995; Finkelhor & Kendall-Tackett, 1997; Piquero, 2015b).

However, as pointed out by Jonson-Reid (1998), it is difficult for any single study to account for all of the ecological risks on the development of behaviour. The multi-level and nested nature of these risk factors and their association with offending makes the maltreatment-offending association challenging to study. Factors identified likely form part of a constellation of risks or confounding factors that are difficult to examine separately. If one were to take the finding from the third study that identified aggression as the factor most strongly associated with violent convictions as an example, it is clear that aggression is not an isolated risk factor but is influenced by a number of different interrelated risks. In this study, an interaction between aggression and neglect was found, indicating aggression was more common among victims of neglect. In turn, neglect was also associated with problematic alcohol use. Other research has also demonstrated that these risk factors appear more commonly among youth from poorer communities, and

poverty is, in turn, associated with myriad risks. Furthermore, there are individual differences in how these risk factors influence behaviour, as well as the various social and cultural elements that also play a part. This complex interplay between risk and protective factors often hamper the ability to isolate specific risk factors or ascertain the precise mechanisms by which maltreatment leads to offending behaviour. A deeper understanding of these processes is thus contingent on interdisciplinary research and collaboration that can build upon and expand these findings.

Although the evidence presented in this thesis has demonstrated that the maltreatment-offending association is complex and efforts to ameliorate its consequences are constrained by this fact, one of the most remediable constraints is the fragmentation of the response system. Improving collaboration between the child protection and youth justice system would help to ensure an integrated response to the maltreatment-offending problem. Another issue is that, although early intervention aimed at preventing the occurrence of abuse and neglect needs to be prioritised, the need to invest resources at the other end of the continuum, that is, when victims of maltreatment enter the youth justice system, is emphasised by these findings. Although not all young people served by the justice system are also victims of maltreatment, they are likely to have experienced some form of trauma or adversity growing up, whether this be exposure to domestic violence, bullying by peers, dating violence or victims of crime. Therefore, the screening of adverse childhood experiences should be incorporated into youth justice assessments. Even though this is sensitive information, the safe and appropriate transfer of knowledge from child protection to youth justice would be potentially beneficial in ensuring the provision of appropriate services.

Any interventions involving this population are likely to face two important challenges. The first is the need to develop and provide services that focus not only on dynamic criminogenic risk factors (e.g., anger, substance use) but also on historical risk factors (e.g., maltreatment, family conflict). Treatment for young offenders is predominantly targeted towards the former; however, focusing on historical risk factors could assist in identifying and treating challenging behaviours that likely arise from, or are triggered by, previous adverse or traumatic experiences. As suggested by Finkelhor and Jenkins Tucker (2015), it might be more useful to view victimisation more broadly within an integrated developmental framework. For example, using Finkelhor and Kendall-Tackett's (1997) theory of developmental victimology, it might be possible to ascertain how an individual manages and reacts to trauma at different stages of their development.

Although not all young people served by the youth justice system have experienced abuse or neglect, considering the preponderance of youth that enter the youth justice system after being exposed to some type of trauma, it is important that time spent under the supervision of youth justice services does not serve as an additional traumatic experience. Avoiding this re-traumatisation process necessitates the delivery of therapeutic, evidence-based interventions (Ford, Kerig, Desai, & Feierman, 2016).

The second challenge for youth justice is the need to strike a balance between offering help and holding youth accountable for their actions. As noted by Griffin, Germain, and Wilkerson (2012), the legal system is faced with the challenge of dealing with young people who pose a threat to the community but who are also victims. Traditionally, punitive models for dealing with young people who commit crimes have been endorsed. Other systems take a mental health approach, whereby behaviour is understood as a symptom of possible mental illness. More recently, the introduction of a trauma-informed approach has been developed in response to the growing body of evidence that youth served by the justice system are displaying trauma symptoms. This model aims to hold a youth accountable for their actions but, because it is also grounded in a strengths-based approach to behaviour change, it also aims to reduce recidivism by focusing on resilience and teaching alternative responses rather than simply punishing bad behaviour. As opposed to the trained clinicians, counsellors or psychiatrists relied upon to deliver assessments and treatment in the mental health model, the trauma-informed approach places a larger onus on the role that youth justice staff play in the young person's recovery process and aims to strengthen supportive adult relationships. However, because trauma is not relevant to all individuals who enter the youth justice system, not all systems are keen to adopt this model. As noted by other researchers, society struggles with maltreated and delinquent youth and public opinion can encumber efforts to shift the focus from punitive action to approaches that are consistent with the goals of rehabilitation. Therefore, advocacy on the part of researchers, practitioners and policy-makers is necessary.

