Parenting and Parent-Child Attachment Relationships in Young Children with Conduct Problems and Callous-Unemotional Traits

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Table of Contents

Tables and Figures

Tables

Figures

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Abstract

Children with conduct problems exhibit temper outbursts, and impulsive, oppositional, or antisocial behaviours that significantly impact their ability to function at home, school, and within their community. If untreated, conduct problems can set children on a high-risk trajectory into adolescence and adulthood. Developmental psychopathology research has identified two distinct pathways to developing conduct problems in childhood according to the presence or absence of high levels of callous-unemotional (CU) traits. Children with conduct problems and high CU traits show earlier and more severe and persistent conduct problems and, subsequently, more problematic cognitive, emotional, physiological and personality characteristics than children with conduct problems alone. This makes them an important focus for research and intervention. CU traits in childhood have strong genetic and biological foundations; but are also changeable. A developing literature identifies that negative parenting and problematic parent-child relationships relate to higher CU traits and more severe conduct problems for children with high CU traits in early and middle childhood (for a review, see Waller, Gardner, & Hyde, 2013). The current study extends this literature by providing an in-depth profile of the current quality of parenting and parent-child attachment relationships for children with conduct problems with varying levels of CU traits.

Participants were mothers (n = 92) and fathers (n = 36) of 92 children (72% boys) between 3 and 9 years of age who were referred to an outpatient mental health clinic at a large metropolitan children's hospital. The children were diagnosed with Oppositional Defiant Disorder and/or Conduct Disorder. A multi-method approach was used, including:

- a narrative interview question to elicit parent representations of their child's mental states,

- doll play narrative and family drawing techniques to obtain children's representations of attachment,

- questionnaires to assess for parents' perceptions of their parenting styles, caregiving helplessness and parenting stress, and

- an observational measure to assess for parent-child dyadic emotional availability.

It was expected that more problematic parenting experiences and perceptions of the parent-child relationship, less optimal emotional availability between parent and child during various interaction tasks, and more problematic child representations of their parents and family would be associated with more severe conduct problems and CU traits (examined separately), including diagnostic thresholds.

Hypotheses were mostly supported with respect to conduct problems (results were more compelling for mothers than fathers), but findings related to CU traits were equivocal. Mothers of children with more severe conduct problems used more negative descriptors of their child's mental states, reported higher parenting stress, and described more feelings of helplessness when caring for their children. In addition, in cases where the child met the "With Limited Prosocial Emotions" specifier of Conduct Disorder (American Psychiatric Association, 2013), mothers reported that more child caregiving (where the child tended to take charge) was related to more severe conduct problems. Mothers of children with more severe conduct problems were also observed to be less emotionally available when interacting with their child. Children with more severe conduct problems showed more: negative representations of their parents and dysregulated aggression in their doll story narratives; dysfunctional representations of their family relationships in their drawings; and pathology in performing these tasks. The study did not find significant associations among parenting or parent-child attachment relationships and child conduct problems for fathers.

However, effects for fathers' parenting stress and father-child dyadic emotional availability were at trend level.

Significant findings relating to hypotheses about child CU traits were limited to the parent self-report measures. Parents (mothers and fathers) of children with higher CU traits reported fewer positive parenting practices, less child caregiving and more parenting stress. In relation to the severity of child CU traits, mothers (not fathers) reported more parent helplessness, and fathers (not mothers) reported more frightened or frightening caregiving. Fathers' use of more negative mental descriptors of their child were also related to higher child CU traits.

Results are discussed in relation to their novel contribution to our current level of understanding of the quality of parenting, and parent-child attachment relationships experienced by children with conduct problems and varying severity of CU traits, including the unique contribution of mothers'/fathers' caregiving. Given that measures of attachment used in the current study had very limited or no previous application in investigating CU traits and related conduct problems in clinic-referred samples, the current results extend previous research and the theoretical implications are discussed.

There were several unexpected findings. These included non-significant relations among negative parenting practices, parent and child emotional availability, parental mind-mindedness, or child representations of attachment and child CU traits. These unexpected findings are discussed in the context of previous research, theoretical understandings of conduct problems and attachment theory, and limitations in the current study's design. Limitations included: a cross-sectional design and absence of a control group; a small group of fathers; reliance on parent-report measures of CU traits and conduct problems; limited assessment of child, parent and family risk-factors known to contribute to child CU traits; and demographics of the clinic-referred sample.

Finally, the study makes recommendations for intervention with child CU traits and conduct problems based on the current results. Interventions focusing on improving positive parenting practices, caregiving helplessness and parenting stress for mothers and fathers may be helpful in reducing CU traits in children. Improving maternal emotional availability, caregiving helplessness and parenting stress could also reduce disturbances in children's representations of attachment that, together, could be effective in improving child conduct problems. Including both mothers and fathers appears important for assisting the most behaviourally-disturbed children.

Certification by Candidate

I certify that the work in this thesis titled "Associations among Parenting and Parent-Child Attachment Relationships in Young Children with Conduct Problems and Callous-Unemotional Traits" has not previously been submitted for a degree or submitted as part of the requirements of a degree to any university or institution other than Macquarie University.

I also certify that the thesis is an original piece of research and has been written by me. Any assistance I have received in my research work and the preparation of the thesis itself has been appropriately acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by the South Eastern Sydney Local Health District Human Research Ethics Committee on 22 March 2013 under reference number: 12/253 (HREC/12/POWH/516). The project also received approval from the Macquarie University Human Research Ethics Committee under reference number: 5201300233 (refer to Appendix A).

Yours Sincerely,

Adam David Johns

Student Number:

Acknowledgements

As an early career clinical psychologist working with young children and their families in 2012, I was eager to develop my knowledge of attachment theory and its application to clinic-referred childhood psychiatric disorders. I was employed in a child and family mental health service, Child and Family East, at the Sydney Children's Hospital, Randwick. Severe behaviour problems were the most referred presentation, and I observed that these were associated with dysfunctional family relationships. I wanted to understand the family experiences of these children from an attachment perspective. In August 2012, I enrolled in my PhD in Psychology. The following seven years have been a meaningful, sometimes difficult, and completely formative learning experience. This research could not have been achieved without the inspiration, confidence, guidance, encouragement, and practical and emotional support given by so many people.

Associate Professor Catherine McMahon, my principal supervisor, has been vitally important to me completing this project. Cathy was reliable, sensitive, responsive and directive when required. Cathy remained committed and responsive throughout this sometimes disjointed process, which was impacted by full-time work commitments, the birth of two children, and distance (I lived in Perth for six months and was located off-campus throughout my enrolment). While completing this PhD was mostly a solitary activity, I always knew that Cathy was available to provide support and guidance.

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Overview

Children with conduct problems exhibit temper outbursts, impulsive, oppositional, or antisocial behaviours. Conduct problems are prevalent and, commencing in early childhood, set children on a troubling trajectory (Lawrence et al., 2015). Conduct problems commencing in childhood are associated with later severe and persistent aggressive and antisocial behaviour, and impairments across multiple functional domains (e.g., mental health, legal, academic, physical health, etc.) in adolescence and adulthood (Odgers et al., 2007; Odgers et al., 2008). They operate at the highest cost of all psychiatric disorders and, thus, are a significant public policy concern and an important focus for research and intervention (Scott, Knapp, Henderson, & Maughan, 2001). Conduct problems are described in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric Association, 2013), as Oppositional Defiant Disorder and Conduct Disorder. Chapter 1 reviews the prevalence and significance of these problems and discusses the characteristics, psychiatric diagnoses, epidemiology and trajectory of conduct problems in clinic-referred children.

Research has sought to identify which children are likely to persist and escalate the severity and functional impact of disruptive behaviour. Various subtypes with different trajectories have been identified, with a key focus being the impact of comorbid callous-unemotional (CU) traits (Frick & White, 2008). The current research is interested in developmental psychopathology research that has investigated conduct problems in children with or without high levels of CU traits (Frick, Ray, Thornton, & Kahn, 2014a). This approach explores the application of the construct of psychopathy in adulthood to children.

Children with conduct problems and high CU traits are characterised by boldness, superficial charm, shallow or deficient affect, lack of remorse or guilt, "meanness", and a lack

of concern about the feelings of others (Frick, Ray, Thornton, & Kahn, 2014b). Chapter 1 describes the unique behavioural, cognitive, emotional, physiological and personality characteristics of children with conduct problems and high CU traits, which place them on a distinct developmental pathway to more severe, persistent and earlier-onset aggressive and antisocial behaviour. The CU traits developmental pathway to conduct problems in childhood has been recognised by a specifier within the diagnostic criteria of Conduct Disorder in the DSM-5, labelled "With Limited Prosocial Emotions" (Frick & Moffitt, 2010).

CU traits have biological underpinnings. There is moderate-to-strong heritability (Viding, Blair, Moffitt, & Plomin, 2005). These traits relate to several genetic polymorphisms (Viding et al., 2010), and are associated with unique structural and functional brain abnormalities that map onto the core cognitive, social-emotional, behavioural and personality characteristics that accompany them (Blair, 2013; Viding & McCrory, 2018). Research shows, however, that CU traits are also mutable during childhood and adolescence (Pardini & Loeber, 2008). This has invited research to explore factors that exacerbate or ameliorate CU traits in childhood, which is important from an intervention perspective. Evidence is gathering that CU traits likely emerge in the context of heritable risk, but risk that is exacerbated (or buffered) by non-heritable environmental influences (Waller & Hyde, 2017).

As outlined in Chapter 2, all major theories of child development propose that a child's social, emotional and behavioural development occurs within the context of their family, school, community and culture (Bronfenbrenner, 1986). Child conduct problems and CU traits represent problematic development. Theoretical models converge in proposing that conduct problems develop from interactions among: child risk factors (e.g., genetics); insecure parent-child attachment relationships; dysfunctional parent management strategies; and adverse family ecology (Greenberg, Speltz, & DeKlyen, 1993; Greenberg, Speltz, DeKlyen, & Jones, 2001).

The quality of parenting and the parent-child relationship appear to be the most important, and reciprocal transactional influences of child characteristics are acknowledged (Scaramella & Leve, 2004). A broad literature review in Chapter 2 shows that more negative and less positive parenting and parent-child relationships relate to more severe conduct problems in childhood (Kawabata, Alink, Tseng, & van Ijzendoorn, 2011; Stormshak, Bierman, McMahon, & Lengua, 2000).

An important question raised in Chapter 2 considers whether parenting and parent-child relationships are connected with CU trait development and associated conduct problems, particularly in light of evidence suggesting a strong genetic foundation. Research evidence shows that ineffective parenting and dysfunctional parent-child relationships are related to higher CU traits and their associated conduct problems in childhood, either directly or through interactions with child, parent and family vulnerabilities (Waller et al., 2013). In particular, studies reviewed in Chapter 2 show that more harsh and intrusive parenting, more punitive and inconsistent discipline, more negative parent affect, and poorer monitoring and supervision are related to higher child CU traits (e.g., Childs, Fite, Moore, Lochman, & Pardini, 2014; Waller et al., 2012; Yeh, Chen, Raine, Baker, & Jacobson, 2011). Parents of children with conduct problems and higher CU traits also show less sensitivity, warmth, involvement and positive reinforcement in their caregiving (e.g., Wagner et al., 2015; Waller et al., 2014). They report more parenting distress and less acceptance of their children's emotions (Fanti, Colins, Andershed, & Sikki, 2017; Pasalich, Waschbusch, Dadds, & Hawes, 2014). Early experiences of abuse, neglect and trauma and enforced separations from parents precede the development of child CU traits in some cases (Ang et al., 2014; Enebrink, Andershed, & Langstrom, 2005). In the context of the broader literature on differential susceptibility to caregiving environments (Belsky & Pluess, 2009), children with higher CU traits appear particularly sensitive to their caregiving environments (O'Connor, Humayun,

Briskman, & Scott, 2016), and studies reveal both child- and parent-driven effects on the quality of their relationships (Hawes, Dadds, Frost, & Hasking, 2011).

Research has also examined whether CU traits moderate associations among ineffective parenting and dysfunctional parent-child relationships and child conduct problems in early and middle childhood. As reviewed in Chapter 2, there are equivocal findings (Waller et al., 2013). Some research shows that more negative and less positive parenting relates to more severe conduct problems – regardless of the severity of the children's CU traits (e.g., Hyde et al., 2013; Kroneman, Hipwell, Loeber, Koot, & Pardini, 2011). Other research shows moderation by CU traits, but this occurs in opposite directions. A few studies show that dysfunctional parenting relates to conduct problems for children with *low*, but not high, CU traits (e.g., Oxford, Cavell, & Hughes, 2003; Wootton, Frick, Shelton, & Silverthorn, 1997), while a more substantial literature shows that more negative and less positive parenting strongly relates to conduct problems for children with *high*, than low, CU traits (Hipwell et al., 2007; Pasalich, Dadds, Hawes, & Brennan, 2012). Together, this research generally indicates that children with conduct problems and higher CU traits tend to experience particularly problematic parenting. The current study will consider these associations from an attachment perspective.

The overarching objective of the current study is to investigate parent-child attachment relationships as they relate to conduct problems and CU traits in early and middle childhood. An overview of attachment theory is provided in Chapter 3. Attachment theory (Bowlby, 1969/1982) proposes that parenting behaviours are guided by a parent's internal representations of caregiving, which symbolise the parent's current and past caregiving-related experiences, as well as memories of early attachment. Children who receive warm, sensitive and predictable caregiving develop trust in their caregivers to meet their emotional needs and experience the co-regulation of affect and behaviour. These attachment-related

experiences are internalised as secure representations of attachment in toddlerhood that, in turn, are used to organise and guide more successful exploration and learning, improved emotion self-regulation, and positive interactions with their caregivers, siblings, teachers and peers. These aspects of development are impaired in children with conduct problems, and most severely in those with high CU traits (Frick et al., 2014b). The current study aims to assess the central constructs of parent-child attachment relationships in relation to child conduct problems and CU traits.

Chapter 3 describes individual differences in security within parent-child attachment relationships. Children with secure attachment are confident in their parents' emotional availability to support their exploration and, when distressed, organise their feelings. If enduring, this relationship dynamic is a resiliency factor in children's social-emotional development. By contrast, children with insecure and disorganised attachment experience unreliable, overprotective, rejecting or unpredictably hostile or helpless caregiving, which generates distrust and fear in the relationship and predicts problematic child outcomes. An extensive literature shows that insecure, particularly disorganised, attachment is associated with conduct problems in childhood (e.g., Fearon, Bakermans-Kranenburg, van IJzendoorn, Lapsley, & Roisman, 2010). There are limited, but comparable, findings for children with conduct problems and high CU traits (Bohlin, Eninger, Brocki, & Thorell, 2012; Pasalich, Dadds, Hawes, et al., 2012; Willoughby, Mills-Koonce, Gottfredson, & Wagner, 2014). The current study intends to extend this research by exploring the quality of parent-child attachment relationships using approaches to assessment appropriate to early and middle childhood.

Chapter 4 describes the rationale for the approach to assessment taken in the current study. A multi-method approach includes: narrative interviews of parents (parent representations of the child's mental states); child doll play narratives and family drawings

(child attachment representations); questionnaires (parenting styles, subjective experiences of the parent-child relationship, parenting stress); and observational (parent-child dyadic emotional availability) measures. Chapter 4 provides a rationale for the measures chosen in terms of their utility for understanding parenting and parent-child attachment relationships in the context of conduct problems and CU traits in childhood.

The overarching aim of this research is to provide an in-depth profile of the current quality of parenting and parent-child attachment relationships for children with conduct problems and high or low CU traits. Novel contributions include: a comprehensive assessment of the parent-child *attachment* relationship experienced by children with conduct problems and CU traits at a single time point; use of attachment measures with limited or no previous application to children with conduct problems or CU traits; examining associations among parenting and parent-child attachment relationships and child conduct problems and CU traits for mothers and fathers separately; and identifying risk and protective factors within the parent-child relationships of children with conduct problems and high or low CU traits that can be targeted in treatment.

Chapter 1: Conduct Problems in Childhood

Introduction

This chapter provides an overview of conduct problems in childhood. First, it describes the characteristics, psychiatric diagnoses, epidemiology and trajectory of conduct problems in clinic-referred children. Second, developmental pathways to conduct problems in childhood are outlined, with a particular focus on comorbid callous-unemotional (CU) traits. Third, a review of the literature describes the unique behavioural, cognitive, emotional, physiological and personality characteristics of children with conduct problems and high CU traits, which place them on a distinct developmental pathway to more severe, persistent and earlier-onset aggressive and antisocial behaviour. Finally, research supporting the mutability of CU traits in childhood is provided, which underpins the current research focus on factors that can exacerbate or ameliorate conduct problems and CU traits in children. The current research project adopts a relational framework to explore risk and protective factors that could be targeted in the treatment of conduct problems and CU traits in early and middle childhood.

Terminology. Before proceeding, the terminology used for conduct problems in this review requires clarification. "Conduct problems" is an umbrella term used to describe temper outbursts and impulsive, oppositional or antisocial behaviours exhibited by children that causes distress and impair their functioning at home or school. Subclinical and clinical levels of conduct problems are encapsulated within this term. Conduct problems are also referred to as "externalising problems", "behaviour problems", "antisocial behaviour", "aggression" or "disruptive behaviour" in the literature. The term "disruptive behaviour disorders" in this review refers to conduct problems that meet diagnostic thresholds according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric

Association, 2013). Each disruptive behaviour disorder is referenced by name in this review:

Oppositional Defiant Disorder, Intermittent Explosive Disorder, and Conduct Disorder.

Typical Behaviours, Associations, and Future Impairment

Children with conduct problems exhibit temper outbursts and impulsive, oppositional, or antisocial behaviours that causes distress and impair their functioning at home or school. Conduct problems typically emerge during preschool or early primary school (Frick & Viding, 2009), and are prevalent worldwide and within the Australian community. Epidemiological studies estimate that between 5.7 and 8.4% of children and adolescents internationally (Kovess-Masfety et al., 2016; Merikangas, Nakamura, & Kessler, 2009; Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015), and between 7.0 and 7.4% of 4 to 11 year-old children in Australia (Goodsell et al., 2017; Lawrence et al., 2015) have shown significant and persistent oppositional, disruptive, or aggressive behaviour problems during the past 12 months.

Conduct problems in childhood are associated with: dysfunctional parent-child relationships; family conflict; peer relationship difficulties; poor school functioning; and increased risk for comorbid mental health disorders (Burke, Loeber, & Biraher, 2002; Loeber, Burke, Lahey, Winters, & Zera, 2000). This can result in families accessing clinical services for assistance with managing their children. Compared to other psychiatric disorders, children with disruptive behaviour disorders have the most hospital admissions. They are also the second highest users of health, education and community services in Australia, with 66% of these children (4 to 11 years of age) accessing health services within the past 12 months (Al-Yaman, Bryant, & Sargeant, 2002; Lawrence et al., 2015).

Children with conduct problems are on a troubling trajectory. They are likely to have later severe and persistent aggressive and antisocial behaviour problems (Rowe, Costello,

Angold, Copeland, & Maughan, 2010) and a lower quality of life than typical developing

children (Szentivanyi & Balazs, 2018). Children with conduct problems are also likely to

have impairments across a number of key domains in adolescence and adulthood. These

include: mental health (e.g., substance abuse, depression, anxiety); legal (e.g., risk for arrest,

incarceration); academic (e.g., school dropout, poor attendance); economic (e.g., long-term

unemployment, fines); social (e.g., poor couple relationships and unwanted pregnancy,

deviant peer groups); occupational (e.g., underachievement); and physical health (e.g., poor

respiratory function, unintentional injury, increased mortality) (e.g., Burke, Rowe, & Boylan,

2014; Colman et al., 2009; Fergusson, Horwood, & Ridder, 2005; Jennings, Rocque, Fox,

Piquero, & Farrington, 2016; Odgers et al., 2007; Odgers et al., 2008; Rowe, Maughan, &

Goodman, 2004).

Child conduct problems operate at the highest cost to society of all psychiatric

disorders (M. A. Cohen, 1998; Erskine et al., 2013), consuming significant resources across

the health, social, education and criminal justice systems (Ford, 2008; Knapp, Scott, &

Davies, 1999; Rivenbark et al., 2017). For example, Scott et al. (2001) followed 142 youths in

London from the ages of 10 to 28, and found that public costs for children diagnosed with

severe conduct problems at age 10 were 10 times those for children without psychiatric

disorder(s) and 3.5 times those for children with mild to moderate conduct problems. As a

consequence of their relatively high incidence, pervasive adverse outcomes across

development, and substantial economic and social impact, conduct problems in children are a

significant public policy concern and an important focus for research and intervention. The

current research project investigated conduct problems in clinic-referred children.

Oppositional Defiant Disorder and Conduct Disorder in Childhood

Severe conduct problems in children are described in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5; American Psychiatric Association, 2013), as Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD). The epidemiology for these externalising disorders is summarised in Tables 1 and 2. ODD is defined by the DSM-5 as a persistent "pattern of angry or irritable mood, argumentative or defiant behaviour, or vindictiveness (p. 462)" that causes distress for the individual or other people, or impairs functioning in family, peer or educational settings (American Psychiatric Association, 2013). CD is defined by the DSM-5 as a "repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated (p.469)", which is associated with "clinically significant impairment in social, academic or occupational functioning (p. 470)" (American Psychiatric Association, 2013). The diagnostic criteria for ODD appear to describe a less severe form of conduct problems than CD.

As described in Tables 1 and 2, ODD and CD are prevalent psychiatric disorders in children (e.g., Loeber et al., 2000; Maughan, Rowe, Messer, Goodman, & Meltzer, 2004), with the prevalence of ODD diagnoses relatively stable during childhood, and the prevalence of CD diagnoses increasing steadily for boys and low and stable for girls across childhood until early adolescence (Maughan et al., 2004). Both are significantly more common in boys than girls throughout childhood (e.g., Wichstrom et al., 2012), and the burden of disease associated with childhood disruptive behaviour disorders is 2.5 times greater for boys than girls (Whiteford et al., 2013). Once established, ODD and CD show moderate to high stability (e.g., Bunte, Schoemaker, Hessen, van der Heijden, & Matthys, 2014; Lavigne et al., 2001; Loeber, Burke, & Pardini, 2009b) and are comorbid with Attention-Deficit/Hyperactivity Disorder (ADHD), major depressive disorders and anxiety disorders at significantly higher

prevalence rates than expected by chance (e.g., Angold, Costello, & Erkanli, 1999; Nock,

Kazdin, Hiripi, & Kessler, 2007; Rijlaarsdam et al., 2015).

Research has established that ODD and CD can be initially diagnosed in preschool-

age children (Keenan et al., 2011; Keenan et al., 2007). ODD and CD diagnosed in early

childhood predict aggressive and antisocial behaviour, peer relationship problems, and

academic underachievement later in childhood, and significant adjustment problems in

adolescence and adulthood (e.g., Erskine et al., 2013; Loeber, Burke, & Pardini, 2009a;

Lopez-Romero, Romero, & Villar, 2017; Odgers et al., 2007; Odgers et al., 2008). For

example, Kim-Cohen et al. (2009) found that a diagnosis of CD in 4 to 5 year-old children

predicted significant behavioural and educational difficulties five years later, regardless of the

continuing presence of CD symptoms.

Research shows that the symptoms of ODD and CD are highly correlated, with

approximately 60% of children with CD (56% of girls and 62% of boys) meeting full

diagnostic criteria for ODD (Maughan et al., 2004; Rowe, Maughan, Pickles, Costello, &

Angold, 2002) and a significant proportion of the remainder displaying elevated levels of sub-

threshold ODD symptoms (Rowe et al., 2002). Children who meet criteria for both disorders

demonstrate higher rates of ODD symptoms than those with "pure" ODD, and higher non-

aggressive conduct symptoms than those with pure CD (Maughan et al., 2004). Burke,

Waldman, and Lahey (2010) found in a longitudinal investigation that between 71 and 78% of

children diagnosed with CD between 4 and 9 years of age had earlier met criteria for ODD,

and 30% of children diagnosed with CD after age 10 had an earlier diagnosis of ODD.

Children with CD are at significantly greater risk for developing Antisocial Personality

Disorder (APD) in early adulthood than children with ODD or those without psychiatric

disorder (Lahey, Loeber, Burke, & Applegate, 2005; Rowe, Costello, et al., 2010). According

to this evidence, many researchers suggest a problematic developmental trajectory from ODD

in early childhood to CD in late childhood and adolescence, and then APD in adulthood. Thus, ODD is viewed by some as an early indicator of risk for the later development of severe and persistent conduct problems (Lahey & Waldman, 2012).

Despite their commonality of symptoms, high comorbidity and developmental sequence, research shows that ODD and CD are distinct psychiatric disorders (Burke, Hipwell, & Loeber, 2010; Cavanagh, Quinn, Duncan, Graham, & Balbuena, 2017). Studies show that only a small portion of children progress from diagnoses of ODD to CD (Burke, Loeber, Lahey, & Rathouz, 2005), large proportions of children with CD do not meet criteria for ODD in population-based samples (Rowe et al., 2002), and ODD and CD load onto different factors (G. L. Burns et al., 1997) and are associated with different risk factors (Lahey & Waldman, 2012). In a literature review, Frick and Nigg (2012) concluded that, compared with CD, ODD in childhood designates a unique group of children with emotion regulation difficulties that produce a vulnerability for the development of later anxiety and depressive disorders. Recognising the commonality and difference between the disorders, the DSM-5 permits the concurrent diagnosis of ODD and CD in children. Research typically includes CD and ODD diagnoses when examining conduct problems in children (Loeber et al., 2009a).

This research examines conduct problems in clinic-referred children between 3 and 9 years of age according to the DSM-5 externalising disorder diagnoses outlined above. The clinical population is important. Developmentally inappropriate conduct problems typically emerge in the preschool or early primary school years and, once established, tend to increase in frequency and severity throughout childhood and adolescence (Frick & Viding, 2009). Childhood-onset conduct problems are also associated with a range of additional emotional, social and academic difficulties (Pardini & Frick, 2013), and are the second most common psychiatric disorder in clinic-referred children (Wilens et al., 2002). Research shows that

early intervention is effective for improving clinically significant conduct problems (Eyberg,

Nelson, & Boggs, 2008), and most well-established treatments target children between 2 and

8 years of age (e.g., The Incredible Years [Webster-Stratton & Reid, 2003], Parent-Child

Interaction Therapy [McNeil & Hembree-Kigin, 2010], and Integrated Family Intervention

for Child Conduct Problems [Dadds & Hawes, 2006]). Research that improves our

understanding of conduct problems in early childhood is likely to make important

contributions to the clinical and forensic literature.

Table 1

Epidemiology of Oppositional Defiant Disorder in Childhood

Prevalence	Gender	Developmental trajectory	Comorbidity	Impairment
• In community samples, ODD prevalence of 1.8 to 16.8% for children aged between 2 and 5 years (Egger & Angold, 2006; Lavigne et al., 1996; Lavigne, LeBailly, Hopkins, Gouze, & Binns, 2009; Wichstrom et al., 2012), 1.0 to 15.6% for children aged between 5 and 18 years (Boylan, Vaillancourt, Boyle, & Szatmari, 2007; Canino, Polanczyk, Bauermeister, Rohde, & Frick, 2010; Costello, Mustillo, Erkanli, Keeler, & Angold, 2003; Lawrence et al., 2015; Maughan et al., 2004; Polanczyk et al., 2015; Rijlaarsdam et al., 2015), and 8.5 to 12.6% during an individual's lifetime (Kessler et al., 2012; Kessler et al., 2005; Merikangas et al., 2010; Nock et al., 2007). • In clinic-referred samples, 28.0 to 65.0% of children aged between 2 and 16 years are diagnosed with ODD (Boylan et al., 2007; Keenan & Wakschlag, 2004). • Systematic reviews by Canino et al. (2010) and Polanczyk et al. (2015) show no significant differences in ODD prevalence across cultures.	• Boys: Prevalence of 1.2 to 15.4% for 4 to 17-year-olds (Canino et al., 2010; Demmer, Hooley, Sheen, McGillivray, & Lum, 2017; Lawrence et al., 2015; Maughan et al., 2004; Wichstrom et al., 2012), and a lifetime prevalence of 11 to 14% (Merikangas et al., 2010; Nock et al., 2007). • Girls: Prevalence of 0.5 to 15.6% for 4 to 17-year-olds (Canino et al., 2010; Demmer et al., 2017; Lawrence et al., 2015; Maughan et al., 2004; Wichstrom et al., 2012), and lifetime prevalence of 9 to 11% (Merikangas et al., 2010; Nock et al., 2007). • Some studies report that ODD is more common in 5 to 17-year-old boys than girls: e.g., boy to girl ratios of 1.4 to 2.5: 1 (American Psychiatric Association, 2013; Demmer et al., 2017; Maughan et al., 2004). Other studies report no significant differences in ODD prevalence by child gender for 4 to 17 year-olds (Lahey et al., 2000; Lawrence et al., 2015) or during an individual's lifetime (Nock et al., 2007). • In a review, Demmer et al. (2017) reported that ODD is more prevalent for boys than girls in Western, but not non-Western, countries.	• Onset: 2.5 to 3.1 years for clinic-referred samples of children (Rowe, Costello, et al., 2010; Wilens et al., 2002). Earlier onset related to longer ODD duration (Nock et al., 2007). • Average duration: 6 years (Nock et al., 2007). • Some research shows an increase in ODD prevalence from ages 4 to 8 years, with a decline from 10 years of age (Husby & Wichstrom, 2017), while other research shows the prevalence of ODD remains relatively stable between 5 and 10 years of age, before declining in late childhood and adolescence (Maughan et al., 2004). Overall, once established, ODD shows moderate to high stability over 4 to 6 years (P. Cohen, Cohen, & Brook, 1993; Husby & Wichstrom, 2017; Lavigne et al., 2001). The higher stability of ODD throughout childhood, the greater the impairment (Keenan et al., 2011). • ODD shows greater stability than CD in young children (Bunte et al., 2014; Keenan et al., 2011). • Offset: While 70% of people with a lifetime ODD diagnosis no longer reported symptoms by 18 years old (Nock et al., 2007), the impact of ODD on functioning persists into adulthood (Burke et al., 2014).	• 92% of people with lifetime ODD meet criteria for at least one other lifetime disorder (Nock et al., 2007). • Children with ODD are significantly more likely to have CD, Intermittent Explosive Disorder, ADHD, depression and anxiety disorders, and substance use disorders in childhood, adolescence and adulthood (Angold et al., 1999; Boylan et al., 2007; Burke, 2012; Burke, Hipwell, et al., 2010; Lavigne et al., 2009; Maughan et al., 2004; McNeilis, Maughan, Goodman, & Rowe, 2017; Munkvold, Lundervold, & Manger, 2011; Nock et al., 2007; Stringaris, Cohen, Pine, & Leibenluft, 2009; Wichstrom et al., 2012). ODD is temporally primary to these comorbid conditions, with the exception of social anxiety disorder, separation anxiety disorder, and ADHD (Nock et al., 2007). • ODD predicts Borderline (Burke & Stepp, 2012) and, in some but not other studies, APD (Lahey et al., 2005; Langbehn, Cadoret, Yates, Troughton, & Stewart, 1998). • Compared to ODD alone, children with comorbid ODD and ADHD have earlier onset and more severe symptomatology as well as more serious and persistent impairment (van Lier, van der Ende, Koot, & Verhulst, 2007). • There is slower recovery from ODD with more comorbid diagnoses (Nock et al., 2007). • Rates of comorbidity are higher for ODD than CD in 5 to 15-year-old children (Maughan et al., 2004).	• ODD is often setting-specific – occurring more often with parents and other familiar adults (Christophersen & Mortweet, 2001). • Children with ODD display more severe adjustment difficulties as the number of settings in which ODD symptoms are reported increases (Frick & Nigg, 2012). • ODD in childhood is associated with family conflict and low family cohesion (Greene et al., 2002), poor peer relations (Munkvold et al., 2011; van Lier & Koot, 2010), negative social preference (Burke, Waldman, et al., 2010), poor school functioning (Greene et al., 2002; Harpold et al., 2007), romantic relationship difficulties (Burke et al., 2014), and employment problems in adulthood (Burke et al., 2014). • ODD is not predictive of criminal behaviour, low educational attainment, or physical health problems (Burke et al., 2014).

Table 2

Epidemiology of Conduct Disorder in Childhood

Prevalence	Gender	Developmental trajectory	Comorbidity	Impairment
• In community samples, CD prevalence of 0.7 to 6.6% for children aged between 2 and 5 years (Egger & Angold, 2006; Kim-Cohen et al., 2005; Kim-Cohen et al., 2009; Wichstrom et al., 2012), 0.3 to 8.7% for children aged between 5 and 18 years (Canino et al., 2010; Costello et al., 2003; Lawrence et al., 2015; Polanczyk et al., 2015; Rijlaarsdam et al., 2015; Wittchen et al., 2011), and 6.8 to 9.5% during an individual's lifetime (Kessler et al., 2012; Kessler et al., 2005; Merikangas et al., 2010; Nock, Kazdin, Hiripi, & Kessler, 2006). • In a preschool sample, 42% of children referred to a behaviour clinic received a diagnosis of CD, which compared to 2% of non-referred children (Keenan & Wakschlag, 2004). • Research shows no significant differences in CD prevalence across cultures or geographic regions (Canino et al., 2010; Polanczyk et al., 2015).	• Boys: Prevalence of 0.9 to 16.0% for 4 to 17-year-olds (Canino et al., 2010; Costello et al., 2003; Erskine et al., 2013; Kim-Cohen et al., 2009; Lawrence et al., 2015; Maughan et al., 2004; Wichstrom et al., 2012), and lifetime prevalence of 7.9 to 12.0% (Merikangas et al., 2010; Nock et al., 2006). • Girls: Prevalence of 0.3 to 9.3% for 4 to 17-year-olds (Canino et al., 2010; Costello et al., 2003; Erskine et al., 2013; Kim-Cohen et al., 2009; Loeber et al., 2000; Maughan et al., 2004; Wichstrom et al., 2012), and lifetime prevalence of 5.8 to 7.1% (Merikangas et al., 2010; Nock et al., 2006). • CD more common in 5 to 17-year-old boys than girls: ratios of 2.4 to 3.0:1 (Erskine et al., 2013; Kim-Cohen et al., 2005; Lahey et al., 2000; Maughan et al., 2004; Wichstrom et al., 2012; Wittchen et al., 2011), with gender differences more noticeable in CD than ODD (Rowe, Maughan, Costello, & Angold, 2005).	• Onset: 3.2 to 5.5 years for clinic-referred samples of children (Maughan et al., 2004; Rowe, Costello, et al., 2010; Wilens et al., 2002) and 4 to 6 years in representative samples (Maughan et al., 2004; Wichstrom et al., 2012). • CD symptomatology in preschool is indicative of a chronic course of the disorder (Bunte et al., 2014). • CD increases in prevalence with age, although it only reaches significant levels in late childhood for boys and adolescence for girls (Maughan et al., 2004). • Once established, CD diagnoses show moderate to high stability over a 4 to 6 year period (Husby & Wichstrom, 2017; Kim-Cohen et al., 2005; Loeber et al., 2009b), with less change associated with more severe impairment (Kim-Cohen et al., 2005; Loeber et al., 2000). • Stability does not differ according to child gender (Loeber et al., 2000).	• ODD and CD symptoms are highly correlated (e.g., for children with CD, 56% of girls and 62% of boys are also diagnosed with ODD) (Maughan et al., 2004). Some studies show that ODD acts as a less severe developmental antecedent to CD (Burke et al., 2005; Lahey & Waldman, 2012; Loeber, Green, Keenan, & Lahey, 1995; Rowe, Costello, et al., 2010; Rutter, Kim-Cohen, & Maughan, 2006), others show reciprocal temporal associations between ODD and CD over time (Lahey, Loeber, Burke, Rathouz, & McBurnett, 2002), and others show that CD develops in parallel to ODD (Diamantopoulou, Verhulst, & van der Ende, 2011). The overlap between ODD and CD increases with age, and ODD symptoms are more severe when comorbid with CD (Maughan et al., 2004). • CD (active or remitted) is associated with elevated risks for depressive and anxiety disorders, ADHD, and substance abuse disorders in adolescence and adulthood (Angold et al., 1999; Beauchaine, Hinshaw, & Pang, 2010; Lahey & Waldman, 2012; Maughan et al., 2004; Nock et al., 2006; Wichstrom et al., 2012). CD precedes these disorders, with the exception of ADHD and specific and social anxiety disorders (Nock et al., 2006). • Children with comorbid CD and ADHD have earlier onset, and greater persistence and impairment, associated with their conduct problems than those with CD alone (Loeber et al., 2000). • Children with CD are at greater risk for developing psychopathy and APD in adulthood than children with ODD or those without psychiatric disorder (Burke, Loeber, & Lahey, 2007; Rowe, Costello, et al., 2010).	• CD diagnosed in early childhood predicts aggressive and antisocial behaviour, peer relationship problems, higher family instability and conflict, and academic underachievement later in childhood, and significant adjustment problems in familial, psychiatric, economic, legal, academic, social, occupational and physical health domains in adolescence and adulthood (Burke et al., 2014; Farrington, 1995; Frick, 2012; Kim-Cohen et al., 2009; Kratzer & Hodgins, 1997; Lindberg, Miettunen, Heiskala, & Kaltiala-Heino, 2017; Moffitt, Caspi, Harrington, & Milne, 2002; Moore, Silberg, Roberson-Nay, & Mezuk, 2017; Odgers et al., 2007; Odgers et al., 2008; Piquero, Shepherd, Shepherd, & Farrington, 2011; Simonoff et al., 2004). • Childhood-onset CD is associated with neuropsychological (e.g., poor executive functioning) and cognitive (e.g., low intelligence) deficits, as well as more temperament risk factors (e.g., poor emotion regulation, impulsivity) (Frick, 2016a). • CD is the 30th leading cause of non-fatal burden of disease worldwide, and the 72nd leading cause of disability-adjusted life years (Erskine et al., 2014). • Compared to others with CD, childhood-limited and persistent CD is associated with greater burdens on health, social, and criminal justice services (Rivenbark et al., 2017). • CD has a significant economic impact on the family, general and mental health services, social services, justice and education systems, with costs exponentially increasing with age (Foster & Jones, 2005; Frick & Viding, 2009; Knapp et al., 1999). Over a seven-year period from late childhood to adolescence, the public cost of CD was almost double that of ODD, and four times those of the control group (Foster & Jones, 2005). • The treatment of CD is significantly more expensive than that for ODD (Christenson, Crane, Malloy, & Parker, 2016).

Developmental Pathways to Conduct Problems in Childhood

Research from a range of theoretical perspectives has extensively examined the symptomatology, aetiology, developmental trajectory, and response to treatment of conduct problems in children (Frick & Viding, 2009; Loeber et al., 2009a). The findings reveal significant variability in the types of conduct problems displayed by children, the current level and future risk of impairment associated with their behavioural difficulties, and their response to treatment (Frick et al., 2014b; Klahr & Burt, 2014). Further, research shows that children with conduct problems exhibit substantial variability in their emotional, cognitive and biological characteristics (Frick et al., 2014b). The development of conduct problems in children is also associated with multiple, interacting, risk and protective factors across numerous dispositional, familial and psychosocial domains (Boden, Fergusson, & Horwood, 2010; DeKlyen & Greenberg, 2008; Loeber et al., 2009a, 2009b).

To differentiate between children who are likely to persist, escalate or desist in their level of disruptive behaviour, the literature has attempted to distinguish subtypes of conduct problems (Frick & Viding, 2009). For example, children with conduct problems have been categorised by: variations in the types of conduct problems observed (overt or covert, proactive or reactive, aggression or rule-breaking, and physical or relational aggression); the frequency or severity of types of conduct problems or aggression (Dodge & Pettit, 2003); the presence or absence of comorbid psychiatric diagnoses, such as ADHD; and the age of onset (Frick et al., 2014b; Klahr & Burt, 2014; Loeber et al., 2000). There have also been attempts to identify distinct causal pathways to developing conduct problems (Dodge & Pettit, 2003). For example, Loeber et al. (1993) proposed three pathways to conduct problems: an early authority conflict pathway, involving stubbornness, defiance and avoidance of authority; a covert pathway, consisting of minor covert behaviours, property damage, and moderate to

severe delinquency; and an overt pathway characterised by aggression and violence. Loeber et al. (2009a) noted that the early authority conflict pathway often preceded progression to the covert and overt pathways. Finally, research on developmental trajectories of conduct problems has differentiated between types of offenders by behavioural and personality development over time. For example, Moffit (1993; 2006) proposed developmental trajectories in CD that included: an early-onset life-course persistent offender; a late-onset adolescent-limited offender; a low-level chronic offender; and an adult-onset antisocial offender.

The current research project is particularly interested in developmental psychopathology research that has investigated conduct problems in children with or without high levels of CU traits. This approach applies the construct of psychopathy in adulthood to children.

Psychopathy in Childhood

An extensive clinical literature on incarcerated adults shows that certain personality traits, labelled "psychopathic traits", specify an important subgroup of individuals with antisocial behaviour (Skeem, Polaschek, Patrick, & Lilienfeld, 2011). Psychopathy in adulthood is conceptualised as a constellation of behavioural attributes and personality traits that are associated with three discrete dimensions:

1. an impulsive, irresponsible and antisocial lifestyle;

2. grandiose, arrogant, and deceitful interpersonal behaviour; and

3. callousness, lack of remorse, and deficient affective responses (referred to as CU traits) (Cooke, Michie, & Hart, 2006).

Adults with psychopathic traits show a particularly severe and violent pattern of behaviour, exhibit distinct cognitive and emotional deficits compared to others with antisocial

behaviour, and typically have childhood histories marked by conduct problems (Frick et al., 2014b). This finding of early conduct problems led researchers to investigate developmental precursors to psychopathy in adulthood. Studies found that the central constructs of psychopathy (e.g., low affective empathy) were strongly related to the development of conduct problems in childhood (Frick et al., 2014a). As a result of this research, "Undersocialised" and "Socialised" specifiers of CD were introduced in the 3rd Edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 1980). Despite some initial promising findings, there were shortcomings with the definition of the undersocialised subtype. It did not clearly describe the affective and interpersonal features of psychopathy or correspond sufficiently with traditional conceptualisations of psychopathy (Frick et al., 2014b). As a consequence of these problems, the undersocialised and socialised subtypes of CD were discontinued in subsequent editions of Diagnostic and Statistical Manual of Mental Disorders.

Over the past 20 years, however, research has emerged refining how the key features of psychopathy may be exhibited by children and adolescents (Frick, 2009). All three dimensions of psychopathy have been investigated in childhood in community and clinical samples, and they have been reported by parents and teachers throughout childhood using rating scales (Frick, Bodin, & Barry, 2000; Kotler & McMahon, 2005) and structured interviews (Lahey et al., 2008). While some recent research advocates for all dimensions of psychopathy to be considered (Salekin, Andershed, Batky, & Bontemps, 2018), most has primarily focused on the CU traits dimension of psychopathy in considering developmental pathways to conduct problems in children. Evidence shows that this CU traits dimension is most effective in differentiating between children with conduct problems and varying levels of psychopathic traits (Christian, Frick, Hill, & Tyler, 1997). Unlike other psychopathic traits, the CU traits dimension also provides unique information not captured by the symptoms of

DSM-IV defined CD, ODD or ADHD (Dadds, Fraser, Frost, & Hawes, 2005; Frick et al.,

2000; Pardini, Obradovic, & Loeber, 2006; Waller, Hyde, Grabell, Alves, & Olson, 2015).

Further, the CU traits dimension is specifically associated with many unique emotional,

cognitive and social characteristics that are similar to those observed in adults with

psychopathy (Frick, 2009). It is also associated with early emerging, more severe and

persistent forms of antisocial behaviour (Christian et al., 1997; Frick, Kimonis, Dandreaux, &

Farell, 2003; Frick & White, 2008; Loeber et al., 2009b; Pardini et al., 2006; White & Frick,

2010). The current study has a broad interest in the relational functioning of children with

conduct problems with a particular focus on the co-occurrence of CU traits in early and

middle childhood.

  Terminology. Before proceeding, the terminology used for CU traits in this review

requires clarification. Several methods have been used to differentiate between children with

varying levels of CU trait severity. Some research has used statistical approaches to devise

cut-off scores for dimensional measures of CU traits (usually one standard deviation above

the mean), which creates two groups of children with conduct problems, i.e., children with

high CU traits (more than one standard deviation and above the mean), and the remainder

with low to moderate CU traits. Other studies use growth mixture or latent profile analyses to

identify children with distinct developmental trajectories of their CU traits – yielding groups

classified as having high stable, decreasing, increasing, and low stable CU traits. Adding

further complexity, some studies model the trajectories of both child CU traits and conduct

problems, which distinguishes up to eight groups (e.g., high conduct problems and high CU

traits, low conduct problems and high CU traits, high conduct problems and increasing CU

traits, etc.). The current study will use the term "high CU traits" to refer to children scoring

above a statistical threshold of continuous measures of CU traits, and/or those who are

allocated to "high and stable" or "increasing" CU traits developmental trajectory groups.

Correspondingly, the term "low CU traits" will be used to refer to children scoring below the statistical threshold on continuous measures of CU traits (low to moderate levels of CU traits), or who are allocated to groups with "low and stable" or "decreasing" CU traits developmental trajectories. The following section describes the unique behavioural, cognitive, emotional, physiological and personality characteristics of children with conduct problems and high CU traits.

Callous-Unemotional Traits and Conduct Problems in Children

Children with high CU traits are characterised by boldness, superficial charm, shallow or deficient affect, lack of remorse or guilt, lack of concern about the feelings of others, social dominance, meanness, and a lack of concern about performance in important activities (Frick, 2012; Skeem et al., 2011). Research shows that children with conduct problems and high CU traits tend to exhibit a more severe, stable and persistent pattern of aggressive and antisocial behaviour, even when controlling for conduct problem severity, level of aggression, impulsivity or ADHD (Frick et al., 2014b; Frick & White, 2008; Longman, Hawes, & Kohlhoff, 2016). Children with high CU traits may also display proactive (intentional and deliberate acts motivated by external reward) and reactive (impulsive responses to frustration or a perceived threat from others) subtypes of aggression, whereas children with low CU traits primarily display reactive forms of aggression (e.g., Enebrink et al., 2005; Fite, Stoppelbein, & Greening, 2009a, 2009b; Kruh, Frick, & Clements, 2005). High CU traits in late childhood and adolescence are associated with an earlier onset of conduct problems (Dandreaux & Frick, 2009).

Research shows that high CU traits in childhood and adolescence predict persistent forms of delinquency (Byrd, Loeber, & Pardini, 2012; Pardini, Byrd, Hawes, & Docherty, 2018; Pardini et al., 2006), future recidivism (Boccaccini et al., 2007), and APD symptoms in

young adulthood (R. J. McMahon, Witkiewitz, & Kotler, 2010; Pardini & Loeber, 2008).