## **6.2 Limitations and Future Directions**

The limitations of each individual study have been discussed within the papers presented in the previous chapter, therefore, in an effort to minimise repetition, this section

will focus more broadly on the limitations of the CPYJ project and the potential areas for future research.

The main limitation of this project was the reliance on official records to measure maltreatment and offending. It is possible that maltreatment that comes to the attention of child protection agencies represents the most extreme end of the scale of abuse and neglect that occurs within families and typically under-represents the prevalence of maltreatment in the general population. Thresholds for deciding which incidents constitute abuse or neglect also vary across jurisdictions and among investigators, resulting in inconsistencies in how cases are judged and recorded. On the other hand, because maltreatment is associated with social stigma and occurs behind the closed doors of the family home, the incentive for parents to disclose their harsh or inappropriate parenting practices is hampered by the potential consequences that could ensue. Therefore, any data collected through self-report measures are limited by the potential for reporting biases, such as nondisclosure or social desirability. Official records also provide a way to obtain an objective insight into the number, type and timing of maltreatment incidents experienced in a way that is not influenced by any age-related factors or memory deficits. As Smith et al. (2008) asserted, official records are preferable in examinations between maltreatment and later outcomes because the date of maltreatment is known, enabling researchers to maintain the correct temporal order between associations.

Similarly, not all crimes committed come to the attention of authorities. Official records are influenced by police discretion and judicial processes, which can also vary across jurisdictions. Moreover, it has been argued that the types of crimes committed by girls do not always lead to legal sanctions, partly because these acts include more covert forms of aggression (Kerig & Becker, 2015). Because the CPYJ data includes only official records of convictions, it might not accurately capture the type and number of crimes committed in the community, especially those perpetrated by females. Integrating multiple sources of information is considered the best way to provide a complete picture of maltreatment and offending, although it is recognised that this would be a long and costly endeavour. Nonetheless, these limitations should be considered in future research for a comprehensive portrayal of the maltreatment-offending association. In line with Smith and Thornberry's (1995) conclusions, it is argued, irrespective of how delinquency is measured, victims of maltreatment are at greater risk of engaging in offending behaviour, so that examining official and self-report records concurrently potentially provides a more nuanced understanding of the problem. Studies could also consider the congruence

between data obtained from different sources and how reporting practices might differ between abused and non-abused victims. As exemplified by Maxfield et al. (2000), although significant concurrent validity was found between officially recorded and self-reported arrests, victims of maltreatment were more likely to report crimes not captured by official records compared to their non-maltreated counterparts.

With the exception of the initial descriptive statistics provided in study one, the studies presented in this thesis relied solely on substantiated cases of maltreatment. Similarly, the majority of previous research on the maltreatment-offending association tends to focus on maltreatment that has been substantiated. Arguments have been made for the need to include notifications, or unsubstantiated reports, of abuse or neglect when examining outcomes. Due to the fact that not all types of maltreatment have the same substantiations thresholds, studies could be biased towards the inclusion of more severe cases of maltreatment. For example, in order to substantiate incidents of neglect, investigators are required to confirm patterns of failure in supervision or caregiving, whereas cases of physical or sexual abuse might only require one single identifiable incident. On the other hand, unsubstantiated cases are more likely to contain false positive reports of maltreatment, or reflect less serious incidents that do not constitute abuse or neglect. Another problem is that there will be variations in definitions and measurement of maltreatment. The use of administrative data further complicate these issues, as researchers are limited to information that has been collected previously and based on the definitions and standards of the jurisdiction to which the data pertain.

Including unsubstantiated reports of maltreatment can broaden the ability to capture real instances of maltreatment that might not have been investigated or substantiated based on a lack of evidence or a lack of resources. There is also evidence that unsubstantiated reports can be used to identify and measure associations with criminal outcomes. Two examples from the maltreatment-offending literature are pertinent here: both Leiter et al. (1994) and Bright and Jonson-Reid (2008) reported that young people with unsubstantiated cases of maltreatment were just as likely to be involved with juvenile courts as their counterparts with substantiated cases. Using data from the CPYJ project, similar investigations of the relative risk for conviction could be explored among young people for whom only notifications for maltreatment were made, in comparison with those who were subjects of investigations and those for whom maltreatment was substantiated. Using the SECAPS data, differences between the family background, individual and social characteristics of young offenders falling within these groups could also be compared, as



well as drawing comparisons between offenders without any recorded child protection histories. Analyses examining these differences, in addition to differences between young people who enter OHC via a child protection pathway (i.e., after a substantiation has been made) and those who enter for other reasons (e.g., when parents have suddenly died, were institutionalised due to mental health problems, or were incarcerated), have been completed and the write-up of this paper is in progress.