Children with diagnosed conduct problems and high, rather than low, CU traits are also more

likely to be referred to mental health services in adolescence (Masi et al., 2018). Therefore,

high CU traits appear to be a marker for a group of children with particularly severe,

persistent and early onset conduct problems.

CU traits in children can be measured with parent-report questionnaires from 3 years

of age, and reliability and validity have been established (e.g., Kimonis et al., 2016;

Willoughby et al., 2014). Epidemiological studies show that 4 to 6% of children in

representative community samples exhibit conduct problems and high CU traits, while

between 7 and 9% of children exhibit normal behaviour alongside high CU traits (Barker,

Oliver, Viding, Salekin, & Maughan, 2011; Fontaine, McCrory, Boivin, Moffitt, & Viding,

2011; Larsson, Viding, & Plomin, 2008). Comorbidity with CD is common: the estimates for

prevalence of high CU traits in children with CD range between 10 and 46% in community

samples and between 21 and 59% in clinical samples (Kahn, Frick, Youngstrom, Findling, &

Youngstrom, 2012; Kolko & Pardini, 2010; Pardini & Frick, 2013; Rowe, Costello, et al.,

2010). Both conduct problems and high CU traits are more prevalent and severe in boys than

girls (e.g., Freitag et al., 2018; Verona, Sadeh, & Javdani, 2010).

Children with conduct problems *and* high CU traits display unique cognitive,

emotional, physiological and personality characteristics. These include insensitivity to

punishment (Blair, Colledge, & Mitchell, 2001; Frick, Cornell, Barry, Bodin, & Dane, 2003),

impaired moral decision-making (Blair, 1997; Blair, Monson, & Frederickson, 2001), and the

endorsement of more antisocial values and goals in social situations (e.g., Sakai, Dalwani,

Gelhorn, Mikulich-Gilbertson, & Crowley, 2012; Stickle, Kirkpatrick, & Brush, 2009). These

children also display lower guilt (Waller, Hyde, et al., 2015), deficits in affective empathy

(e.g., Dadds, Cauchi, Wimalaweera, Hawes, & Brennan, 2012) and, in some (Chabrol, van

Leeuwen, Rodgers, & Gibbs, 2011; Dadds et al., 2009; Stellwagen & Kerig, 2013) but not

other studies (Anastassiou-Hadjicharalambous & Warden, 2008; Jones, Happe, Gilbert,

Burnett, & Viding, 2010; Schwenck et al., 2012) impaired cognitive empathy.

Children with conduct problems and high CU traits have impaired recognition of and

responsiveness to, cues to fear and sadness (Dadds et al., 2006; Woodworth & Waschbusch,

2008), but not positive emotions (Frick & White, 2008; White & Frick, 2010), in others.

These children demonstrate blunted emotional reactivity to fearful and sad facial expressions

(Blair, 1999), peer provocation (Kimonis et al., 2008), experimentally induced stress (Stadler

et al., 2011), emotionally evocative films (de Wied, van Boxtel, Matthys, & Meeus, 2012;

Fanti, Kyranides, & Panayiotou, 2017), and the recall (Marsh et al., 2011) and anticipation

(Fung et al., 2005; Isen et al., 2010) of adverse events. They also show less reactivity when

experiencing their own pain (Northover, Thapar, Langley, & van Goozen, 2015) and

observing pain in others (Cheng, Hung, & Decety, 2012). Alternatively, children with conduct

problems but low CU traits show no impairment in emotion recognition (Dadds, El Masry,

Wimalaweera, & Guastella, 2008; Marsh et al., 2008) and, instead, exhibit an enhanced

emotional reactivity to distress cues in others (Fanti, Panayiotou, Kyranides, & Avraamides,

2016; Kimonis, Frick, Fazekas, & Loney, 2006; Viding et al., 2012).

Research shows that children with high CU traits typically exhibit a fearless or

behaviourally uninhibited temperament (e.g., Frick & Morris, 2004; White & Frick, 2010),

lower agreeableness and openness (e.g., Essau, Sasagawa, & Frick, 2006; Roose et al., 2012),

and lower levels of trait anxiety or "neuroticism", even when controlling for either

impulsivity or conduct problems (Frick & Ray, 2015; Frick et al., 2014b). Conversely,

children with conduct problems and low CU traits often demonstrate heightened trait anxiety

(e.g., Frick & White, 2008; Pardini, Lochman, & Powell, 2007).

Interestingly, however, some studies report positive or adaptive capacities in children with conduct problems and high CU traits, compared with those with conduct problems alone. For example, evidence shows that children and adolescents with conduct problems and high CU traits are less impaired in their verbal abilities (Fontaine, Barker, Salekin, & Viding, 2008; Loney, Frick, Ellis, & McCoy, 1998; Salekin, Neumann, Leistico, & Zalot, 2004), less likely to display a hostile attribution bias (Frick, Cornell, Bodin, et al., 2003), and show greater solution relevance and flexibility in solving social problems (Waschbusch, Walsh, Andrade, King, & Carrey, 2007). Other studies, however, have not found less impaired cognitive abilities in children with high CU traits (e.g., Vaughn et al., 2011), suggesting that further research is required.

Biological aetiology. As shown in Table 3, a large body of research evidence supports the biological underpinnings of CU traits and their related conduct problems in children (Viding & McCrory, 2012). Behavioural genetic studies show that individual differences in CU traits show moderate-to-strong heritability, and that genetic effects mainly account for CU trait stability across development as well as the conduct problems exhibited by children with high CU traits (e.g., Fontaine, Rijsdijk, McCrory, & Viding, 2010; Viding et al., 2005). Further, several potential autosomal single-nucleotide polymorphisms may contribute to CU trait development, including those associated with dopamine, serotonin, and oxytocin receptor genes (Viding et al., 2010).

Children with conduct problems and high CU traits also show abnormalities in the structure of the amygdala, caudate nucleus, anterior cingulate cortex, orbitofrontal cortex, dorsolateral prefrontal cortex and hippocampus, as well as the connectivity between these brain structures (e.g., Blair, 2013; Finger et al., 2012). Functional imaging studies of children with conduct problems and high CU traits show atypical activity in their right amygdala, ventromedial prefrontal cortex, orbitofrontal cortex, anterior cingulate cortex, insula and

striatum (Viding & McCrory, 2018). These structural and functional brain abnormalities map onto the core cognitive, social-emotional, behavioural, and personality characteristics of children with high CU traits.

Together, these findings support theories and models that propose CU traits develop from neurobiological and neuropsychological abnormalities (e.g., Herpers, Scheepers, Bons, Buitelaar, & Rommelse, 2014; Moul, Killcross, & Dadds, 2012; Wakschlag et al., 2018). While this research indicates moderate to strong genetic foundations, the relatively small contributions of shared environmental influences do not preclude environmental factors (e.g., parental characteristics, family demographics, parent-child relationship quality) influencing the development of CU traits in children (for a review, see Viding & McCrory, 2012). These factors may act in a child-specific manner (represented by non-shared environmental variance) or via the process of gene-environment interplay (Moul, Hawes, & Dadds, 2018; Skeem et al., 2011; Viding & Larsson, 2010). Evidence is mounting that CU traits likely emerge in the context of heritable risk, but risk that is exacerbated (or buffered) by non-heritable parenting influences (Waller & Hyde, 2017). The parenting correlates are the focus of the current research.

Table 3

Biological Underpinnings of CU Traits in Childhood

Heritability	Genetics	Structural	Functional
• Heritability studies using twin methodology estimate that the amount of variation in CU traits accounted for by genetic effects ranges from 40 to 78%, with significant non-shared and minimal shared environmental influences (e.g., Blonigen, Carlson, Krueger, & Patrick, 2003; Flom & Saudino, 2016; Henry, Dionne, Viding, Petitclerc, et al., 2018; Humayun, Kahn, Frick, & Viding, 2014; Larsson, Andershed, & Lichtenstein, 2006; Viding et al., 2005). • For example, in a large representative sample (n = 7,374) of seven year-old twins, Viding et al. (2005) reported that high CU traits in children are under strong genetic influence (73%), with minimal shared, but significant non-shared environmental influences. Further, childhood-onset conduct problems were under significantly stronger genetic influence for children with high (81%) rather than low (30%) levels of teacher-reported CU traits, which were under significant shared and non-shared environmental influences. • Most of the stability of CU traits across development is attributed to genetic effects (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2006; Fontaine et al., 2010), whereas change in CU traits in early childhood is due to genetic and non-shared environmental influences that alter over time (Flom & Saudino, 2016). Genetic effects primarily explained the co-variation between CU traits and ODD in young children (Flom & Saudino, 2018). • However, in a large sample of five year-old twins, Tuvblad, Fanti, Andershed, Colins, and Larsson (2017) reported that CU traits were under modest genetic and strong shared environmental influences.	• Genetic research shows several potential autosomal single-nucleotide polymorphisms that may contribute to the development of CU traits (Viding et al., 2010). For example, Hirata, Zai, Nowrouzi, Beitchman, and Kennedy (2013) found that CU traits were associated with two Catechol O-Methyltransferase (COMT) polymorphisms, and Beitchman et al. (2012) and Dadds, Moul, et al. (2014) found that CU traits were associated with polymorphisms on the oxytocin receptor (OSTR) gene. Moul, Dobson-Stone, Brennan, Hawes, and Dadds (2013) found that CU traits were associated with single nucleotide polymorphisms from the serotonin receptor genes, with higher CU traits associated with lower serum serotonin levels. • Of interest, Sadeh et al. (2010) found that high levels of CU traits were associated with the homozygous-long genotype of the serotonin transporter (5-HTTLPR), but only for adolescents from low socio-economic family backgrounds, which suggests a gene-environment interaction. • There is mixed evidence supporting the role of low levels of cortisol and diminished HPA axis response in higher CU traits (for a review, see Moul et al., 2018). Viding and McCrory (2018) caution, however, that the search for genetic influences on CU traits is likely to be complicated by gene-gene interactions and rare variants, as well as gene-environment interplay.	• Children with conduct problems and high psychopathic traits or CU traits show abnormalities in brain structures including the amygdala, caudate nucleus, anterior cingulate cortex, orbitofrontal cortex, dorsolateral prefrontal cortex and hippocampus (Blair, 2013; Cardinale et al., 2019; Salekin, 2017; Wallace et al., 2014). • A number of studies show that high CU traits are associated with decreased grey matter volume in the limbic and paralimbic regions of the brain (e.g., Cope, Ermer, Nyalakanti, Calhoun, & Kiehl, 2014), while De Brito et al. (2009) and Fairchild et al. (2011) reported significantly increased grey matter volume in the orbitofrontal cortex, anterior cingulate cortex, caudate nucleus, and striatum in children with conduct problems and high CU traits. Pape et al. (2015) reported that higher CU traits in adolescents were associated with increased structural brain connectivity in certain regions, signified by increased white matter volume, and Yang et al. (2015) found brain tissue volume anomalies in the frontal, temporal and striatal brain regions for adolescents with high psychopathic traits. • There are also abnormalities in the connectivity among brain structures. For example, Finger et al. (2012) found that children with conduct problems and high psychopathic traits showed disruptions in amygdala-prefrontal functional connectivity. Cohn, Pape, et al. (2015) found that higher CU traits in adolescents were associated with atypical connectivity in the default mode network. Aghajani et al. (2017) showed differential connectivity among the amygdala and the cingulate, prefrontal and striatum regions for juvenile offenders with high and low CU traits.	• Functional imaging studies show that children with conduct problems and psychopathic (White et al., 2012) or CU traits (Jones, Laurens, Herba, Barker, & Viding, 2009; Marsh et al., 2008) exhibit lower right amygdala activity in response to fearful faces during an affective theory of mind task (Sebastian et al., 2012), images of others' pain (Marsh et al., 2013), and reward outcomes (Cohn, Veltman, et al., 2015), when compared with controls. • Alternatively, children with conduct problems and low CU traits display increased right amygdala activity in response to similar stimuli (Viding et al., 2012). • Other studies show abnormal ventromedial prefrontal cortex, orbitofrontal cortex, anterior cingulate cortex, insula and striatum function for children with high rather than low psychopathic traits (for reviews, see Blair, 2013; Viding & McCrory, 2012; Viding & McCrory, 2018).

Summary. When compared with other children with conduct problems, the research shows that children with conduct problems *and* high CU traits exhibit: more severe and persistent conduct problems; impaired recognition and responsiveness to distress in others; deficient affective empathy and guilt; insensitivity to punishment; a fearless temperament; and intact cognitive abilities. Conversely, children with conduct problems and low CU traits tend to show: intact affective and cognitive empathy; enhanced emotional reactivity to distress in others; heightened trait anxiety; and impaired cognitive abilities. Consequently, CU traits are an important consideration when assessing, formulating and treating conduct problems in children.

CU Traits, a Distinct Developmental Pathway to Conduct Problems

Based on the research, there are two distinct pathways to conduct problem in children. The first focuses on children with low CU traits who typically exhibit emotion regulation difficulties. The second focuses on children with high CU traits who demonstrate problems in the development of conscience (Frick et al., 2014a). In response, the DSM-5 (American Psychiatric Association, 2013) revision of diagnostic categories introduced a specifier within the CD diagnostic criteria, labelled "With Limited Prosocial Emotions". This describes children who also have high CU traits. Research shows that 25 to 33% of children who meet the criteria for CD also meet the criteria for the specifier (Colins, 2016; Frick, 2016a). This subgroup demonstrates higher levels of aggressive and cruel behaviours, and more ADHD and ODD symptomatology (Kahn et al., 2012; Kimonis, Fanti, et al., 2014). These children also show greater impairment pre-treatment (Kolko & Pardini, 2010), are more likely to have a persistent CD diagnosis over three years (Rowe, Maughan, et al., 2010), are more at risk for adult antisocial outcomes (R. J. McMahon et al., 2010), and exhibit greater bullying,

relational aggression, less anxiety and global impairment at the six-year follow-up (Pardini, Stepp, Hipwell, Stouthamer-Loeber, & Loeber, 2012) than the group with CD alone.

However, the "With Limited Prosocial Emotions" specifier is controversial. Some researchers are concerned about the pejorative label in clinical and forensic settings (e.g., Edens, Skeem, Cruise, & Cauffman, 2001; Waller & Hyde, 2017). Others have questioned its validity due to unanswered developmental questions and demonstrated empirical weaknesses for the downward extension of psychopathy constructs from adults to children (Lahey, 2014; Skeem et al., 2011), arguing that psychopathic traits are normative at various stages of child and adolescent development (e.g., Grisso, 2004).

Although CU traits are exclusively referenced within the diagnostic criteria for CD, research shows that children with ODD and high CU traits may show social-cognitive and neurobiological correlates and a severe and chronic trajectory of antisocial behaviour similar to those with CD (Moul et al., 2018). This indicates that research needs to consider the "With Limited Prosocial Emotions" specifier in children with ODD or CD. The current study followed this approach and assessed for the specifier for children with either ODD or CD diagnoses.

Mutability of CU Traits in Childhood

Given the severity of functional impairments typical of children with high CU traits as well as conduct problems, the mutability of CU traits during childhood and adolescence has been an important research focus. There is evidence that psychopathic (Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007) or, more specifically, CU (Burke et al., 2007) traits demonstrate moderate stability across childhood (Dadds et al., 2005; Waller et al., 2012; Willoughby, Waschbusch, Moore, & Propper, 2011), from childhood to adolescence (Obradovic, Pardini, Long, & Loeber, 2007), and from adolescence to early adulthood

(Loney, Taylor, Butler, & Iacono, 2007; Lynam et al., 2007). For example, Obradovic et al. (2007) reported moderate stability in a community sample of boys assessed annually between 8 and 16 years of age (r = .50 and r = .27 for parent and teacher report, respectively), and Dadds et al. (2005) found moderate 12-month stability for CU traits (r = .55) in a large community sample of 4 to 9 year-old children.

Although similar in stability correlations with other personality dimensions between childhood and adolescence (Frick et al., 2014a, 2014b), CU traits are also mutable (Pardini & Loeber, 2008). Studies show that CU traits exhibit equivalent stability to ODD and CD symptoms (Klingzell et al., 2016; Loeber et al., 2009a), show significant variation in group-based trajectories during childhood and adolescence (Byrd, Hawes, Loeber, & Pardini, 2018), change within individuals across adolescence (Pardini & Loeber, 2008), and typically decrease in severity over time (Fontaine et al., 2011). For example, Lynam et al. (2007) reported moderate 11-year stability (for ages 13 to 24 years) of CU traits, although only 9% of the variance in psychopathy measures in adulthood was accounted for by the measures of psychopathy in childhood. Further, this study found that only 21% of boys with scores in the upper 10% of psychopathy in childhood exhibited high psychopathy in adulthood. This evidence of instability in CU traits across development calls for the investigation of factors that might reduce CU traits over time, which may then be targeted in treatment (White & Frick, 2010).

Research shows that adverse caregiving experiences contribute to the development of conduct problems and CU traits in childhood and adolescence (for a review, see Waller et al., 2013, and see Chapter 2 for a more detailed discussion). This opens up a potential mechanism for change in the early intervention for CU traits and their associated conduct problems (Wilkinson, Waller, & Viding, 2016). There is growing evidence that interventions with a focus on parent management training, family therapy or parent education can be effective in

improving CU traits and conduct problems in clinic-referred children (for reviews, see Hawes, Price, & Dadds, 2014; Wilkinson et al., 2016). Consequently, research identifying the characteristics of children's relationships with their parents that exacerbate or buffer the development of CU traits and conduct problems in childhood may be helpful for directing interventions with this important clinical population.

Chapter 1 Summary

This chapter has outlined the prevalence, characteristics, psychiatric diagnoses, and developmental trajectory of conduct problems in childhood, and the importance of considering CU traits. These traits are typically associated with more severe and persistent aggressive and antisocial behaviour and considerable impairments in current and later functioning. The genetic contributions to child CU traits are strong and well established. Nonetheless, research also shows that CU traits and their associated conduct problems are changeable. There is particular interest in determining the contributions of parenting and parent-child attachment relationships to the development, maintenance or reduction of CU traits in children. Developmental psychopathology theories propose that dysfunctional parent-child relationships contribute to the development of child conduct problems, often through interactions with child, parent and family vulnerabilities. It is also important to determine which characteristics of parent-child relationships may be related to the worsening or reduction of CU traits in childhood. Most evidence-based interventions for conduct problems in childhood focus on addressing dysfunctional parenting practices and improving family relationships. Consequently, research that improves our understanding of the caregiving experiences of children with conduct problems and high CU traits may direct our future interventions with this clinical population. The next chapter reviews literature supporting the contribution of parent-child relationships to child conduct problems and CU traits.

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Chapter 2: Parenting, CU Traits and Conduct Problems in Childhood

Introduction

This chapter reviews the research focusing on the extent to which CU traits and conduct problems during early and middle childhood are influenced by the quality of their caregiving environment. An appraisal of the major theoretical models of child development is first presented, which examines the contributions of inherited characteristics and social environments. Second, research and theoretical models linking the quality of the parent-child relationship with the development of conduct problems in childhood are reviewed. Important empirical questions, however, concern whether parenting and parent-child relationships are associated with the development of CU traits in childhood, and whether parenting and parent-child relationships are differentially associated with conduct problems in children with high or low CU traits. The evidence addressing these questions is reviewed as a basis for the research questions and hypotheses of the current study.

Environmental Influences on Conduct Problems in Childhood

Children's cognitive, emotional and behavioural development occurs within the context of their family, neighbourhood, school and broader society and culture. Some theories of child development emphasise the role of social interactions, for example, social development (Vygotsky, 1978) , social learning (Bandura & Walters, 1963) and behaviourist (Skinner, 1976; Watson, 1913) theories. Others propose interactions between a child's inherited characteristics and their social environment. For example, consider Erikson's (1993) psycho-social theory, Piaget's (1952) theory of cognitive development, and Bronfenbrenner's

(1986) bioecological systems theory. Bronfenbrenner's theory proposes that child development occurs according to the interaction between inherited characteristics and multiple, nested, and interrelated environments (immediate to distal) that directly or indirectly influence the child (Bronfenbrenner, 1986; Bronfenbrenner & Ceci, 1994). All theories of child development propose that social environments with the closest proximity to the child have the greatest influence, placing emphasis on parenting styles and the parent-child relationship. Attachment theory (Bowlby, 1969/1982) has also been an influential theory that takes a dyadic or relational focus and explores, in particular, how the quality of parenting during times of stress or threat influences the child's social-emotional development. This theory, the primary framework for the current research, will be discussed in depth in the next chapter.

Theories converge in proposing that children show optimal development when their social environments are warm, sensitive and responsive, low in adversity, and contain prosocial influences, all of which are maintained over time (Dodge & Pettit, 2003). As outlined in Chapter 1, conduct problems and CU traits represent a non-normative developmental pathway for children. Research shows that the development of conduct problems in childhood is associated with multiple, interacting, risk and protective factors that are dispositional, familial and psychosocial (Boden et al., 2010; DeKlyen & Greenberg, 2008; Loeber et al., 2009a, 2009b).

Greenberg and colleagues (1993, 2001) suggest that conduct problems in children develop from the interaction and accumulation of risk and protective factors across four domains:

1. child characteristics;

2. parent-child attachment relationships;

3. parent management/socialisation strategies;

4. and family ecology.

Child characteristics (or risk factors) include: neurochemical (e.g., low serotonin) and autonomic (e.g., low resting heart rate) irregularities; neurocognitive deficits (e.g., executive functioning deficits, academic underachievement); social information processing deficits (e.g., hostile attributions); vulnerabilities in temperament (e.g., poor emotional regulation); and personality traits (e.g., impulsivity or psychopathic traits) (Frick, 2012). Parent-child attachment relationships are considered protective when secure. However, they are considered a risk factor when patterns are insecure or disorganised (Kochanska, Barry, Stellern, & O'Bleness, 2009; van IJzendoorn, Schuengel, & Bakermans–Kranenburg, 1999). Parent management/socialisation strategies that pose a risk to the child's development. These include: harsh and inconsistent parenting practices; poor parental monitoring or supervision; lack of parental warmth and involvement; and negative parental emotional expressiveness (Baumrind, 1967; Duncombe, Havighurst, Holland, & Frankling, 2012; Patterson, 1982; Patterson, DeBaryshe, & Ramsey, 1989). Finally, family ecology risk factors include: prenatal adversity (e.g., exposure to toxins); trauma; marital conflict; low social support; parental psychopathology and antisocial behaviour; association with deviant peers; and high-risk neighbourhood environments, for example, exposure to high levels of violence and low socio-economic status (Frick, 2012; Loeber et al., 2009b; Rowe, Costello, et al., 2010).

The cumulative risk model proposes that an accumulation of ecological risk factors leads to adverse cognitive and social-emotional outcomes for children (Sameroff, Seifer, Barocas, Zax, & Greenspan, 1987; Sameroff, Seifer, Zax, & Barocas, 1987). Thus, more risk

and fewer protective factors across dispositional, familial and psychosocial domains are likely to exist in children with more severe conduct problems.

The literature has identified the quality of the parent-child relationship as a particularly important risk and protective factor for the development of conduct problems in children (Burke et al., 2002; Stormshak et al., 2000). Accordingly, the parent-child relationship and parent management strategies are generally key targets of all clinical interventions for conduct problems in early and middle childhood (Woolgar & Scott, 2005). Well-known programs include: The Incredible Years (Webster-Stratton & Reid, 2003); Parent-Child Interaction Therapy (PCIT; McNeil & Hembree-Kigin, 2010); Triple P-Positive Parenting Program (Sanders, 1999); and Integrated Family Intervention for Child Conduct Problems (Dadds & Hawes, 2006). These interventions are largely based on social learning (Patterson, 1982) and pillar (Baumrind, 1967) theories. However, they also incorporate concepts from attachment (Bowlby, 1969/1982) and systems (Keim, 1998; Minuchin, 1974) theories in their designs.

The Parent-Child Relationship and Conduct Problems in Childhood

A number of theoretical perspectives have been used to explain associations between parenting and parent-child relationships and the emotional, behavioural and social development of children (Carr, 2006). These include systemic, psychodynamic, social control and learning, and attachment theories. Grusec and Davidov (2010) integrated these different theoretical approaches to propose that five interacting but independent domains of parent-child interactions support child socialisation:

1. Protection: This refers to the child seeking and parent providing help and support when there are perceived threats to the child. Sensitive parenting in this domain helps

children to appropriately regulate distress and develop a sense of security and trust with their caregivers.

2. Reciprocity: This involves a specific exchange of favours or non-conditional mutuality reflecting moments of equality between the parent and child and attuned cooperation to meet individual needs and common goals. There is mutual warmth, cooperation and compliance in these parent-child interactions.

3. Control: This involves the child inhibiting personal desires to accept and obey their parents' goals and cultural rules. Parents use knowledge, experience and power imbalances in the parent-child relationship to deliver the appropriate amount and manner of disciplinary and reward practices that promote prosocial behaviour and the internalisation of parent/societal values and attitudes in children.

4. Guided learning: This refers to parent provision of suitable structure, information, strategies and feedback that is within the child's zone of proximal development (Vygotsky, 1978). In internalising this experience, the child develops knowledge and skills towards independent functioning.

5. Group participation: This is where parents and children interact as members of a common social group, and parents convey the group's social identity through the modelling of social customs and practices. They maintain family routines, habits and rituals that include their group's expectations and norms, and managing the child's exposure and identification with other alternative social models.

Grusec and Davidov (2010) proposed that socialisation is a bidirectional process, such that children also have a significant impact on their parents' behaviour and the nature of their interactions. This approach suggests that many dimensions of parent-child relationships may be important for child socialisation. Which one is dominant at any given time, may depend on the context (e.g., presence of threat, group activity, etc.).

Research shows that various characteristics of parenting and parent-child relationships either directly influence the development of conduct problems, or moderate associations among child, parent and family vulnerabilities and conduct problems, in early and middle childhood (Loeber et al., 2009a). The extensive literature based on Baumrind's (1967) pillar theory and Schaefer's (1959) circumplex model shows that caregiving behaviour characterised by low acceptance, warmth and positive involvement, harsh and inconsistent discipline, poor monitoring and supervision, and use of ineffective problem-solving strategies is associated with more severe child conduct problems (e.g., Dadds, Maujean, & Fraser, 2003; Kawabata et al., 2011; Patterson, 1986; Stormshak et al., 2000). Relationships with high levels of parent-child conflict, negative affect, emotional reactivity, low cohesion, or poor communication also predict more severe conduct problems in children (Hemphill, 1996; Scaramella & Leve, 2004). Further, studies show that child conduct problems relate to more psychologically controlling parenting behaviour, such as guilt induction, love withdrawal, or excessive possessiveness (Casas et al., 2006; Kawabata et al., 2011). Conversely, parents who have an authoritative style (Baumrind, 1967) and balance warmth, involvement, and positive parenting with firm control and non-coercive discipline in their caregiving support children with fewer reported conduct problems and more prosocial behaviour (Chen, Dong, & Zhou, 1997).

Problematic caregiving and child conduct problems are mutually influential (Dodge & Pettit, 2003; Scaramella & Leve, 2004), with some research indicating that children's disruptive behaviour may have an equal or greater influence on dysfunctional parenting practices than the reverse (e.g., Burke, Pardini, & Loeber, 2008; Pardini, 2008). The reciprocal nature of dysfunctional parenting and child conduct problems is central to Patterson's (1982) coercion theory. This theory, and the evidence supporting it, suggests that conduct problems in childhood develop from reciprocal and negatively reinforcing cycles of

parent-child interactions characterised by hostility and emotional reactivity (e.g., Patterson et al., 1989; Patterson, Dishion, & Bank, 1984; Shaw, Keenan, & Vondra, 1994). Also founded on reciprocal interactions between parents and children, studies from an attachment theory perspective (Bowlby, 1969/1982) show that more insensitive and less emotionally available parenting (e.g., Dittrich et al., 2017; Zvara, Sheppard, & Cox, 2018) as well as insecure, particularly disorganised, parent-child attachment relationships (Fearon et al., 2010) relate to more severe conduct problems in children (van IJzendoorn, 1997). Research focusing specifically on associations between parent-child attachment and child conduct problems will be described in more detail in the next chapter.

In summary, the literature shows that more negative and less positive parenting and parent-child relationships contribute to the development of conduct problems in childhood and that conduct problems, in turn, may impact the caregiving environment. This is likely to occur in conjunction with child, parent and family risk factors, and their interaction with ineffective parenting and dysfunctional parent-child relationships (Loeber et al., 2009a). Important questions, however, focus on whether parenting and parent-child relationships are associated with CU trait development in childhood, and whether parenting and parent-child relationships are differentially associated with conduct problems in children with high or low CU traits. Chapter 1 reported evidence showing that child CU traits and their related conduct problems have strong biological underpinnings. Early studies reported that children with conduct problems and high CU traits were less influenced by parental socialisation and discipline efforts (e.g., Oxford et al., 2003; Wootton et al., 1997), supporting biological perspectives on CU traits in children. These children were also shown to respond more poorly to current interventions for conduct problems in childhood (Hawes et al., 2014), which prompted researchers to consider alternative means of helping these children.

More recent studies, however, reveal that the severity of CU traits can be connected with more negative and less positive parenting practices (e.g., Frick, Kimonis, et al., 2003; Pardini et al., 2007), and that they are malleable and amenable to parent management and family interventions (for a review, see Waller et al., 2013). Currently, research is endeavouring to identify the aspects of parenting and parent-child relationships that are most important to the development of child CU traits and their associated conduct problems. It is also attempting to differentiate these from the parenting characteristics implicated in the development of more general conduct problems in childhood. This is important for the treatment of CU traits as the vast majority of interventions for conduct problems in early and middle childhood are centred around parenting management training, parent education and/or family therapy approaches (Woolgar & Scott, 2005). The current study aims to contribute to this developing literature by exploring the associations between parent-child relationships (with a particular focus on the attachment relationship) and child CU traits and conduct problems in a clinic-referred sample of young children, with a view to identifying risk and protective factors that could be then targeted in treatment.

Parenting Practices and CU Traits in Childhood

The following section focuses on the research undertaken to date that examines associations among parenting and parent-child relationships, CU traits and conduct problems in early and middle childhood. In a systematic review of the literature, Waller et al. (2013) suggested that two empirical questions required consideration:

1. Are parenting practices directly associated with the severity of child CU traits?
2. Are parenting practices associated with conduct problems for children with differing severity of CU traits?

These questions are used to structure the current review.

Parenting practices and associations with CU trait severity. In recent years, a substantial amount of research investigating associations among parenting practices and CU traits has been conducted. This literature is summarised in Table 4. The research is relatively consistent. It shows that more negative and less positive parenting practices are associated with higher CU traits in early and middle childhood.

More negative parenting practices. Studies show that a number of negative parenting practices concurrently and prospectively relate to higher child CU traits. These include: more harsh and intrusive parenting (Wagner, Mills-Koonce, Willoughby, Cox, & Family Life Project Key Investigators, 2017; Waller et al., 2012); more punitive and inconsistent discipline (Childs et al., 2014; B. A. Robinson, Azores-Gococo, Brennan, & Lilienfeld, 2016); more negative parent affect (Yeh et al., 2011) and hostility (Loney, Huntenburg, Counts-Allan, & Schmeelk, 2007); and poorer monitoring and supervision (Brown, Granero, & Ezpeleta, 2017). Parents of children with conduct problems and higher CU traits also report more parenting distress (Fanti, Colins, et al., 2017). They experience helplessness and fear in their interactions (Willoughby, Mills-Koonce, Waschbusch, Gottfredson, & Family Life Project Investigators, 2015). Finally, they demonstrate less acceptance of their child's emotions (Pasalich, Waschbusch, et al., 2014). Children with higher CU traits are more likely to have parent-child interactions that dismiss emotion (Pasalich, Waschbusch, et al., 2014), and are also high in fear (Pasalich, Dadds, Vincent, et al., 2012). Studies also report relationships being: emotionally distant (Fite, Greening, & Stoppelbein, 2008); categorised as insecure or disorganised (Bohlin et al., 2012); and (as reported by both parents and children) more dysfunctional (Pasalich, Dadds, & Hawes, 2014; Wagner et al., 2015). Finally, research shows that early experiences of abuse, neglect or trauma can be connected with later conduct problems and higher CU traits in childhood (Dackis, Rogosch, & Cicchetti, 2015; Enebrink et al., 2005).

Less positive parent-child relationships. Studies vary in the extent to which they focus on the presence of negative parenting behaviour (noted above) or the absence of positive parenting. Many examine both, in recognition that they may typically co-occur. In the case of positive parenting, studies show that caregivers who exhibit less sensitive (Mills-Koonce et al., 2016), warm (Mendoza-Diaz, Overgaauw, Hawes, & Dadds, 2018; Waller, Hyde, Klump, & Burt, 2018), involved (Fanti & Centifanti, 2014; Muratori, Lochman, Manfredi, et al., 2016) and positive parenting (Waller, Shaw, & Hyde, 2017) have children with higher CU traits.

Combined, the literature shows that dysfunctional parenting practices are concurrently related to and predict higher CU traits in early and middle childhood. These findings have been established using representative, community and clinical samples. They have drawn on observational and parent or child-report relationship measures, high and low-risk families, and have been observed for boys and girls at all ages during early and middle childhood.

Table 4

Associations Among Parenting and Parent-Child Relationships and CU Traits in Early and Middle Childhood

Associations with *higher* CU traits	
<u>Longitudinal</u>	<u>Concurrent</u>
More negative parent-child relationships:	*More negative parent-child relationships:*
• More harsh and intrusive parenting practices (Humayun et al., 2014; Mills-Koonce et al., 2016; Trentacosta et al., 2018; Wagner et al., 2016; Wagner et al., 2017; Waller et al., 2012; Willoughby, Mills-Koonce, Propper, & Waschbusch, 2013)	• More harsh (Humayun et al., 2014; Waller et al., 2012; Waller et al., 2018), dysfunctional and hostile parenting (Ezpeleta, Granero, de la Osa, & Domenech, 2017; Loney, Huntenburg, et al., 2007)
• More corporal punishment (Childs et al., 2014; Pardini et al., 2007)	• More corporal punishment (Dadds, Allen, et al., 2012) and negative (Viding et al., 2009) and inconsistent discipline (B. A. Robinson et al., 2016)
• More negative parenting (Frick, Kimonis, et al., 2003) and discipline (Fontaine et al., 2011; Fontaine et al., 2010; Viding, Fontaine, Oliver, & Plomin, 2009)	• Poorer parental monitoring (B. A. Robinson et al., 2016)
• More parent psychological aggression together with inconsistent discipline (R. McDonald, Dodson, Rosenfield, & Jouriles, 2011) or low empathic awareness (Waller, Shaw, Forbes, & Hyde, 2015)	• More negative parent affect (Yeh et al., 2011) or feelings (Humayun et al., 2014)
• Poorer parental monitoring and supervision (Brown et al., 2017; Childs et al., 2014; Hawes et al., 2011)	• Child representations of more disorganised attachment relationships (Bohlin et al., 2012)
• More negative parent feelings (Fontaine et al., 2011; Fontaine et al., 2010; Humayun et al., 2014)	• Higher parent helplessness and fear (Willoughby et al., 2015)
• More insecure or unresponsive parent-child attachment relationships (Kim, Kochanska, Boldt, Nordling, & O'Bleness, 2014) or child representations of more disorganised attachment (Bohlin et al., 2012)	• High incidence of Reactive Attachment Disorder (Mayes, Calhoun, Waschbusch, Breaux, & Baweja, 2017)
• Early experiences of abuse, neglect or trauma (Byrd et al., 2018; Enebrink et al., 2005) and child maltreatment (Dackis et al., 2015; Walters, 2018)	• History of institutional care (Humphreys et al., 2015), experience of more relational victimisation (Kokkinos & Voulgaridou, 2018), negative life events (Winiarski, Engel, Karnik, & Brennan, 2018), exposure to animal maltreatment (S. E. McDonald et al., 2017), and higher maltreatment (Ometto et al., 2016; Walters, 2018)
• More parenting distress (Fanti, Colins, et al., 2017).	• More parent-reported (Pasalich, Dadds, et al., 2014) and child representations (Kloft, Hawes, Moul, Sultan, & Dadds, 2017; Wagner et al., 2015) of family dysfunction
	• More parenting distress (Fanti & Centifanti, 2014)
Less positive parent-child relationships:	• Mother-child interactions that dismiss emotion (Pasalich, Waschbusch, et al., 2014) and, yet, contain more frequent expressions of sadness and fear by the child, and fear by the mother, during conversations (Pasalich, Dadds, Vincent, et al., 2012).
• Less sensitive parenting (Mills-Koonce et al., 2016; Wagner et al., 2015)	
• Lower parental warmth and involvement (Fanti, Colins, et al., 2017; Hawes et al., 2011; Pardini et al., 2007; Waller et al., 2014; Waller, Shaw, et al., 2015)	*Less positive parent-child relationships:*
• Lower positive parenting (Frick, Kimonis, et al., 2003; Waller, Shaw, & Hyde, 2017; Wright, Hill, Sharp, & Pickles, 2018)	• Lower positive parenting (B. A. Robinson et al., 2016; Waller, Shaw, Neiderhiser, et al., 2017)
• Lower preferential face tracking in infancy (Bedford, Pickles, Sharp, Wright, & Hill, 2015)	• Lower parental warmth (Mendoza-Diaz et al., 2018; Waller et al., 2018) and involvement (Fanti & Centifanti, 2014; Muratori, Lochman, Manfredi, et al., 2016)
• Lower mother-directed gaze for infants who also experienced low maternal sensitivity (Bedford et al., 2017).	• Lower emotional closeness in the parent-child relationship (Fite et al., 2008)
	• Lower eye contact to mothers during an "I love you task" (Dadds, Allen, et al., 2014), and both mothers and fathers during free-play and emotion-focused tasks (Dadds, Jambrak, Pasalich, Hawes, & Brennan, 2011)
	• Less maternal acceptance of child emotional experiences and expressions (Pasalich, Waschbusch, et al., 2014).

Table 4 (continued)

Associations Among Parenting and Parent-Child Relationships and CU Traits in Early and Middle Childhood

Associations with *lower* CU traits	
<u>Longitudinal</u>	<u>Concurrent</u>
Less negative parent-child relationships: • Less dysfunctional parenting skills (Sourander et al., 2016) • Less negative and inconsistent parenting, and less parent helplessness and distress (Elizur, Somech, & Vinokur, 2017; Somech & Elizur, 2012). *More positive parent-child relationships:* • Higher parental warmth (Avinun & Knafo-Noam, 2017; Henry, Dionne, Viding, Vitaro, et al., 2018; Pardini et al., 2007) • Higher parental involvement (Hawes et al., 2011; Pardini et al., 2007) • Higher maternal sensitivity (Bedford et al., 2015; Wagner et al., 2017) • More positive parenting (Hawes et al., 2011; Hyde et al., 2016; Kjobli, Zachrisson, & Bjornebekk, 2018; Muratori, Lochman, Lai, et al., 2016; Waller et al., 2016) • More appropriate maternal mental state talk during parent-child interactions (Centifanti, Meins, & Fernyhough, 2016; Wagner et al., 2017).	*More positive parent-child relationships:* • More positive parental behaviour support (Hyde et al., 2013) • More positive parenting (Dadds, Allen, et al., 2012; Masi et al., 2018) • More parental warmth and involvement (Pardini et al., 2007; Pasalich, Dadds, Hawes, & Brennan, 2011).

The empirical research (reported above) also reveals a number of important features in the associations among parenting practices and CU traits. Findings suggest that positive parenting practices may have a unique role in reducing CU traits, and there is a reciprocal negative influence among child CU traits and parenting practices over time. Evidence also suggests: a differential effect of paternal and maternal caregiving on child CU traits; the moderation or mediation of associations between child, parent and family risk factors and child CU traits by various parenting practices; and the contribution of psychosocial risk factors to the development of CU traits in children. These will each be addressed in turn.

Positive relationships. The differential susceptibility model (Belsky & Pluess, 2009) proposes that the effects of the caregiving environment on child outcomes can be moderated by child temperament in both beneficial and detrimental ways. This means that children with high CU traits who are susceptible to negative parenting may also receive the most assistance from positive parenting. This idea is supported by research outcomes showing that children with conduct problems and higher CU traits may be particularly receptive to positive caregiving (Frick, Kimonis, et al., 2003; Masi et al., 2018; Muratori, Lochman, Lai, et al., 2016). Waller, Shaw, and Hyde (2017) found that observations of lower positive parenting, but not harsh parenting at 24 months predicted higher CU traits at 42 months in a high-risk community sample. Mendoza-Diaz et al. (2018) found that lower mother and father warmth, but not negative parenting was related to higher CU traits. In a clinic-referred sample of 3 to 12 year-old children, Kjobli, Zachrisson, and Bjornebekk (2018) found that the effects of a parent training intervention were partially mediated by positive, but not negative, parenting practices. Pasalich and colleagues (2016) found that an intervention in middle childhood improved positive parenting, which predicted lower CU traits, and reduced negative parenting that, in turn, predicted lower conduct problems, in early adolescence. Therefore, positive parenting practices may make unique contributions to child CU traits.

It is important to note, however, that other studies have found both negative and positive parenting practices contribute to child CU traits (Dadds, Allen, et al., 2012; Hawes et al., 2011; Pardini et al., 2007; B. A. Robinson et al., 2016; Waller et al., 2018). This indicates that further research is required to understand the conditions within which positive or negative parenting influence the development of CU traits.

While a few studies show that CU traits can be reduced by focusing on improving on previously negative caregiving behaviours (e.g., Elizur, Somech, & Vinokur, 2017; Kochanska, Boldt, Kim, Yoon, & Philibert, 2015; Sourander et al., 2016), there is more evidence that promoting positive parenting is helpful. Parental warmth and involvement (Pardini et al., 2007), sensitivity (Bedford et al., 2015), positive parenting (Masi et al., 2018), and mental-state talk during parent-child interactions (Centifanti, Meins, & Fernyhough, 2016) have all been associated with lower conduct problems and CU traits in early and middle childhood. For example, in a longitudinal twin study by Henry, Dionne, Viding, Vitaro, et al. (2018), it was discovered that the genetic expression of CU traits was impeded in caregiving environments characterised by more warmth and rewarding parenting, even when controlling for hostile parenting and maternal depression. In fact, more parental warmth and positive reinforcement was connected with lower child CU traits and conduct problems, regardless of the child's inherited characteristics. Pasalich, Dadds, et al. (2014), however, found no relationship between maternal warmth and responsiveness and child CU traits in a clinic-referred sample of 3 to 9-year-old children with disruptive behaviour disorders. The authors suggested that including children with elevated autism spectrum disorder symptoms may have made their sample "atypical".

There is also evidence that treatment modules focused on improving positive parenting and warmth are most effective for reducing conduct problems for children with high CU traits. Whereas, the disciplinary component of treatment may be more effective for

improving conduct problems in children with low CU traits (e.g., Hawes & Dadds, 2005;

Kimonis, Bagner, Linares, Blake, & Rodriguez, 2014; Kimonis et al., 2019). As a

consequence of this research, some clinical researchers suggest that interventions for children

with conduct problems and high CU traits should initially focus on improving positive

parenting practices (e.g., Kimonis & Armstrong, 2012).

Research on child temperament, parenting and the development of conscience in early

childhood may also be relevant. Chapter 1 reviewed research that showed children with

conduct problems and high CU traits tend to have an impaired conscience and a *fearless*

temperament. Kochanska and colleagues (1997; 2000) have shown that toddlers with a

fearless temperament and who experienced a mutually responsive orientation from their

parents had a more developed conscience at 4 and 5 years of age. Alternatively, children with

a *fearful* temperament who experienced gentle maternal discipline had a more developed

conscience at 4 years of age. That is, children with a fearless temperament (a characteristic of

children with high CU traits) may require an especially positive parent-child relationship to

support their social-emotional development.

Reciprocal influences. Similar to conduct problems, there is a considerable body

of evidence showing that child CU traits can impact on parenting and parent-child

relationships (Avinun & Knafo-Noam, 2017; Childs et al., 2014; Fontaine et al., 2011; Hawes

et al., 2011; Muratori, Lochman, Lai, et al., 2016; Trentacosta et al., 2018; Tuvblad, Bezdjian,

Raine, & Baker, 2013; Waller et al., 2014). To take one example, Hawes and colleagues

(2011) conducted a prospective study over 12 months in a representative community sample.

They reported that higher child CU traits predicted increases in inconsistent discipline and

corporal punishment, and reduced parental involvement in older children. There were some

differences related to gender as these effects were also noted in younger girls. Conversely,

higher positive parenting and parental involvement predicted a decrease in child CU traits,

and poorer monitoring and supervision at younger ages predicted an increase in child CU

traits over the same period. More recently, and against expectations, Brown et al. (2017)

found that *higher* CU traits at 3 years of age predicted higher positive parenting and ODD at 6

years of age, while more positive parenting at 3 years of age did not predict lower CU traits at

6 years of age. This research suggests that child conduct problems and CU traits are child and

parent driven, and complex gene-environment interactions are likely to underpin their effects.

Interactions with parent, child or family vulnerabilities. Recent research has

shown that parenting practices can mediate or moderate the impact of parent vulnerabilities,

such as maternal antisocial behaviour or depression (Avinun & Knafo-Noam, 2017; Childs et

al., 2014; Hyde et al., 2016; Loney, Huntenburg, et al., 2007; Mendoza-Diaz et al., 2018; B.

A. Robinson et al., 2016) on CU traits in early and middle childhood. The quality of parenting

can also offset the impact of child risk factors, including temperamental fearlessness or

certain genetic polymorphisms (Kochanska et al., 2015; Pardini et al., 2007; Trentacosta et

al., 2018; Waller, Shaw, & Hyde, 2017; Waller et al., 2016; Willoughby et al., 2013) and

family adversity (Mills-Koonce et al., 2016). The findings from these studies are consistent in

showing that parent or child vulnerabilities are related to higher CU traits in circumstances

where there are more dysfunctional parenting practices. As an example, Waller, Shaw, et al.

(2015) found that earlier measures of maternal risk factors (aggressive personality traits in a

child at 18 months, and low empathic awareness at 2 years of age), as well as child risk

factors (difficult temperament at 18 months), were indirectly associated with higher child CU

traits at 10 to 12 years of age, with the associations explained (at least in part) by lower

maternal warmth at 2 years of age.