Discussions with the Department of Correctional Services have also commenced in order to facilitate the linkage of adult offending data within the CPYJ dataset. This would enable future research to focus on the pathways from maltreatment to offending into adulthood. This is not only important for identifying factors that distinguish between those who persist or desist from offending, but could also provide insight into the relatively understudied group of adult onset offenders. As noted by Stewart et al. (2015), many offenders enter the justice system for the first time in adulthood and further research is needed to investigate the possibility of distinct adult-onset trajectories and the risk factors that differentiate between them.

Although the integration of self-report survey data with administrative records is a novel contribution and the SECAPS data contains detailed self-report information on the family backgrounds and criminogenic needs of a large sample of young offenders, criticisms about its completeness and validity are warranted. It is possible that assessments were not conducted or completed with every young person each time they entered or re-entered a youth justice facility. It is also known that young people serving orders in the community were not always assessed. Therefore, the association between maltreatment and offending could potentially be under-estimated to some extent. Furthermore, the validity of the measures included in SECAPS needs to be considered, as some of these were not based on standardised tests. This precludes the ability to make cross-jurisdiction comparisons or comparisons with other research studies. The dataset could be enhanced through the possibility of linking in information from other agencies, including drug and alcohol services, child and adolescent mental health, and education, so that greater insight into the maltreatment-offending link in South Australia can be achieved. This would also provide a more detailed picture of service utilisation and differences between single and multiple service users could be identified. Nonetheless, the SECAPS data contains a great deal of detailed information that could be used in future research. For example, although moderating effects were considered in this thesis, the next step could be to identify any mediating processes between maltreatment and offending based on individual and social

risk factors. The use of multi-level or structural equation modelling might be most appropriate here.

Moreover, biological processes, such as genetic or neuropsychological characteristics, and contextual risk factors, such as neighbourhood poverty or level of violence acceptance within the community, could not be explored in this thesis. Researchers have discussed the importance of these risk factors, and from an ecological perspective, the analyses are not complete without consideration of how these processes might influence the maltreatment-offending association. Overall, the only measure of socioeconomic disadvantage included in this thesis was that which could be derived from postcodes (as described in study one). Given the limitations of this measure and the strong associations between poverty, maltreatment and offending, further research is needed to elucidate the influence of these potentially confounding factors. Future research could examine whether socioeconomic disadvantage is disproportionately spread among certain individuals within the dataset. For example, the predictors of convictions found in study one could represent an underlying dimension common to a specific group of individuals. Cluster analysis could be used to test this possibility of distinct groups within the data.

Furthermore, additional research is needed on the intersection between poverty and the potential ethnic biases present in maltreatment reports. Research from Chapin Hall in the US has focused on racial disparity and poverty in an attempt to determine whether poverty explains the disproportionate placement of black youth in OHC compared to white youth (Wulczyn, Gibbons, Snowden, & Lery, 2013). The findings from this study were particularly fascinating because the gap in placement rates did not vary in counties with differing levels of poverty but remained consistent. For example, white youth were placed at similar rates to black youth in higher poverty counties, suggesting that the racial disparity in placement rates is not to do with poverty, but is dependent on race. However, a number of limitations of the study were acknowledged, necessitating replication of these findings and further exploration of these associations.

As with any study, a number of strengths and limitations have been discussed. However, the scope for future research using the CPYJ data has been highlighted, with many opportunities to further advance knowledge on the maltreatment-offending association. The development of this linked dataset has resulted in a valuable resource that can be used by future researchers, and those working within the relevant departments, to further explore how maltreatment is associated with youth offending.

### **6.3 Concluding Remarks**

Overall, the results of this thesis illustrate that maltreatment experiences vary across several dimensions that are not only interrelated, but are also embedded within the context of other individual, familial and community risk factors. Broader theoretical perspectives, such as developmental and life-course theories, that can encapsulate all of these complex associations are needed to further our understanding of the link between maltreatment and offending. Although identifying risk and protective factors is important for the development of these theories, a deeper understanding of the underlying mechanisms responsible for increasing risk in the pathways from maltreatment to offending is necessary. Moreover, understanding individual differences in experiences and how these influence behaviour across different gender and ethnic groups is especially important considering the distinct pathways that are emerging from local and international research studies. Building this empirical foundation is important for the further development of prevention and intervention strategies in Australia. This information can be used to translate findings into practical solutions and enhance collaboration between the child protection and youth justice systems, as well as other relevant stakeholders such as the health and education systems.

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