Mothers and fathers. Twelve of the 62 studies included in this review investigated

associations among fathers' parenting practices and child CU traits. There is some evidence to

suggest that associations between child CU traits and parenting practices are different for

mothers and fathers, but findings are mixed in this regard. Some studies have shown that mothers of children with higher CU traits were more emotionally expressive (Pasalich, Dadds, Vincent, et al., 2012), but also less accepting and more dismissing of child emotion during interactions (Pasalich, Waschbusch, et al., 2014), compared with fathers. Conversely, Pasalich, Dadds, Hawes, and Brennan (2011) found that father, but not mother, warmth was associated with lower CU traits in a clinic-referred sample of 4 to 12-year-old children. Other studies, however, have found that mother and father parenting practices had a comparable influence on the development of CU traits (Fanti, Colins, et al., 2017; Kochanska et al., 2015; Trentacosta et al., 2018; Waller, Shaw, Neiderhiser, et al., 2017). For example, in a representative community sample of 9-year-old children followed for 3 years, Fanti, Colins, et al. (2017) found that the mothers and fathers of children with high and stable levels of CU traits similarly reported more parenting distress and less involvement with their children over time, compared with those in other CU traits trajectory groups. Further research is required. The current study will investigate associations among parent-child attachment relationships and child conduct problems, and CU traits for mothers and fathers separately. Identifying unique risk and protective factors in mother- and father-child attachment relationships could lead to more individualised treatments for children with conduct problems and CU traits.

Family adversity. Studies have shown that child CU traits are more likely in households with greater psychosocial adversity. Risks include lower socio-economic status (Muratori, Lochman, Manfredi, et al., 2016), chaos in the home (Fontaine et al., 2011; Fontaine et al., 2010), lower social support (Waller, Shaw, et al., 2015), family instability (Coe, Davies, & Sturge-Apple, 2017), and household disorganisation (Mills-Koonce et al., 2016). Further, children with a history of early childhood maltreatment (Enebrink et al., 2005; Ometto et al., 2016; Walters, 2018), more foster home placements (Humphreys et al., 2015), more negative life events during preschool (Winiarski et al., 2018), and relational

victimisation (Kokkinos & Voulgaridou, 2018) were more likely than those from less risky backgrounds to have higher CU traits. This evidence corresponds with the broader literature on conduct problems that shows parents living in more adverse circumstances are likely to demonstrate more dysfunctional parenting practices that can exacerbate child conduct problems (Burke et al., 2002).

Are parenting practices associated with conduct problems at different levels of CU traits? A broad literature review shows that more negative and less positive parenting practices are related to more severe conduct problems in children without the consideration of child CU traits. Chapter 1 reviewed evidence that showed children with high CU traits tend to have more persistent and severe aggressive and antisocial behaviour than those low in CU traits, and that they also exhibit unique cognitive, emotional, physiological and personality characteristics that set them on a distinct developmental trajectory. As a result of growing evidence regarding the unique characteristics and risk trajectories of this subset of children, early research on CU traits queried whether children with conduct problems *and* high CU traits had experienced different parenting practices to those who had conduct problems, but low CU traits. Initial research was consistent in finding that dysfunctional parenting related to higher CU traits for children with low, but not high, CU traits (Hipwell et al., 2007; Koglin & Petermann, 2008; Oxford et al., 2003; Wootton et al., 1997). These findings were influential, leading researchers to conclude that caregiving experiences may be less important for the social-emotional outcomes of children with high CU traits. This research evidence was also widely cited to support biological explanations of the developmental pathway to CU traits and associated conduct problems in childhood.

More recent research (see Table 5), however, reveals mixed evidence for CU traits moderating the relationship between parenting quality and child conduct problems in early and middle childhood (for a review, see Waller et al., 2013). On the one hand, 12 studies

show that more negative and less positive parenting practices were concurrently associated with and predicted more severe child conduct problems regardless of the child's severity of CU traits. For example, Hyde et al. (2013) found in a high-risk community sample that although parent-reported deceitful-callous behaviour predicted increases in conduct problems over time, the presence of deceitful-callous behaviour did not moderate the association between observed positive parenting practices at 3 years of age and changes in conduct problems between 2 and 4 years of age. These research findings add further support to the large existing literature, which shows that dysfunctional parenting practices contribute to the conduct problems of all children. On the other hand, there is evidence in other studies that associations among parenting practices and conduct problems in early and middle childhood may be moderated by the severity of children's CU traits. There are conflicting findings.

Six studies show that more negative and less positive parenting practices were associated with more severe conduct problems for children with *low*, but not high, CU traits (see Table 5). For example, in a large high-risk community sample of 7 to 8-year-old girls, Hipwell et al. (2007) reported that conduct problems were more strongly associated with harsh punishment and low parental warmth among girls with *low*, rather than high, CU traits. For girls with high CU traits, however, the strength of the association between conduct problems and parenting was reduced, but still significant. These findings were all cross-sectional and have generally not been supported by subsequent research.

In contrast, 11 studies report the opposite. That is, less positive and more negative parenting practices were associated with more severe conduct problems for children with *high*, but not low, CU traits (see Table 5). In a community sample of preschool children, Kochanska, Kim, Boldt, and Yoon (2013) found that mother-child relationships characterised by collaborative, close, and responsive mother-child mutual orientation, and father-child relationships characterised by expressed positive affect, were associated with fewer conduct

problems in middle childhood, even for children with high CU traits, and even when controlling for continuity in conduct problems. Interestingly, there were no significant associations found for children with low CU traits, suggesting a differential susceptibility effect, whereby the children with high CU traits seemed to benefit more from these positive relational experiences.

Three studies revealed that different aspects of parenting practices were related to conduct problems, depending on the severity of CU traits (see Table 5). Observed maternal and paternal coercive parenting was associated with more severe conduct problems in boys with low, but not high, CU traits in a clinic-referred sample of 4 to 12 year-old boys (Pasalich et al., 2011). Alternatively, the study reported that lower maternal warmth was associated with more severe conduct problems in boys with high, but not low, CU traits. Supporting the above review, this finding suggests that lower positive parenting may be uniquely related to more severe conduct problems for children with high CU traits.

In summary, the vast majority of studies (26 of 32 studies) show that parenting practices are related to conduct problems for children irrespective of the severity of their co-occurring CU traits, and most strongly for those with high CU traits.

Table 5

Associations Among Parenting and Parent-Child Relationships and Conduct Problems at Different Levels of CU Traits in Early and Middle Childhood

Different associations with child conduct problems for *high (CU+)* and *low (CU-)* CU traits		Associations with child conduct problems *regardless* of CU traits	
Longitudinal	Concurrent	Longitudinal	Concurrent
Related to CU+, not CU-: • Higher mother-child mutually responsive orientation and father-child shared positive affect predicted lower CP for CU+ but not CU- (Kochanska et al., 2013) • Children with disorganised attachment and CP+/CU+ at 3 years of age predicted high and stable CP across primary school (Willoughby et al., 2014) *Related to CU-, not CU+:* • Nil *Different associations for CU+ and CU-:* • Parenting distress predicted CP+ for CU- and not CU+, whereas CP+ predicted parenting distress for CU+, not CU- (Fanti & Centifanti, 2014).	*Related to CU+, not CU-:* • CP+/CU+ showed lower physical and verbal affection towards, and lower eye contact with, their mothers than CP+/CU-, with mothers showing no reciprocated impairment in eye contact or affection or genuineness (Dadds, Allen, et al., 2014; Dadds, Allen, et al., 2012) • Child representations of less emotional distance in the family was more strongly associated with lower CP for CP+/CU+ than CP+/CU- (Kloft et al., 2017) • CP+/CU+ represented more disorganised attachment relationships with mothers than CP+/CU- (Pasalich, Dadds, Hawes, et al., 2012) • Lower parental warmth related to higher CP for CU+ but not CU- (Kroneman et al., 2011; Waller, Gardner, et al., 2015) • For CP+/CU+ compared with CP+/CU-, higher positive parenting associated with higher ODD and lower CD, higher harsh parenting associated with higher ODD, and poorer monitoring associated with higher CD (Crum, Waschbusch, Bagner, & Coxe, 2015) • CP+/CU+ had higher family stress and more early abuse, neglect or trauma than CP+/CU- (Enebrink et al., 2005) • Higher maternal (not paternal) focus on negative feelings associated with lower CP for CU+ than CU- (Pasalich, Dadds, Vincent, et al., 2012) *Related to CU-, not CU+:* • Inconsistent discipline associated with higher CP for CU- but not CU+ (Koglin & Petermann, 2008) • Higher harsh punishment and lower parental warmth more strongly associated with higher CP for CU- than CU+ (Hipwell et al., 2007) • Lower positive parenting related to CD at CU- but not CU+ (Falk & Lee, 2012) • Higher dysfunctional parenting associated with higher CP for CU-, not CU+ (Oxford et al., 2003) • Physically aggressive parenting was more strongly associated with proactive aggression among children with CU-, not CU+ (Sng et al., 2018) • Inconsistent discipline, low parental involvement, low positive parenting, high corporal punishment related to higher CP in CU-, but not CU+ (Wootton et al., 1997) *Different associations for CU+ and CU-:* • Higher negative and lower positive parental affect more strongly associated with reactive aggression for CU- than CU+. Higher negative parental affect more strongly associated with proactive aggression for CU+ than CU- (Yeh et al., 2011) • Lower maternal warmth associated with higher CP for boys with CP+/CU+, but not CP+/CU-, and higher maternal and paternal coercive parenting related to higher CP for boys with CP+/CU-, but not CP+/CU+ (Pasalich et al., 2011).	• Lower positive parenting practices (Hyde et al., 2013) • Higher corporal punishment (Kimonis, Frick, Boris, et al., 2006) • Higher harsh parenting and lower parental warmth (Kroneman et al., 2011; Waller, Gardner, et al., 2015) • Lower parental involvement (Fanti & Centifanti, 2014) • Higher negative parent feelings and harsh parental discipline (Larsson et al., 2008).	• Higher corporal punishment and lower positive parent feelings (Dadds, Allen, et al., 2014; Dadds, Allen, et al., 2012) • Higher harsh parenting (Waller, Gardner, et al., 2015) • Ineffective parenting (Enebrink et al., 2005) • More parent psychological aggression (Sng et al., 2018) • Lower positive parental affect associated with higher proactive aggression (Yeh et al., 2011).

Chapter 2 Summary

The literature reviewed in this chapter shows that dysfunctional parenting practices predict, and are concurrently associated with, more severe conduct problems and CU traits in early and middle childhood. Specifically, parents of children with conduct problems and high CU traits tend to display: low warmth; low sensitivity and involvement; harsh and inconsistent discipline; poor parental monitoring or supervision; negative parent-to-child affect; and intrusive or aggressive parenting practices. These parents also tend to express more fear, and are more dismissing of their child's emotions during parent-child interactions. They also report more helplessness and distress in relation to their experience of parenting.

Reciprocal effects are noted, however. Children with high CU traits are more likely to exhibit: oppositional, defiant and aggressive behaviour; low empathy; poor recognition and responsivity to distress in their parent; more fear and sadness; lower eye contact; and be less responsive to discipline during parent-child interactions. These recursive maladaptive patterns of interactions between parents and children appear to increase dysfunctional parenting behaviours as well as conduct problems and CU traits in children over time. This may result in increased risk of abuse, neglect and trauma within the parent-child relationships of children with high CU traits, reported in some (e.g., Walters, 2018) but not other (e.g., Dadds, Kimonis, Schollar-Root, Moul, & Hawes, 2018) studies. Children with high CU traits are at significantly greater risk of experiencing insecure or disorganised parent-child attachment relationships, early abuse and neglect, and more dysfunctional representations of their family relationships. These associations will be explored in Chapter 3. Parent, child and household risk factors also relate to higher CU traits in early and middle childhood, with their influence on child CU traits strengthened or weakened according to the quality of the parenting and parent-child relationship.

The presence of a warm, positive, sensitive and responsive parent-child relationship, however, appears to decrease CU traits in children. Children with high CU traits have been shown to: improve their empathic responding; cooperate with parental limit-setting; recognise and respond to signals of distress in other people; and demonstrate genuine expression of affect within the parent-child relationship when their parents increase their involvement, warmth and positivity towards the child. Indeed, Kimonis and colleagues (2013) argue that positive parenting may be more important than negative parenting in the development of CU traits in children: "…..the bonding with a parent that comes from a relationship characterised by affection and involvement may be more important to the development of CU traits than abusive parenting (Kimonis, Cross, Howard, & Donoghue, 2013, p. 171)".

Overall, the literature reviewed in this chapter reveals that parenting practices contribute to the development of CU traits and conduct problems in early and middle childhood. The current study will extend this research by investigating associations among parent-child relationships and child conduct problems and CU traits from an attachment theory perspective (Bowlby, 1969/1982). Chapter 3 provides a brief overview of the key tenets of attachment theory as these apply to children in early and middle childhood. It reviews the evidence supporting associations among parent-child attachment relationships and conduct problems in childhood, and outlines the research questions for the current study.

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Chapter 3: Theoretical Framework and Research Questions

Forty-four juvenile thieves (Bowlby, 1944): A foundation study for attachment theory.

In a seminal study, John Bowlby (1944) investigated 44 clinic-referred criminally-convicted children with a median age of 11 years. He found that 30% of the children displayed an "affectionless" character. Bowlby described the affectionless character as superficially charming, but the child has "never since infancy shown normal affection to anyone and were, consequently, conspicuously solitary, undemonstrative, and unresponsive. Many of their parents and foster parents remarked how nothing you said or did to them made any difference" (p. 23-24). Bowlby observed that these children responded neither to kindness nor to punishment, displayed particularly severe forms of conduct problems, and were more likely to become a recidivist. He reported that these children had suffered childhood abuse and neglect, the complete emotional loss of their mother or foster-mother during infancy and early childhood, and had had a remarkably distinctive early history of prolonged separations from their mothers or foster-mothers. Bowlby (1944) suggested that behind the mask of the callous and uncaring character was despair and "bottomless misery". Bowlby used this evidence to propose that parent-child attachment relationships are important for the development of personality.

Introduction

This chapter presents an overview of attachment theory (Bowlby, 1969/1982), the key theoretical framework underpinning the current research. It reviews research showing that the quality of parent-child attachment relationships are related to child CU traits and conduct problems during early and middle childhood. First, the main theoretical constructs of attachment theory are outlined, and then applied to conceptualise the aspects of parent-child relationships investigated in the current study. Second, the measurement of the quality of parent-child attachment relationships in early and middle childhood is reviewed to provide a

rationale for the measures selected for the current research. Finally, evidence supporting associations among attachment security and conduct problems in childhood is considered, supporting the application of attachment theory in the current study.

Attachment Theory (Bowlby, 1969/1982)

The parent-child attachment relationship is one aspect of the child's broader relationship with his or her caregiver. It refers to an "affectional bond" between a child and parent (Ainsworth, 1967) that commences at birth and is enduring, specific to the individuals involved, and emotionally significant (Cassidy, 2008, 2016). In response to parent or child perceptions of threat or stress, the parent-child attachment relationship aims to provide protection and "felt security" by maintaining proximity of the child to his or her caregiver, who has an innate urge to provide care and protection (Cassidy, 2016; Kobak & Madsen, 2008; Mayseless, 2005). Key tasks for the caregiver have been defined: the provision of a safe haven to help the child organise his or her feelings during moments of high emotional intensity, and a secure base to support exploration and learning at other times (Feeney & Woodhouse, 2016; Marvin, Britner, & Russell, 2016; Powell, Cooper, Hoffman, & Marvin, 2014). According to the child's appraisal of his or her caregiver's accessibility and emotional availability at any time, the child exhibits attachment behaviour and emotional cues to maintain access and connection with his or her caregiver (Kobak, Zajac, & Madsen, 2016). This appraisal is influenced by previous attachment-related experiences. Security is achieved within a parent-child attachment relationship when the affectional bond is maintained over time, and the interactions are typified by predictable warmth, sensitivity, emotional availability and open communication (Marvin et al., 2016). Bowlby (1969/1982) theorised that child and caregiver behavioural systems and internal working models of attachment or caregiving govern the parent-child attachment relationship.

Behavioural systems. The following section sets out the key behavioural systems considered in attachment theory (Bowlby, 1969/1982).

Attachment system. Bowlby (1969/1982) conceptualised that an individual's attachment behaviour is organised through a number of interrelated and reciprocal behavioural systems. These include the attachment, exploratory, fear/wariness, sociability and caregiving systems (Ainsworth, 1990; Cassidy, 2016; Marvin et al., 2016).

When the fear/wariness system is minimally activated, Bowlby (1973) proposed that the exploratory and sociability systems are initiated and the child explores his or her environment using innate curiosity and a desire for mastery or learning (Kobak et al., 2016). The fear/wariness system is activated when a child experiences frightening internal or environmental cues, and/or when an attachment figure is not accessible or available for protection and safety. The activation of the fear/wariness system terminates the exploratory and sociability systems and activates the attachment system (Marvin et al., 2016).

The attachment system directs the individual to seek proximity with his or her attachment figure in order to receive physical and psychological protection, comfort and safety (Mayseless, 2005). This in turn deactivates the attachment and fear/wariness systems and allows re-activation of the exploratory and sociability systems. The attachment system, therefore, is a "safety regulating system" that is complementary to, and in balance with, the exploratory system.

The attachment system is associated with and regulated by strong affect (Cassidy, 2008; Robertson, 1962). A broad range of functionally equivalent attachment behaviours may be employed to maintain proximity to an attachment figure, and these may vary depending on the age, experience, culture, or context of the child (Mayseless, 2005).

Caregiving system. Bowlby (1969/1982) proposed that parenting behaviour is organised by a caregiving system that is reciprocal to, and operates in a dynamic equilibrium with, the child's attachment system. The caregiving system is activated by internal and environmental cues within contexts that the parent perceives as frightening, dangerous or stressful for the child (Cassidy, 2016). Once activated, the parent's caregiving system may use a repertoire of behaviours that serve the system's protective function and vary according to the caregiver's evaluations of the child's signals and situational danger or threat (George & Solomon, 2008). As noted above, activation of the child's attachment system is terminated by sensitive physical or psychological contact with the attachment figure and signals that the child is comforted, contented or satisfied (George & Solomon, 2008). The caregiving system is associated with and regulated by strong emotions.

Given the parent's greater experience and more sophisticated evaluation of threat, the parent's caregiving system may be activated when the child's attachment system is not (George & Solomon, 2008). The parent's caregiving system must also flexibly operate to balance competing demands from other behavioural systems, such as: being available as a caregiver to other children (competing caregiving); a friend (affiliative system); a sexual partner (sexual system); a worker (exploratory system); or an individual who seeks care from his or her own attachment figures (attachment system) (George & Solomon, 2008). These competing agendas may lead to conflict and ruptures in the relationship between parent and child. These ruptures in the parent-child attachment relationship require repair for the child to overcome shame and re-establish secure connection with his or her caregiver (Schore, 2003).

Attachment theory proposes that all behavioural systems develop from immature, simple or primitive forms to increasingly sophisticated and integrated systems. These are activated by an increasingly restricted range of stimuli across the life course (Marvin et al., 2016; Mayseless, 2005). Behavioural systems mature from complex transactions among

biological and experiential factors (George & Solomon, 2008). In early and middle childhood, the attachment behavioural system begins to generalise and integrate attachment-related experiences and behaviour with primary attachment figures with those experienced in other close relationships to form a general attachment strategy, which is applied in relationships across the lifespan (Mayseless, 2005). At the same time, the attachment behavioural system becomes more differentiated and diversified, with the child developing close affectional bonds with individuals in addition to his or her primary attachment figures (e.g., extended family, teachers and peers) (Mayseless, 2005). Children develop a hierarchy of attachment figures in middle childhood and learn to approach different people for the satisfaction of different emotional needs (Ainsworth, 1967; Mayseless, 2005).

Mayseless (2005), Kerns (2008), and Kerns and Brumariu (2016) indicate that middle childhood marks:

1. a change in the set goal of the attachment behavioural system from proximity-seeking with an attachment figure in early childhood (fundamental in infancy) to psychological availability of the attachment figure in middle childhood (i.e., child accesses internal representations of the parent or uses more distal communication (e.g., text, phone) to access his or her parent);

2. an increasing shift in responsibility from the parent to the child for monitoring and maintaining the availability and accessibility of the caregiver, which leads to parent and child co-regulation of affect and behaviour;

3. a decrease in the frequency and intensity of attachment behaviour as the child develops a large range of strategies that terminate the attachment system;

4. a reduction in the range of conditions that activate it; and

5. greater investment in exploration and learning.

The increasing complexity and integration of behavioural systems leads to the development of more sophisticated and flexible coping strategies for the child within the protective bond of an attachment relationship (Marvin & Britner, 2008). The behavioural systems also become increasingly governed by cognitive-affective internalisations.

Internal working models of relationships. The following section describes child and parent internal working models of attachment and caregiving relationships, respectively.

Child representations of attachment. Bowlby (1969/1982) proposed that repeated attachment-related experiences led the individual to develop expectations about the self, other people and the broader social world, and conscious and unconscious rules for processing attachment-related experiences, feelings or thoughts (Main, Kaplan, & Cassidy, 1985). These attachment-related experiences are organised as cognitive-affective-sensorimotor schemas, referred to as "mental representations" or "internal working models of relationships", which mainly operate outside of conscious awareness (Bretherton & Munholland, 2008, 2016). Commencing at approximately 12 months of age, internal working models of the self and others in attachment relationships allow the individual to anticipate, interpret and emotionally appraise, organise, and guide specific attachment behaviours used in specific situations with specific individuals (Cassidy, 2008; George & Solomon, 2008). Internal working models represent the history and current observable qualities of the parent-child attachment relationship, are relationship specific, and mutually confirming for both parent and child (Bowlby, 1969/1982, 1973).

Internal working models of self and others increase in complexity with the development of language, social and cognitive capacities in early and middle childhood. These models permit the child to: reflect on past, current and future relationships by means of

"internal simulation" (Bowlby, 1988); plan and display more flexible attachment behaviour to maintain caregiver availability; access the parent through more distal modes of communication; and enable the child and parent to engage in mutually influenced, "goal-corrected partnerships" (Cassidy, 2016; Kerns, 2008; Kerns & Brumariu, 2016; Kobak & Madsen, 2008; Marvin et al., 2016). Observable from approximately 3 years of age, a goal-corrected partnership refers to the child's ability to select and execute planned behaviour from within a hierarchy of behavioural plans. These include "adopting goals for his or her activities, subordinating knowledge and actions in the service of a super-ordinate plan, and monitoring his or her activities and mental processes" (Collins, Madsen, & Susman-Stillman, 2002, p.75) in order to achieve the shared set-goal of the attachment and caregiving behavioural systems (Kerns, 2008; Marvin & Britner, 2008).

Although influenced and updated by current attachment-related experiences, internal working models of the self and others demonstrate increasing stability across development, and become a central feature of the child's personality (Bowlby, 1973; Sroufe, Egeland, Carlson, & Collins, 2005). The internalised aspects of personality interact with the quality of the current attachment relationship in a dynamic and reciprocal manner (Bowlby, 1973). With maturity, internal working models for specific caregivers develop into broader representations of the self, caregivers, interpretation of relational experiences, and decision rules about how to interact with other people (Weinfield, Sroufe, Egeland, & Carlson, 2008). As a consequence, internal working models of relationships guide the individual's interpretation of continuing and new relationship experiences, expectations of other people's sensitivity and responsiveness in relationships, and self-concept (Weinfield et al., 2008).

Parent representations of caregiving. The parent's cognition and behaviour regarding the provision of care and protection to the child, and his or her perceptions and interpretations of the child's emotional signals, are guided and regulated by an internal

working model of caregiving (George & Solomon, 2008). The caregiving system develops during adolescence, the transition to parenthood and, particularly, when the infant arrives (George & Solomon, 2008). The parent's internal working model of caregiving is specific to the child, and represents the parent's caregiving-related experiences in the current and past parent-child relationship, as well as memories of the parent's early attachment and caregiving-related experiences with his or her own caregivers (George & Solomon, 2008). The internal working model of caregiving requires flexibility to achieve balance, integration and differentiation between various behaviour systems to create a sensitive and increasingly competent goal-corrected partnership with the child (George & Solomon, 2008). The parent's caregiving behaviour results in the transmission of the parent's internal working models of attachment and caregiving to the next generation (George & Solomon, 2008).

The nature of the parent's internal working models of attachment and caregiving determine his or her capacity to perceive and understand the self and others in terms of distinct feelings, beliefs, intentions and desires (Powell et al., 2014). This determines the security experienced within the parent-child attachment relationship. The parent's "state of mind regarding attachment" refers to the ability to integrate thoughts and feelings about relationships, and the process that supports or excludes relationship-related information from the parent's thinking (George & Solomon, 2008). The parent's state of mind regarding a child has been variously operationalised as "reflective functioning" (Fonagy, Steele, Steele, Moran, & Higgitt, 1991), "mind-mindedness" (Meins et al., 2003), "mentalisation" (Fonagy, Gergely, Jurist, & Target, 2002), or "theory of mind" (Premack & Woodruff, 1978).
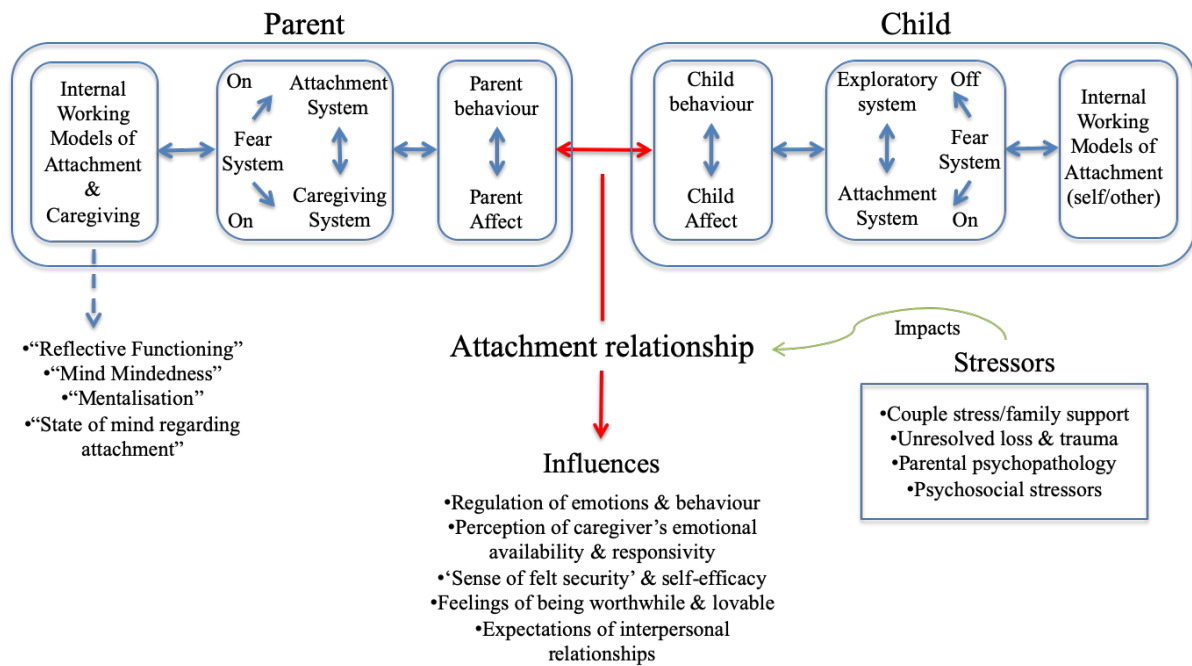
Figure 1. Conceptualisation of the parent-child attachment relationship.

The current study from an attachment theory perspective. Attachment
theory is summarised in Figure 1 above. This theory proposes that infants who regularly
receive warm, predictable, and emotionally-available caregiving develop trust in their
caregivers to meet their emotional needs, repeatedly experience the co-regulation of affect
and behaviour, and experience themselves as worthwhile and lovable (Marvin et al., 2016).
These experiences are internalised as secure representations of attachment in toddlerhood
that, in turn, are used to organise and guide more successful exploration and learning,
enhance emotion self-regulation, and support positive interactions with their caregivers,
teachers and peers (Bretherton & Munholland, 2008). The advanced social, emotional and
cognitive functioning of these children is likely to reinforce their secure representations of
attachment. If supported through continued sensitive caregiving, these qualities will
eventually become part of their personality.

The previous two chapters have shown that these aspects of child development
associated with secure attachment are all compromised in children with conduct problems,

and most severely in those with high CU traits. Consequently, an exploration of the parent-child attachment relationship appears an important research endeavour for children with disruptive behaviour disorders.

The overarching objective of the current study is the investigation of children's attachment relationships with their parents as these relate to conduct problems and CU traits in early and middle childhood. Broadly, the current study will examine:

1. child interpersonal behaviour measured by the severity of their conduct problems;

2. parenting behaviour measured by parent-reported dysfunctional parenting practices;

3. parent representations of their child using the concept of parental mind-mindedness;

4. parent-child interactions focusing on parent and child emotional availability and parent-reported caregiving helplessness; and

5. child internal working models of attachment using projective measures.

In this way, the study provides a comprehensive appraisal of the current quality of parent-child attachment relationships for clinic-referred children with conduct problems. This may be a useful research endeavour. Thompson (2016) proposed that security in early and concurrent attachment relationships contributes to positive child outcomes.

Measurement of Attachment Relationships in Childhood

The measurement of parent-child attachment relationships during infancy and early childhood (ages 12 to 72 months) is typically based on observations of individual differences in child affect and behaviour in relation to an attachment figure to determine "attachment security" (Solomon & George, 2008, 2016).

The Strange Situation Procedure (SSP; Ainsworth, Blehar, Waters, & Wall, 1978) is a laboratory procedure designed to capture the balance of attachment (safe haven) and

exploratory (secure base) behaviour under conditions of increasing, though moderate, stress

for children between 12 and 20 months (Solomon & George, 2008, 2016). Based on the

infant's behaviour towards a caregiver during two separations and reunions, the SSP

classifies infant-parent attachment relationships into four main groups (Ainsworth et al.,

1978; Main & Solomon, 1990):

1. "secure" (B);

2. "insecure-avoidant" (A);

3. "insecure-ambivalent" (C); and

4. "disorganised/disoriented" (D).

Characteristics of these attachment classifications are discussed in more detail later in

this chapter. The reliability, stability and predictive validity of the SSP is well-established,

and it is the "gold standard" against which all other measures of attachment are compared.

For children of preschool and kindergarten age, the SSP is used with assessment criteria

adjusted to reflect developmental changes in the attachment and exploratory behaviour of

older children (Solomon & George, 2008). The Cassidy-Marvin Assessment of Attachment in

Preschoolers (Cassidy, Marvin, & the MacArthur Attachment Working Group, 1992), the

Main-Cassidy Attachment Classification for Kindergarten-Age Children (Main & Cassidy,

1988), and Crittenden's (1992) Preschool Assessment of Attachment are attachment

classification systems developed for preschool and kindergarten-age children.

Alternatively, the Attachment Q-Set (AQS; E. Waters, 1995) assesses the quality of

12 to 60 month-old children's "secure-base behaviour" in relation to the caregiver in the

home. A trained observer or parent completes 90 items during a two- to six-hour observation

period that produces a continuous score of attachment security for the child. Research shows

that the AQS has moderate to high reliability and adequate validity in discriminating between

children with secure and insecure attachment classifications on the SSP (Solomon & George, 2008, 2016).

As outlined earlier, attachment in middle childhood is associated with a change in the set goal of the attachment system from proximity-seeking to psychological availability of an attachment figure, less intense and frequent attachment behaviour and affect, and greater self-reliance. Assessment of attachment security focuses increasingly on the child's mental representations or internal working models of relationships (Kerns, 2008; Kerns & Brumariu, 2016). Observational measures of parent-child interactions continue to be used in middle childhood (e.g., Emotional Availability Scales [Biringen, 2008], Coding of Attachment-Related Parenting [O'Conner, Matias, Futh, Tantam, & Scott, 2013], and Middle Childhood Disorganisation and Control Scales [Bureau, Easterbrooks, & Lyons-Ruth, 2009]). However, it is increasingly difficult to infer the quality of parent-child attachment relationships in everyday naturalistic settings or laboratory separation-reunion procedures that, ethically, can only elicit moderate stress for the dyad (Kerns, Schlegelmilch, Morgan, & Abraham, 2005). A range of alternative measures using a number of different modalities have been developed to assess the quality of attachment relationships for children between the ages of 4 and 14 years (Kerns et al., 2005). These include standardised child-report questionnaires (e.g., Security Scale [Kerns, Aspelmeier, Gentzler, & Grabill, 2001]) and child interviews to identify attachment figures (e.g., Attachment Figure Interview [Kerns, Tomich, & Kim, 2003]). They also include: narrative discourse techniques based on eliciting child representations of the self and caregiver in the context of separation/stress through story tasks, doll play or narrative interviews (e.g., Separation Anxiety Test (Main et al., 1985), Doll Story Completion Task (Granot & Mayseless, 2001), or Attachment Interview for Childhood and Adolescence (Ammaniti, van IJzendoorn, Speranza, & Tambelli, 2000)), and family drawing tasks (e.g., the Family-Attachment Drawing Task (Fury, Carlson, & Sroufe, 1997)).

Unlike in infancy and early childhood, a dominant theoretical or methodological approach for measuring attachment in middle childhood has not been unequivocally recommended (Madigan, Brumariu, Villani, Atkinson, & Lyons-Ruth, 2015).

Kerns and colleagues (2005, 2016) report that measures of parent-child attachment in middle childhood are challenged by four key factors. These are:

1. limited concurrent and longitudinal research supporting their validity;

2. restricted current understanding of how normative cognitive, emotional and social development in middle childhood affects attachment processes at different ages;

3. uncertainty regarding whether the measures are tapping a child's general or relationship-specific orientation within attachment relationships; and

4. variations in the definition and conceptualisation of attachment at different ages.

The current research, therefore, contributes to the limited literature on attachment processes in middle childhood, and offers further validation of some of these measures. There are several approaches to assessment. These include: parent representations of the child assessed by the Mind-Mindedness Interview (Meins, Fernyhough, Russell, & Clark-Carter, 1998); parenting behaviour assessed from parent self-reports using the Alabama Parenting Questionnaire (Shelton, Frick, & Wootton, 1996); parent-perceptions of their caregiving helplessness measured by the Caregiving Helplessness Questionnaire (George & Solomon, 2011); the quality of observed parent-child interactions coded using the Emotional Availability (EA) Scales, 4th Edition (Biringen, 2008); and child attachment representations using a doll story stem completion task, the MacArthur Story Stem Battery (Bretherton & Oppenheim, 2003), and the Family-Attachment Drawing Task (Fury et al., 1997). A visual representation linking the current study's measures to theoretical aspects of the parent-child relationship is provided in Figure 2. Note: whilst the Alabama Parenting Questionnaire and

the measures of child conduct problems and CU traits are not grounded in attachment theory,

they may assess parent and child behaviour that are affected by attachment-related processes.
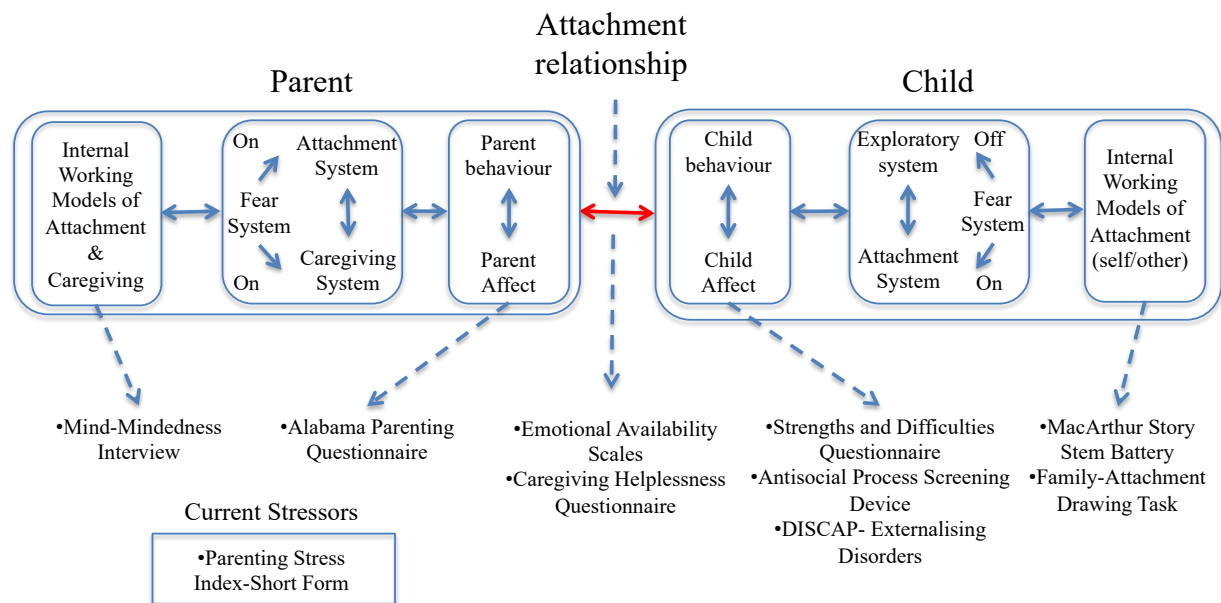
Figure 2. Study measures linked to the theoretical aspects of attachment relationships.

Individual Differences in Attachment

Research has identified individual differences in security within parent-child
attachment relationships (Ainsworth et al., 1978). Individual differences are typically
observed in the balance and organisation of attachment and exploratory behaviour during
child reunions with the parent following brief separations in the SSP (Weinfield et al., 2008).
They are believed to reflect the history of a child's caregiving experiences during stressful
situations. Research classifies four main parent-child attachment patterns, which are outlined
in Table 6 following.

Table 6

Individual Differences in Parent-Child Attachment Relationships

Type*	Parent IWM	Parent behaviour	Child behaviour	Attachment system	Relationship model
Secure (62%)	Secure-autonomous	Warm, responsive, sensitive, accepting, involved, cooperative, emotionally available, bigger and stronger parenting.	Balance between proximity-seeking and exploration; sense of being lovable and worthwhile; open and direct communication of affect and emotional needs.	Synchronised/ regulated	Parent meeting child's emotional needs
Insecure – Ambivalent (9%)	Preoccupied	Inconsistently responsive, under-involved, indulgent, overprotective parenting.	Intense distress and angry protest, passive, immature, clingy/restricted exploration, hypervigilant of caregiver, difficult for parent to soothe.	Hyperactivation	Child meeting parent's emotional needs by avoiding autonomy
Insecure – Avoidant (15%)	Dismissive	Emotionally unresponsive, intrusive, rejecting, controlling or critical parenting.	Detached, emotionally disengaged, focus on exploring objects, self-reliant, non-comforting seeking.	Deactivation	Child meeting parent's emotional needs by avoiding closeness
Disorganised (15%)	Unresolved/ disorganised	Frightened/frightening or hostile/helpless parenting; dissociation or disorientation; withdrawal; affective communication errors.	Fear, rage, confusion, disorientation, freezing or stilling; punitive, contradictory, over bright, incomplete, or rejecting behaviour; stereotypies; controlling coercive or caregiving behaviour.	Incoherent/ Dysregulated	Child experiencing "fright without solution"

* Prevalence according to the meta-analysis by van IJzendoorn et al. (1999); IWM: Internal Working Model.

Studies have shown that secure parent-child attachment relationships are associated with more adaptive social-emotional functioning in children. This includes: cooperative, positive and harmonious relationships with parents; greater peer social competence; less hostile attributions towards others, and closer relationships with teachers; a range of desirable personality characteristics during childhood and adolescence; more competent emotional understanding and self-regulation; improved conscience development; and a more positive self-concept than insecure attachment relationships (Kerns & Brumariu, 2016; Savage, 2014; Thompson, 2016). Chapters 1 and 2 reveal that children with conduct problems are impaired in these developmental areas. Consequently, children with conduct problems and varying levels of CU traits are likely to experience insecure parent-child attachment relationships. The following section provides empirical support for this expectation.

Attachment and Conduct Problems in Childhood

Parent-child attachment is an important contributor to the socialisation of children (Kochanska et al., 2010). Meta-analyses reveal that insecure, and disorganised, parent-child attachment relationships are concurrently related to and predict more severe conduct problems during childhood (small to medium effect sizes), with slightly larger effects found for boys, older children, clinical samples, and studies that use observational measures of attachment (Fearon et al., 2010; Groh, Fearon, van IJzendoorn, Bakermans-Kranenburg, & Roisman, 2017; Madigan et al., 2015; Theule, Germain, Cheung, Hurl, & Markel, 2016). While still modest, the effects are larger and more consistent for disorganised attachment.

The majority of studies have used prospective designs and explored associations among mother-infant attachment relationships and later conduct problems. Some studies show that secure mother-infant attachment predicts less severe conduct problems and supports the development of a conscience in early and middle childhood, with secure

attachment experiences being more influential for temperamentally vulnerable children (e.g., Kochanska, 1995; Kochanska, Aksan, Knaack, & Rhines, 2004), and those from high-risk families (e.g., Lyons-Ruth, Easterbrooks, & Cibelli, 1997; Shaw et al., 1994). There is mixed support for insecure mother-infant attachment (aggregating subtypes) predicting more severe conduct problems during early and middle childhood, with associations more consistent for boys, older children, and high-risk samples (DeKlyen & Greenberg, 2016; Groh et al., 2017; Savage, 2014). When the individual subtypes of insecure attachment are considered, however, meta-analyses and systematic reviews consistently show that disorganised mother-infant attachment relationships predict later conduct problems during childhood (Fearon et al., 2010; Lyons-Ruth, 1996; van IJzendoorn et al., 1999). For example, disorganised mother-infant attachment predicted child conduct problems at 5 years of age (Shaw, Owens, Vondra, Keenan, & Winslow, 1996) and 7 years of age (Lyons-Ruth et al., 1997) in high-risk samples.

Not all children with conduct problems, however, have experienced insecure or disorganised attachment relationships during infancy. This suggests that early attachment insecurity is a risk factor for, rather than a determinant of, later conduct problems in childhood (DeKlyen & Greenberg, 2008). Further, studies show that associations among attachment insecurity in infancy and later conduct problems may be mediated or moderated by the continuing quality of parenting practices (Kochanska et al., 2009; Kochanska, Forman, Aksan, & Dunbar, 2005; Kochanska & Kim, 2012), and/or cumulative socio-contextual risks (Fearon & Belsky, 2011). Based on this evidence, Thompson (2016) proposed that the continuing quality of caregiving, rather than early attachment, may be most important for predicting developmental outcomes for children. This is supported by evidence that attachment patterns are only moderately stable from infancy to later childhood and adolescence and may be unstable when there are changes in life or family circumstances. Some research indicates that *current* rather than early attachment security may be most

directly related to psychopathology and developmental stressors encountered by the child (Madigan et al., 2015). The current study investigates concurrent associations among parent-child attachment relationships and conduct problems in early and middle childhood.

Researchers using attachment classification systems for pre-schoolers have shown that secure attachment is associated with fewer conduct problems in early and middle childhood compared with insecure attachment (e.g., Easterbrooks, Davidson, & Chazan, 1993; Moss, Parent, Gosselin, Rousseau, & St-Laurent, 1996). In addition, disorganised or controlling attachment in early childhood is concurrently (e.g., Greenberg, Speltz, DeKlyen, & Endriga, 1991; Solomon, George, & De Jong, 1995; Speltz, Greenberg, & DeKlyen, 1990) and prospectively (Lyons-Ruth, Alpern, & Repacholi, 1993; Moss, Cyr, & Dubois-Comtois, 2004; Moss, Smolla, et al., 2006) associated with more severe conduct problems in early and middle childhood for both clinical and community samples. The strongest evidence is for clinic-referred samples, maltreated children, greater parent or family risk factors, or when attachment relationships and conduct problems are assessed concurrently (DeKlyen & Greenberg, 2016). However, consistent with the research on attachment assessed in infancy, a number of studies have reported no significant prospective or concurrent associations among disorganised or controlling attachment assessed in pre-schoolers and conduct problems in early childhood (e.g., Booth, Rose-Krasnor, McKinnon, & Rubin, 1994; Speltz, DeKlyen, & Greenberg, 1999).

Relevant to the current study, Willoughby et al. (2014) found that children with conduct problems and high CU traits who also had disorganised mother-child attachment relationships at 3 years of age displayed high and stable teacher-reported conduct problems between first and sixth grade. Children with organised attachments, on the other hand, were at low risk for teacher-reported conduct problems in middle childhood – regardless of the level of their CU traits.

Rather than classifying children categorically based on the quality of their attachment behaviours, the Attachment Q-Set (E. Waters, 1995) derives a continuous score for behaviours indicative of attachment security. This is based on observer or parent ratings. Studies using this measure show that lower security scores are related to more severe conduct problems in pre-schoolers both concurrently (e.g., DeMulder, Denham, Schmidt, & Mitchell, 2000; Moss, Bureau, Cyr, & Dubois-Comtois, 2006) and longitudinally (e.g., McCartney, Owen, Booth, Clarke-Stewart, & Vandell, 2004; Roskam, Meunier, & Stievenart, 2011). Fearon et al. (2010) reported in a meta-analysis that attachment insecurity measured by the Attachment Q-Set (E. Waters, 1995) had the largest effective sizes when predicting child conduct problems of all attachment measures. This raises the possibility that dimensional, rather than categorical measures of attachment may be more sensitive for examining relations with child conduct problems – particularly beyond infancy. These dimensional measures may also have more ecological validity as they are typically based on lengthy observations in the home rather than participation in a laboratory procedure (Pederson & Moran, 1996).

There is limited research investigating associations among attachment and conduct problems in middle childhood (Kerns & Brumariu, 2016). In a meta-analysis of 116 studies incorporating representational and questionnaire measures of attachment, Madigan et al. (2015) reported that insecure and, in particular, disorganised child representations of attachment were significantly associated with current and later conduct problems for 3 to 18-year-old children. For example, using doll story stem completion tasks, Roskam, Meunier, Stievenart, and Noel (2013) found that disorganised attachment representations at 3 to 5 years of age predicted more severe conduct problems two years later in a low-risk community sample. Futh, O'Conner, Matias, Green, and Scott (2008) found that disorganised representations at 6 years of age were concurrently associated with more severe parent- and teacher-reported conduct problems in a high-risk sample. This pattern of findings was

consistent across: clinical and community samples; child age and gender; various attachment measures; use of dimensional or categorical ratings of attachment security; and general or specific disorder measures of psychopathology (DeKlyen & Greenberg, 2016; Madigan et al., 2015).

In relation to the current research, studies show that disorganised child representations of attachment predicted more severe conduct problems and higher CU traits in middle childhood (Bohlin et al., 2012), and children with conduct problems and high CU traits had higher frequencies of insecure and disorganised representations of attachment than those with low CU traits (Pasalich, Dadds, Hawes, et al., 2012). Madigan et al. (2015) and Kerns and Brumariu (2016) noted that very few studies have investigated associations among father-child attachment relationships and conduct problems across childhood, and that validation of attachment measures in middle childhood for fathers is required.

Chapter 3 Summary: The Current Study

The current study will investigate concurrent associations among parenting and parent-child attachment relationships, child conduct problems and CU traits in a sample of children aged between 3 and 9 years. These children have been referred to a child and family mental health service because of conduct problems.

This chapter has argued that attachment theory (Bowlby, 1969/1982) is a relevant framework for understanding conduct problems in children. Measures have been selected to provide a comprehensive appraisal of the quality of parent-child attachment relationships appropriate to early and middle childhood. The review in this chapter shows that insecure and, particularly disorganised, attachment is concurrently associated with and predicts more severe conduct problems and higher CU traits in early and middle childhood. The current study expects that children with conduct problems and varying levels of CU traits will have

problematic parent-child attachment relationships. This is measured by: parent

representations of the child; observations of parent-child interactions; parent-perceptions of

their caregiving, and child representations of attachment.

Chapter 4 will review research supporting the use of each measure with children with

conduct problems and varying levels of CU traits. It will provide the research questions and

hypotheses for the current study.

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Chapter 4: Study Measures

Introduction

The current study explores associations among parenting, parent-child relationships and child conduct problems and CU traits using an attachment framework. This chapter provides the rationale for each of the seven measures to be used in the current study. As outlined in Chapter 3, these measures were selected to assess the central theoretical constructs of attachment theory in relation to conduct problems and CU traits in early and middle childhood. A multi-method approach is taken, involving: parent questionnaires about parenting practices and experiences; parent representations of the child (interview); observation of parent-child interactions; and child representations of attachment. A description of each measure is provided. Research supporting its application to the study of conduct problems and CU traits in childhood is briefly reviewed. Finally, research hypotheses related to the measure are proposed. Together, these measures aim to provide an in-depth understanding of the concurrent parent-child attachment relationships of children with conduct problems and varying severity of CU traits.

Parent Perceptions of Their Caregiving

Three parent-report questionnaires assessed parenting practices and experiences:

1. the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996);

2. the Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011); and

3. the Parenting Stress Index-Fourth Ed.-Short Form (PSI-4-SF; Abidin, 2012).

Parent responses are likely to be influenced by actual relationship experiences, emotions and attributions about their child and relationship, concurrent stress and mental

health, and defensive processes, such as social desirability or denial (Bennetts, Mensah, Westrupp, Hackworth, & Reilly, 2016). An extensive literature shows that parent attributions about their child and their relationship are bidirectionally related to child conduct problems (e.g., Snyder, Cramer, Afrank, & Patterson, 2005). Therefore, parent-report questionnaires are not only likely to reflect actual parenting experiences, but also be influenced by parent representations of the child and by factors limiting their reflective capacity.

Parenting practices. The APQ was chosen to assess parenting because it was developed to measure five parenting constructs that were consistently associated with conduct problems in childhood and adolescence, but difficult to assess by alternative methods. These constructs or practices include: positive parenting; involvement; inconsistent discipline; corporal punishment; and poor monitoring and supervision (Shelton et al., 1996).

These parenting practices have their theoretical foundations in pillar theory (Baumrind, 1967), the circumplex model (Schaefer, 1959), and coercion theory (Patterson, 1982). They focus on appropriate parental control. While not directly addressed in attachment theory (Bowlby, 1969/1982), Bowlby (1969/1982) proposed that dysfunctional parenting practices may be a manifestation of an impaired caregiving system that has developed through reciprocal and recurring interactions with problematic child behaviour, guided by the parent's representation of the child and their relationship. Further, common applications of attachment theory (e.g., Circle of Security Parenting intervention) acknowledge the importance of the parent "taking charge" when necessary. The current study intended to explore whether parent perceptions of their parenting practices were related to child conduct problems and CU traits, and how these subjective experiences compared to measures of the parent-child attachment relationship described elsewhere in this chapter.

As reviewed in Chapter 2, the APQ has been used extensively to explore associations among parenting practices and child conduct problems and CU traits. Most studies have shown meaningful associations. A few of these studies have derived composite scores (positive and negative parenting, respectively) and have shown that dysfunctional parenting has been concurrently and prospectively associated with more severe conduct problems and higher CU traits (Frick, Kimonis, et al., 2003; Loney, Huntenburg, et al., 2007; Masi et al., 2018; Muratori, Lochman, Lai, et al., 2016). Two studies in early childhood (Dadds, Allen, et al., 2014; Dadds, Allen, et al., 2012) and four in middle childhood (Crum et al., 2015; Falk & Lee, 2012; Fanti & Centifanti, 2014; Wootton et al., 1997) have investigated whether CU traits moderated associations among parenting practices measured by the APQ and child conduct problems, with mixed findings described in Chapter 2. Only one study has reported associations among parenting practices measured by the APQ and child CU traits for mothers and fathers separately (Mendoza-Diaz et al., 2018). The current study, therefore, aims to extend existing research in this regard.

Based on this research, the current study expected that mother and father reports of fewer positive parenting practices and more negative parenting practices (composite variables) would be related to higher child CU traits and more severe conduct problems.

Caregiving helplessness. As noted above, the theoretical framework underlying the APQ focuses on appropriate parental control, and challenges with taking charge or maintaining control are at the heart of effective parenting. It has been suggested that parents of children with conduct problems and high or low CU traits may have a disabled/dysfunctional caregiving system beyond the negative caregiving identified by the APQ. Parents with a disabled caregiving system "seem to have abdicated psychologically the caregiving role" and are unable "to maintain control and provide protection" (George & Solomon, 2008, p. 192). Researchers from an attachment theory perspective have proposed

that these parents experience "segregated attachment-related fear" (George & Solomon, 2011, p. 136), which may be attributable to an unresolved state of mind regarding past and present abuse, neglect or loss. The parent may feel overwhelmed by feelings of fear, anger and a sense of inadequacy during interactions with their child that may manifest in disorganised (dysregulated or constricted) caregiving behaviour (George & Solomon, 2008, 2011). Dysregulated-disorganised caregiving is characterised by hostile or helpless parenting practices and perceptions of the child as evil or uncontrollable. Whereas, constricted-disorganised caregiving encourages a child to care for an overwhelmed parent and portrays the child as angelic, an extension of the parent, and capable of caring for themselves and others in a protective manner (George & Solomon, 2011). A caregiving dynamic characterised by power imbalances, role-reversal and fear (in the parent and/or the child) has been described in the context of disorganised attachment relationships (Lyons-Ruth & Jacobvitz, 2008).

Given an emerging body of evidence that frightened or frightening caregiving may contribute to the development of CU traits and conduct problems in childhood, the current study used the Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011) to screen for parent representations suggestive of disorganised caregiving along three dimensions. These were:

1. parent helplessness;

2. frightened or frightening caregiving; and

3. child caregiving, whereby the child appears to be taking charge.

Parent helplessness and frightened or frightening caregiving assessed with the CHQ have been associated with prior trauma, maternal depression, parenting stress, stressful attachment-related events, and perceptions of infant social-emotional problems. There is less

evidence regarding correlates of child caregiving, to date associated only with more

symptoms of maternal depression, infant social-emotional problems, and parenting stress

(George & Solomon, 2011; Huth-Bocks, Guyon-Harris, Calvert, Scott, & Ahlfs-Dunn, 2016;

Toscano, Baptista, Mesquita, George, & Soares, 2018).

Few studies have investigated associations between "caregiving helplessness" and

child conduct problems. The current study seeks to address this gap. In a small community

sample of mothers with 3 to 11-year-old children (n = 59), George and Solomon (2011)

found that parent reports of helplessness and frightened or frightening caregiving, but not the

child caregiving, were associated with more severe child conduct problems. In a longitudinal

study using a community sample, Lecompte and Moss (2014) found that 5 to 6-year-old

children with the controlling-punitive variant of disorganised attachment had caregivers who

reported high scores for caregiving helplessness. Further, these children were most at risk of

self-reported conduct problems at 13 years of age, with caregiving helplessness partially

mediating the association. Linde-Krieger and Yates (2018) found that mothers' caregiving

helplessness at 6 years of age related to more severe conduct problems at 8 years of age in a

large, high-risk community sample. Caregiving helplessness mediated the association

between mothers' history of childhood trauma and more severe child conduct problems from

ages 4 to 8 years of age for girls, but not boys. Finally, Toscano et al. (2018) found that

caregiving helplessness, frightened or frightening caregiving, and child caregiving that

involved children cheering up their mothers were associated with more severe conduct

problems in a large community sample of Portuguese mothers and their preschool-age

children.

Most relevant to the current investigation, a recent study using a large community

sample found that parents of children with conduct problems and high CU traits reported the

highest levels of parent helplessness and frightened or frightening caregiving (Willoughby et

al., 2015). Further, Elizur, Somech and colleagues (2012; 2017; 2018) found that an

"ineffective parenting" composite variable, which included parent feelings of helplessness,

mediated improvements in child conduct problems and CU traits following a parent training

intervention.

The current study expected that parent helplessness and frightened or frightening

caregiving would be associated with CU traits and conduct problems in children. The study

expected, however, that parents of children with high CU traits would not report child

caregiving (child looking after the parent).

Parenting stress. Parenting stress is a universal experience. It arises when

perceived demands of being a parent exceed the expected and actual resources available

(Deater-Deckard, 1998). This mismatch produces disagreeable psychological reactions

towards the self, the child and the parent-child relationship – directly attributable to the

demands of parenthood (Deater-Deckard, 1998). An influential model developed by Abidin

(1992) conceptualises parenting stress as resulting from certain salient parent characteristics,

(e.g., depression, sense of competence, role restrictions) and child characteristics (e.g.,

adaptability, demandingness, hyperactivity). When these are combined with other life stresses

(e.g., bereavement, unemployment), there is an increased level of risk for dysfunctional

parent-child interactions, insecure attachment, and child maltreatment (e.g., Crnic, Gaze, &

Hoffman, 2005; Guterman, Lee, Taylor, & Rathouz, 2009).

Research with clinical and community samples shows that greater parenting stress is

associated with more severe child conduct problems in early and middle childhood (e.g.,

Barroso, Mendez, Graziano, & Bagner, 2018; Barry, Dunlap, Cotten, Lochman, & Wells,

2005; Bender & Carlson, 2013; Dubois-Comtois, Moss, Cyr, & Pascuzzo, 2013; Podolski &

Nigg, 2001), and that child conduct problems also predict the development and maintenance

of high parenting stress across time (Neece, Green, & Baker, 2012; Williford, Calkins, &

Keane, 2007). Some studies have found equivalent parenting stress for mothers and fathers,

whereas others suggest that mothers generally report more parenting stress than fathers (for a

review, see Morgan, Robinson, & Aldridge, 2002).

Six studies have examined parenting stress in children with conduct problems and

high or low CU traits. In a representative sample of 7 to 12-year-old children followed over

12 months, Fanti and Centifanti (2014) reported higher parenting distress for parents of

children with high rather than low CU traits. The study also found that parenting distress

predicted more severe conduct problems for children with low, but not high, CU traits, and

more severe conduct problems predicted higher parenting distress for children with high, but

not low, CU traits. Using the Parenting Stress Index (PSI), Fite et al. (2008) found that

parents who reported less emotional closeness in their relationship with their child, a

component of parenting stress, also reported higher child CU traits. In a longitudinal study of

9-year-old children followed over three years, Fanti, Colins, et al. (2017) found that mothers

and fathers of children with high and stable CU traits reported more parenting distress than

those of children with increasing, decreasing or low trajectories of CU traits. Across three

treatment outcomes studies, Elizur, Somech and colleagues (2012; 2017; 2018) found that

reductions in child conduct problems and CU traits following a parent training intervention

were mediated by improvements in an ineffective parenting composite variable, which

included parenting distress. According to this evidence, the current study hypothesised that

mother and father reports of more parenting stress would be associated with both higher CU

traits and more severe conduct problems in children.

Parent Representations of the Child

As described in Chapter 3, research from an attachment perspective (Ainsworth, 1967; Bowlby, 1969/1982) highlights the importance of parents' mental representations of the child and themselves as caregiver (George & Solomon, 2008) in contributing to the quality of their parent-child relationship (for a meta-analysis, see Zeegers, Colonnesi, Stams, & Meins, 2017). One approach to assessing these representations is mind-mindedness. This is defined as parents' propensity to view their child as a mental agent with their own thoughts, feelings and desires (Meins, 1999). There are two approaches to assessing the construct.

First, an "on-line" measure is used with infants (generally under 2 years). It captures parents' use of appropriate mental state words with the child during live interaction. There is a large body of research evidence showing that parents who express more appropriate mental state words demonstrate more sensitive parenting, and their children are more likely to be securely attached and show better social-cognitive development, particularly theory of mind (for a review, see C. A. McMahon & Bernier, 2017).

Second, in children beyond infancy (generally preschool-aged), mind-mindedness is assessed as parents' tendency to spontaneously focus on mental states, rather than behavioural or physical characteristics when given an open-ended invitation to describe their child (Meins et al., 1998). In contrast to the observational measure of mind-mindedness, there is limited evidence linking mind-mindedness elicited through parent descriptions of their child with child social-emotional development and aspects of parent-child relationships (C. A. McMahon & Bernier, 2017). Further, only two studies to date have examined parental mind-mindedness for children over 5 years of age (Hughes, Aldercotte, & Foley, 2017; Illingworth, MacLean, & Wiggs, 2016).

There is some evidence to support associations with parenting and parenting stress. Parents who use more mental descriptors have been shown to have more securely attached children, report lower parenting stress, and display less hostility, higher interactional attunement and more sensitivity during observed parent-child interactions (Farrow & Blissett, 2014; Lundy, 2013; C. A. McMahon & Meins, 2012; Meins et al., 1998). Demers, Bernier, Tarabulsy, and Provost (2010a), however, found no significant association between mothers' propensity to provide mental descriptors of their child and sensitive caregiving in a community sample of toddlers. Unexpectedly, Bernier and Dozier (2003) found that mothers' use of more mental descriptors with foster children (infants) were associated with lower attachment security in the SSP. Some studies have shown associations between parents' mind-related descriptors of their child and more advanced theory of mind (Hughes, Devine, & Wang, 2018; Meins & Fernyhough, 1999; Schacht, Hammond, Marks, Wood, & Conroy, 2013). However, Meins et al. (2003) and Dore and Lillard (2014) found no such association. In one of the few studies to include fathers, Lundy (2013) found that higher paternal mind-mindedness was directly associated with more advanced theory of mind in preschool-age children, whereas higher attunement mediated the relationship between mind-mindedness and theory of mind for mothers.

With respect to mind-mindedness and child behaviour, evidence is limited. There is some evidence that higher mind-mindedness coded from *observed* parent-child interactions during infancy is prospectively related to less severe child conduct problems. Meins, Centifanti, Fernyhough, and Fishburn (2013) found that observed mind-mindedness in infancy predicted fewer conduct problems at 44 and 61 months, but only in families from low socio-economic backgrounds. Among adolescent mothers with a trauma history, higher mind-mindedness during interactions with their infants predicted fewer child conduct problems 12 months later. But this was only for mothers who did not meet full diagnostic

criteria for post-traumatic stress disorder (Easterbrooks, Crossman, Caruso, Raskin, & Miranda-Julian, 2017). Camisasca, Miragoli, Ionio, Milani, and Di Blasio (2018) reported that more appropriate maternal mind-mindedness during an observed parent-child interaction at 17 months was concurrently associated with less severe parent-reported conduct problems. In a recent study, Colonnesi, Zeegers, Majdandžić, van Steensel, and Bögels (2019) investigated whether mothers' and father's use of appropriate and non-attuned minded-related comments during parent-child interactions at 4, 12 and 30 months of age predicted child behaviour problems at 4.5 years of age. The study found that only when mothers and fathers *both* showed low proportions of appropriate mind-related comments at 30 months of age did they rate their children with more severe conduct problems at 4.5 years of age. Further, mother and father non-attuned mind-related comments at 12 months and 30 months of age, respectively, predicted more severe conduct problems at 4.5 years of age.

One prospective study has examined the association between parental mind-mindedness (as observed during the first year of life) and CU traits in 10-year-old children. Centifanti et al. (2016) found an indirect association: appropriate maternal mind-related comments at 8 months of age predicted lower CU traits at 10 years of age via more advanced emotional understanding when children were 4 years of age. This indirect pathway remained significant even when controlling for conduct problems.

Evidence using the interview approach to explore associations among mind-mindedness and child conduct problems is equivocal, however. Controlling for conduct problems at 6 years of age and various family risk factors, Hughes et al. (2017) found that mothers using fewer mind-related descriptors of their 12-year-old children had children with more severe conduct problems, but only in the context of family adversity. In three high-risk samples of adoptive and biological parents with children between 2 and 16 years of age, Fishburn et al. (2017) found that parents' use of more mental descriptors were related to

fewer parent-reported conduct problems. Walker, Wheatcroft, and Camic (2012), on the other hand, found no significant associations between parental mind-mindedness (mind-related descriptors) and behavioural difficulties in a small clinical sample of 3 to 5-year-old children, but a significant negative association between parental mind-mindedness and conduct problems in a community control group. More research is required to explore the utility of the representational measure of parent mind-mindedness with older children, particularly in the context of child behavioural adjustment.

Some researchers have highlighted the importance of the *valence* of parents' mind-related descriptions and noted that using mind-related descriptors such as "wilful" or "manipulative" may not index positive development, and that it may be an important consideration in high-risk samples. Negative parental attributions about a child are concurrently associated with more severe conduct problems in early and middle childhood (e.g., Nelson, O'Brien, Calkins, & Keane, 2013; Nix et al., 1999; Williamson & Johnston, 2015). While few studies have considered the valence of mind-related descriptors, there is some evidence that only positive mind-related descriptors are associated with higher maternal sensitivity, lower hostility, and lower parenting stress, at least in high-risk samples including adolescent mothers and those with high rates of postnatal depression (Demers et al., 2010a; C. A. McMahon & Meins, 2012), and that negative mind-related comments are associated with lower maternal sensitivity in adolescent mothers (Demers, Bernier, Tarabulsy, & Provost, 2010b) and were more common in a clinical sample (Walker et al., 2012).

Hughes and colleagues (2017) found that more positive mind-related descriptors from mothers were significantly related to fewer conduct problems for 12-year-old children, although this effect became non-significant when controlling for family risk factors, earlier conduct problems, and overall mind-mindedness. Research using five-minute speech samples coded for expressed emotion (for a review, see Sher-Censor, 2015) indicate that, when

compared with control group mothers, mothers of children with conduct problems express more critical comments, fewer positive comments and less warmth toward their children (e.g., Caspi et al., 2004; Han & Shaffer, 2014; Sher-Censor & Yates, 2015). In a sample of 7 to 19-year-old children in a high-risk sample, O'Connor et al. (2016) reported that parents' less positive and more negative comments about their child during a five-minute speech sample were concurrently associated with higher CU traits. Also using speech samples, lower expressed parental warmth has been shown to predict higher CU traits (Waller et al., 2014), and is concurrently associated with more severe conduct problems in children with high CU traits (Pasalich et al., 2011; Waller, Gardner, et al., 2015). This research suggests that fewer positive and more negative mind-related descriptors may be associated with higher CU traits and more severe conduct problems in children.

Research examining the differences between mother's and father's mind-mindedness is very limited. The available evidence shows both concordance and differences between partners (Arnott & Meins, 2007; Colonnesi et al., 2019; Lundy, 2003, 2013; Lundy & Fyfe, 2016). Gagné, Bernier, and McMahon (2018) found that higher father mind-mindedness at 18 months of age (observed) was related to higher child inhibitory control, but did not predict mother-reported rule-compatible conduct, at 3 years of age. This capacity for behavioural inhibition could be protective against the development of conduct problems during childhood.

The current study aimed to examine associations among mothers' and fathers' mind-mindedness and the severity of conduct problems and CU traits in 3 to 9-year-old children diagnosed with ODD and/or CD using the Mind-Mindedness Interview (single question; Meins et al., 1998). It was expected that lower parental mind-mindedness, and fewer positive and more negative mental descriptors of children, would be related to more severe conduct problems and higher CU traits.

Observations of Parent-Child Interactions

Observational measures are the preferred methodology for studying parent-child interactions in childhood (Hawes & Dadds, 2006). These offer a window into parenting behaviours and actual relationship dynamics occurring within a family that is likely to be more objective than parent reports, and less influenced by social desirability, parenting stress and other contextual variables. Research shows only moderate concordance between parent reports and observations of the parent-child relationship (Hawes & Dadds, 2006), suggesting that different reporters and methodologies offer distinct perspectives on parent-child relationships.

The current study used the Emotional Availability (EA) Scales (Biringen, 2008) to assess the affective quality of interactions between children and their parents during an observation involving semi-structured and structured tasks (Biringen, 2000; Biringen & Robinson, 1991). The EA Scales integrate constructs from attachment (Ainsworth et al., 1978), psychoanalytic (Emde, 1980; Mahler, Pine, & Bergman, 1975) and systems (Sameroff, 2009) perspectives on the parent-child relationship. Emotional availability is assessed according to four caregiver (sensitivity, structuring, non-intrusiveness and non-hostility) and two child (responsiveness and involvement) dimensions, which are mutually influential during interactions. The EA Scales are validated for children between 0 and 14 years of age, and have been applied across interactional tasks, such as structured and semi-structured play, feeding, and separation-reunion (for a review, see Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014). While validated across a broad age-range, most research using the EA Scales has been conducted with mother-infant dyads (less than two years of age), with limited research conducted with school-age children (Easterbrooks, Biesecker, & Lyons-Ruth, 2000; Easterbrooks, Bureau, & Lyons-Ruth, 2012).

Research shows that the dimensions of the EA Scales are predictive of security within parent-infant attachment relationships using the SSP and the Attachment Q-Set across a range of caregiving contexts, parent and family risk factors, child ages, and cultures (for reviews, see Biringen et al., 2014; Easterbrooks & Biringen, 2000). They are also associated with parents' representations of attachment (Biringen et al., 2014), including an association between higher maternal EA and parents' having more optimal mental state representations of their child assessed with the representational measure of mind-mindedness (Licata et al., 2014; Lok & McMahon, 2006).

Relevant to the current study, insecure, and particularly disorganised, mother-infant attachment is concurrently associated with and predicts insensitive, intrusive or hostile maternal behaviour, and unresponsive and uninvolving child behaviour using the EA Scales (e.g., Easterbrooks et al., 2000; Koren-Karie, Oppenheim, Dolev, & Yirmiya, 2009; Swanson, Beckwith, & Howard, 2000; Ziv, Aviezer, Gini, Sagi, & Koren-Karie, 2000). In the only study to examine attachment in older children, Easterbrooks et al. (2012) found that maternal insensitivity, hostility and passive/withdrawn (problematic non-intrusive) behaviour was concurrently related to disorganised and controlling attachment at 7 years of age during a five minute reunion, following an hour long separation.

The EA scales are also related to children's social, cognitive and emotional development. Studies show that higher mother and child EA are associated with better emotion regulation in infants and preschool-age children (Kertes et al., 2009; Little & Carter, 2005; Martins, Soares, Martins, Tereno, & Osório, 2012), early language abilities (G. E. McMahon et al., 2019; Moreno, Klute, & Robinson, 2008), improved social information processing and social competence at preschool (Howes & Hong, 2008; Licata et al., 2014; Ziv, Umphlet, Olarte, & Venza, 2018), and advanced empathy (Moreno et al., 2008). Research also shows that lower maternal EA is related to higher parenting stress (Dolev,

Oppenheim, Koren-Karie, & Yirmiya, 2009; Stack et al., 2012) and various risk factors for

parents (e.g., Bödeker et al., 2019; Wurster, Sarche, Trucksess, Morse, & Biringen, 2019).

A few studies show that maternal and child EA measured in infancy (Carter, Garrity-

Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001; G. E. McMahon et al., 2019) and

early childhood (Biringen, Damon, et al., 2005; Biringen, Skillern, Mone, & Pianta, 2005;

Vando, Rhule-Louie, McMahon, & Spieker, 2008) predicts the later development of child

conduct problems. For example, Biringen, Skillern, et al. (2005) found that maternal

sensitivity and a composite score involving the remaining maternal and child EA dimensions

assessed at 4 years of age predicted lower levels of observed aggression and/or victimisation,

as well as teacher-reported conduct problems, both during the transition to, and at the

completion of, kindergarten. Studies have also shown that maternal and child EA are

concurrently associated with child conduct problems in early (Harden et al., 2017; Lehman,

Steier, Guidash, & Wanna, 2002; Yoo, Popp, & Robinson, 2014; Ziv, Kupermintz, &

Aviezer, 2016) and middle (Benton, Coatsworth, & Biringen, 2019; Dittrich et al., 2017;

Easterbrooks et al., 2012) childhood. Easterbrooks et al. (2012) found that maternal

intrusiveness, but not sensitivity or non-hostility, was concurrently associated with higher

teacher-reported conduct problems at 7 years of age in a high-risk sample. Several studies

show that EA buffers the development of conduct problems for vulnerable children (Bödeker

et al., 2019; Kluczniok et al., 2018; Pinchover & Shulman, 2018; Wurster et al., 2019). For

example, in a sample of 5 to 12-year-old children and their mothers who were diagnosed with

borderline personality disorder or remitted major depressive disorder, Kluczniok et al. (2018)

found that maternal hostility, but not sensitivity, mediated the association between maternal

borderline personality disorder and child conduct problems. In the only study to involve

fathers, Berkel et al. (2015) found that preschool-age children shared more with their younger

siblings and were more compliant when their fathers (not mothers) showed more sensitivity towards them and lower sensitivity towards their younger siblings.

Finally, two treatment outcome studies have shown that both parent and child EA and child conduct problems improved following interventions (Baker, Biringen, Meyer-Parsons, & Schneider, 2015; Timmer et al., 2011). For example, Baker et al. (2015) found that an EA intervention aimed at improving emotional availability and child behaviour problems for adoptive parents of children between the ages of 1.5 and 5 years produced significant improvements in child behaviour problems, parent and child EA, and attachment security when compared with a waitlist comparison group.

In summary, this review reveals a growing but limited body of research that has explored associations among parent and child EA and child conduct problems, with results most consistent for children from higher risk family environments. The individual dimensions of maternal and child EA are inconsistently associated with conduct problems across this research, suggesting sample characteristics and study design may influence the results. The majority of this research to date has been conducted in early childhood. Only a single study has included fathers. No previous studies have reported on clinic-referred samples of children with diagnosed conduct problems.

The current study will investigate both mother and father EA and use a sample that includes older children and those with diagnosed conduct problems. A further gap is the applicability of the EA construct in the context of child CU traits. This relationship measure seems particularly appropriate given the explicit focus on congruent dyadic affective displays. Research shows that impaired emotional recognition and responsiveness, and emotionally disconnected relationships, are a key feature of children with conduct problems and high CU traits.

The EA Scales have not previously been applied to the study of CU traits in the context of childhood conduct problems. However, research outlined in Chapter 2 shows that various aspects of parent-child relationships theoretically aligned with maternal and child EA dimensions are associated with child conduct problems and CU traits. As an example, Wright et al. (2018) used a coding system that assessed several constructs analogous to the parent EA dimensions and found that lower observed maternal sensitivity, higher intrusiveness and less positive regard towards the infant at 29 weeks predicted higher child CU traits and conduct problems from the ages of 2.5 to 5 years.

Parent sensitivity is central to the EA construct. Several studies have reported that higher maternal sensitivity observed in infancy predicted lower CU traits and fewer conduct problems in early (Bedford et al., 2015; Mills-Koonce et al., 2016; Wagner et al., 2015) and middle childhood (Wagner et al., 2017). For example, Wagner et al. (2015) found that less sensitive parenting at 24, 36 and 58 months of age predicted more severe child conduct problems and higher CU traits at 6 years of age, when controlling for early levels of child conduct problems and CU traits. Studies also show that lower parental sensitivity observed during early childhood (Beaver, Hartman, & Belsky, 2015) or across childhood and early adolescence (K. A. Buck, 2015) predicted more severe conduct problems and higher CU traits in adolescence.

Three studies, however, have found no direct associations among sensitive parenting measured in infancy and child CU traits in early and middle childhood (Bedford et al., 2017; Centifanti et al., 2016; Willoughby et al., 2013). Bedford et al. (2017) found a conditional association: lower mother-directed gaze at 6 months of age was related to higher child CU traits at 7 years of age, but only for those experiencing low maternal sensitivity. These studies may have been limited by using mother-only samples, assessing parent sensitivity only

during infancy, the recruitment of low-risk community samples, and low alpha coefficients

for the CU traits measures used in two of the three studies.

Parental affect directed towards the child is central to the rating of sensitivity in the

EA system. This differs from many sensitivity measures that focus more on contingent

responsiveness to child cues, with no explicit reference to affect (Mesman et al., 2018).

Research shows that lower observed parental warmth (e.g., Waller et al., 2014; Waller et al.,

2018) and more parent-reported negative affect (e.g., Fontaine et al., 2011; Humayun et al.,

2014) were concurrently associated with and predicted child CU traits and conduct problems

in early and middle childhood. Parent acceptance of the child, defined as speaking or acting

in respectful ways, is also noted as important in the rating of sensitive caregiving using the

EA Scales. Research indicates that children with conduct problems and high CU traits have

mothers who report less acceptance of their child's emotional experience and expression

(Pasalich, Waschbusch, et al., 2014), and are more likely to have mother-child interactions

that are both dismissing of emotion (Pasalich, Waschbusch, et al., 2014) and, yet, contain

more frequent expressions of sadness and fear by the child, and fear by the mother, during

conversation (Pasalich, Dadds, Vincent, et al., 2012).

Research also suggests that the negative indicators, hostility and intrusiveness, may be

related to more severe conduct problems and higher CU traits in childhood. Three studies

have shown that observations of harsh-intrusive parenting were related to higher child CU

traits and conduct problems in early (Mills-Koonce et al., 2016; Willoughby et al., 2013) and

middle (Wagner et al., 2017) childhood. There is also a large body of evidence showing that

observed harsh parenting (Wagner et al., 2016; Waller et al., 2012; but see, Waller, Shaw, &

Hyde, 2017) and parent-reported hostile (Loney, Huntenburg, et al., 2007), aggressive (R.

McDonald et al., 2011) and punitive (e.g., Dadds, Allen, et al., 2012; Trentacosta et al., 2018)

parenting were related to more severe conduct problems and higher CU traits both concurrently and prospectively during childhood.

Chapter 2 reviewed research that showed that parents of children with conduct problems and high CU traits reported more experiences of helplessness (Willoughby et al., 2015), distress in their parenting role (Fanti & Centifanti, 2014) and inconsistent (B. A. Robinson et al., 2016) and ineffective (e.g., Viding et al., 2009) limit-setting. This suggests that these parents may also present as low on the structuring dimension of EA.

Chapter 1 presented a diagnostic description of children with conduct problems as aggressive, argumentative, uncooperative, and angry or irritable in their family relationships. Among these children, those with high CU traits showed even less warmth, more impairment in their affective responses to their own and other's distress, less concern about the feelings of others, more insensitivity to discipline, meanness, and more antisocial values and goals in their social interactions. These characteristics suggest that children with conduct problems and high CU traits may, therefore, be low on the EA dimensions of responsiveness and involvement during interactions with their parents.

There is some available evidence to support this expectation. Chapter 2 reviewed evidence that showed children with conduct problems and high CU traits exhibited less physical and verbal affection and lower eye contact towards their parents (Dadds, Allen, et al., 2014; Dadds, Allen, et al., 2012), had more emotionally distant parent-child relationships (Fite et al., 2008), and exhibited more emotional disengagement than other children when viewing an attachment-provoking scene from a movie (Dadds et al., 2016).

As demonstrated, the EA Scales have been extensively linked to security within parent-child attachment relationships. Chapter 3 reported that children with more severe conduct problems and higher CU traits were more likely to experience more insecure, and

particularly disorganised, attachment relationships (e.g., Pasalich, Dadds, Hawes, et al.,

2012). Consequently, the current study predicted that lower parent (mothers and fathers) and

child EA would be associated with more severe conduct problems and higher CU traits in

early and middle childhood.

Child Representations of Attachment

The current research offers a focus on the child's contribution to the parent-child

relationship in the context of clinically significant disruptive behaviour disorders. As

described in Chapter 3, attachment theory (Bowlby, 1969/1982) proposes that early

attachment-related experiences with parents inform and organise cognitive-affective-

sensorimotor schema, referred to as "mental representations" or "internal working models of

relationships". Internal working models of relationships are used to anticipate, appraise and

guide future attachment and exploratory behaviour, and regulate affect, in relationship with

other people (Bretherton & Munholland, 2008, 2016).

At first immature, internal working models become more sophisticated and complex

in parallel with the child's emerging language, cognitive and social abilities and integration

of new attachment-related experiences (Kerns & Brumariu, 2016). They are relationship-

specific; however, from middle childhood, they also show integration and generalisation

across different attachment relationships to form a more generalised attachment style

(Bretherton & Munholland, 2016). Internal working models become important for attaining

the new set goal of the attachment system in middle childhood, namely the capacity to draw

on the psychological, rather than physical availability of the caregiver in times of stress

(Kerns & Brumariu, 2016). Since typical parent-child interactional patterns are mutually

reinforcing, internal working models become increasingly stable over time (Bretherton &

Munholland, 2016). In this way, internal working models become a "property of the child

himself" (p. 129, Bowlby, 1988), and are applied without conscious awareness to new relationships in new situations. Consequently, children's internal working models offer insight into their internalised experiences within the family, and how they are likely to interpret their sense of self, others, and self with others in future interactions (Schechter, Zygmunt, Coates, et al., 2007). Since internal working models are presumed to influence and regulate children's emotions and behaviour, they may also provide a basis for understanding the development of psychopathology during childhood (Bowlby, 1988). The current study has a particular interest in the internal working models of children with conduct problems and CU traits.

The content and organisation of children's internal working models have been assessed using a variety of representational measures, including the analysis of family drawings (Fury et al., 1997; Main et al., 1985) and narrative discourse techniques (Kerns et al., 2005; Solomon & George, 2016). As described in Chapter 3, projective narrative discourse techniques encompass open-ended interviews and doll play narratives that allow the researcher to gain access to young children's thoughts and feelings regarding emotionally significant relationships. The current study uses doll play narratives and family drawings to access children's internal working models of self and others, in order to explore how these representations relate to the severity of their conduct problems and CU traits.

Doll play narrative techniques. These require children to complete stories initiated by an interviewer that involve a social-emotional dilemma. This goes some way to address a key challenge of assessment of attachment in middle childhood: the activation of the attachment system, unlikely to be achieved by brief separations from parents. It is believed that children reveal their generalised internal working models of self and others, as well as their ability to regulate emotions, in their play (Warren, Oppenheim, & Emde, 1996) and through story telling (Kerns et al., 2005; Laible, Carlo, Torquati, & Ontai, 2004). Most

children develop the capacity to enact and tell simple narratives from 3 years of age (Gloger-

Tippelt, Gomille, Koenig, & Vetter, 2002; Oppenheim, Emde, Hasson, & Warren, 1997). A

range of doll play narrative protocols have been developed, including: the Attachment Story

Completion Task (ASCT; Bretherton, Oppenheim, Buchsbaum, Emde, & the MacArthur

Transition Network Narrative Group, 1990); Attachment Doll Play Assessment (George &

Solomon, 1990, 1996, 2000); Manchester Child Attachment Story Task (Goldwyn, Stanley,

Smith, & Green, 2000); Attachment Doll-Play Interview (ADPI; Oppenheim, 1997); and

Story Completion Procedure in Doll Play (Gloger-Tippelt et al., 2002). All are similar in

approach and the current research project investigates children's internal working models of

attachment using the MacArthur Story Stem Battery (MSSB; Bretherton, Oppenheim, et al.,

1990) – derived from the ASCT and ADPI doll play narrative techniques (Bretherton &

Oppenheim, 2003).

The MacArthur Story Stem Battery. The MacArthur Story Stem Battery (MSSB;

Bretherton, Oppenheim, et al., 1990) was designed for children between 3 and 8 years of age.

The original version comprised 15 story stems with social-emotional dilemmas involving

family relationships (parent-child attachment, triadic family relations, and parent-child,

couple and peer conflict), moral rules and emotions, and competence (Bretherton &

Oppenheim, 2003). Studies have used all or a selection of the MSSB story stems and,

occasionally, added new stems to address specific research aims.

The MacArthur Narrative Coding System is used in the current project (J. Robinson et

al., 2007). This system assesses child narratives for their content related to: self and

attachment figures (i.e., negative or positive); emotions (e.g., danger, reaction to separation,

negative or positive endings to stories); and performance (i.e., narrative coherence, expressed

emotions, presentation style, use of avoidant or dissociative strategies).

A substantial literature indicates that the MSSB and its forerunner, the ASCT, are able to elicit information from the child that is related to attachment security – as measured by the Strange Situation Procedure (SSP) (e.g., Gloger-Tippelt et al., 2002; Moss, Bureau, Beliveau, Zdebik, & Lepine, 2009) or Attachment Q-Set (e.g., Smeekens, Riksen-Walraven, & Van Bakel, 2009; Wong et al., 2011). Research reveals that children with secure attachments hold positive representations of themselves and others, are more coherent, and resolve emotional conflicts in their story telling. Conversely, insecurely attached children tend to represent themselves more negatively (e.g., aggressive, rejecting, and/or helpless), are more incoherent in their storytelling style, and provide negative endings to stories (Bretherton, Ridgeway, & Cassidy, 1990; Cassidy, 1988; Moss et al., 2009; Solomon et al., 1995). Child representations have also been associated with parent representations of attachment on the Adult Attachment Interview (Miljkovitch, Pierrehumbert, Bretherton, & Halfon, 2004; Steele et al., 2003), the quality of parenting practices experienced (for a review, see Bettmann & Lundahl, 2007), and parenting risk factors (e.g., depression, couple conflict, trauma and stress; Coe et al., 2017; Schechter, Zygmunt, Trabka, et al., 2007; Trapolini, Ungerer, & McMahon, 2007; Yoo et al., 2014).

Research has demonstrated associations among children's representations using the MSSB and ASCT and their psychiatric symptoms, including conduct problems, in community and clinical samples (for reviews, see J. Robinson, 2007; Warren, 2003; Yuval-Adler & Oppenheim, 2014). Studies show that children's more disturbed representations of their parents and themselves, expression of distress, and more incoherent performance during doll play narratives are related to more severe conduct problems and lower prosocial behaviour, both concurrently (e.g., Hill, Fonagy, Lancaster, & Broyden, 2007; Stadelmann, Perren, von Wyl, & von Klitzing, 2007; Warren et al., 1996; Woolgar, Steele, Steele, Yabsley, & Fonagy, 2001) and prospectively (e.g., Moss et al., 2009; Oppenheim, Emde, &

Warren, 1997; Poehlmann, Burnson, & Weymouth, 2014). Parents are represented as more negative (e.g., harsh, punitive, rejecting behaviours), less positive (e.g., fewer protective, caretaking, affectionate, empathic, or helpful behaviours recounted), and less disciplinary (e.g., authoritative style). Children with conduct problems tend to represent themselves as more aggressive, fearful, helpless, and combative, and use more avoidance strategies, show more distress, and are less coherent in the performance of their narratives.

Findings have been consistent for both community and clinical samples, across various cultures, and when controlling for child age and gender, language abilities and task engagement, psychosocial risk factors, attachment classifications, and earlier conduct problems. Studies also show that children's representations assessed by the MSSB can moderate associations between adverse family experiences (e.g., maltreatment) and child emotion regulation (Lee et al., 2016) or conduct problems (Coe et al., 2017; Davies, Thompson, Coe, Sturge-Apple, & Martin, 2019). For example, Toth and colleagues (2000) showed that the doll play narratives of maltreated children contained more conflict, distress and destruction themes, and that conflict themes partially mediated associations between maltreatment and later conduct problems.

Although a substantial literature has used the MSSB and ASCT to investigate conduct problems in young children, the current study intends to extend this research through investigating associations between child representations measured by the MSSB and child CU traits. Only one recent study has examined associations among child representations and child CU traits using the MSSB. In a large sample of preschool children, Coe, Davies, and Sturge-Apple (2018) found no significant associations between negative representations of family relationships (hostile, angry, conflict, unresponsive, and detachment themes) and child callousness at two time points. This study did not, however, assess the "unemotional dimension" of CU traits. The researchers also explored only a subset of representational and

performance scores available through the MSSB coding system, so it is possible that

consideration of other variables may have produced significant findings.

Doll play narrative coding systems capture children's response continuities across

stories by either applying one or several global ratings (e.g., Granot & Mayseless, 2001),

assigning attachment classifications that map on to the SSP (e.g., Goldwyn et al., 2000), or

using multiple codes to score responses to each story separately (J. Robinson & Mantz-

Simmons, 2003). The latter approach was applied by the MacArthur Narrative Coding

System (J. Robinson et al., 2007) in the current study, and benefits from strong reliability and

greater breadth of coverage response dimensions (J. Robinson & Mantz-Simmons, 2003).

Two studies have used alternate doll story narrative tasks to investigate associations

among child representations and child conduct problems and CU traits, both of which

classified children based on their doll story narratives into attachment categories that map on

to those derived from the SSP. Using the Attachment Doll Play Assessment (George &

Solomon, 1990, 1996, 2000), Bohlin et al. (2012) found that disorganised representations of

attachment (story-telling with either poor coherence, chaos, violence and scary events

without a solution to the attachment problem, or mental blocking and freezing shown by

refusal to tell a story) at 5 years of age predicted more severe child conduct problems and

higher CU traits at 7 years of age, beyond the initial levels of conduct problems. Pasalich,

Dadds, Hawes, et al. (2012) administered the Manchester Child Attachment Story Task

(Goldwyn et al., 2000) to a clinic-referred sample of 3 to 9-year-old children with conduct

problems. The study found that 75% of children with conduct problems and high CU traits

had representations typical of insecure attachment, with 56% classified as disorganised

(responses with a lack of goal-directed behaviour or use of multiple and incompatible

attachment strategies) and 19% as avoidant (responses that involved non-interpersonal means

of lessening distress that may or may not be effective) according to their responses to the doll

story stems. This compared with only 38% of children with conduct problems and low CU

traits demonstrating insecure attachment representations in their doll play narratives, with

28% classified as disorganised and 10% as avoidant.

Based on the above evidence, the current study expects that more disturbed

representations elicited from children's doll play narratives will be related to more severe

conduct problems and higher CU traits. Specifically, fewer positive and more negative

representations of parents, fewer prosocial and more conflictual and aggressive self-

representations, and the use of more avoidant or dissociative strategies are expected to be

related to more severe child conduct problems and higher CU traits. The current study

extends previous research by applying the MSSB to the study of CU traits in a clinical

sample of children with diagnosed conduct problems.

Family drawings. Children's drawings are used extensively by clinicians to inform

their psychiatric assessments of children and their families and monitor outcomes. In fact,

projective drawing tasks are within the ten most frequently used assessment methods by

clinical psychologists in the USA and Britain (Bekhit, Thomas, & Jolley, 2005; Watkins,

Campbell, Nieberding, & Hallmark, 1995). A number of projective drawing measures have

been developed for children, which include figure drawing (e.g., the Goodenough-Harris

Drawing Test (Harris, 1963)), symbolic drawing (e.g., the Bird's Nest Drawing task (Kaiser,

1996)), and family drawing paradigms (e.g., the Kinetic Family Drawing (R. C. Burns &

Kaufman, 1970) and House-Tree-Person (J. N. Buck, 1948) techniques).

The current study investigates children's family drawings from an attachment

perspective. Family drawings are straightforward to administer and score, place no demands

on children's verbal abilities, and may be more suitable in late childhood when play-based

measures of children's representations become developmentally inappropriate. Family

drawings are believed to access children's representations of their family relationships, revealing their experiences, thoughts (wishes, concerns and attributions), emotions and developing knowledge about their family (Fury et al., 1997; Kaplan & Main, 1986). Individual differences in family drawings, such as the size, location, degree of movement, impressions of vulnerability, completeness, emotional expressions and individuation of family figures, are believed to distinguish between children's experiences within their family relationships. Attachment-informed coding schemes have been developed to score children's family drawings according to the presence or absence of specific markers of attachment quality (Kaplan & Main, 1986), global ratings of attachment relevant constructs (Fury et al., 1997), or categorical indicators of attachment classifications (Madigan, Ladd, & Goldberg, 2003).

Some studies show that attachment classifications based on child behaviour during the SSP in infancy predict children's representations of their attachment relationships in their family drawings in theoretically expected ways (Fury et al., 1997; Kaplan & Main, 1986; Madigan, Goldberg, Moran, & Pederson, 2004; Madigan et al., 2003). Children's representations in their family drawings have also been related to their parents' state of mind regarding attachment (Fihrer & McMahon, 2009) and their own doll play narratives using the MSSB (Schechter, Zygmunt, Trabka, et al., 2007). Further, children with more disturbed attachment representations in their family drawings have been shown to display greater impairment in their social-emotional functioning at home and school (Carlson, Sroufe, & Egeland, 2004; Fury et al., 1997; Goldner & Scharf, 2011; Harrison, Clarke, & Ungerer, 2007; Kaplan & Main, 1986; Pianta, Longmaid, & Ferguson, 1999; Shiakou, 2012) and report worse student-teacher relationships in one (Harrison et al., 2007), but not another (McGrath, Bergen, & Sweller, 2017) study. Research has also shown that the global rating scales from the Family-Attachment Drawing Task (Fury et al., 1997) were more effective

than specific markers in differentiating between children's attachment classifications on the

SSP (Fury et al., 1997; Madigan et al., 2003) and clinical groupings (e.g., Hiles-Howard et

al., 2017; Pace, Zavattini, & Tambelli, 2015). Consequently, the current study used the

Family-Attachment Drawing Task (FAD-T; Fury et al., 1997) to elicit child representations

of their family relationships. Family drawings are rated on eight global dimensions of

relationship quality (Fury et al., 1997):

1. vitality/creativity;

2. family pride/happiness;

3. vulnerability;

4. emotional distance/isolation;

5. tension/anger;

6. role-reversal;

7. bizarreness/dissociation; and

8. global pathology (indicated by global organisation, completeness of figures, use of
    colour, detail, affect and background scene).

Research using the FAD-T reveals that more disturbed representations of family

relationships differentiate between children: with and without ADHD (Clarke, Ungerer,

Chahoud, Johnson, & Stiefel, 2002); a history of maltreatment (Shiakou, 2012); late-adoption

or institutionalisation (Hiles-Howard et al., 2017; Pace et al., 2015); internalising problems

(Goldner & Scharf, 2012); and experiences of a mother with depression (Fihrer & McMahon,

2009). Children's representations of their family relationships using the FAD-T have also

been related to: children's personality styles (Goldner & Scharf, 2011); more adverse family

experiences (Dallaire, Ciccone, & Wilson, 2012; Leon & Rudy, 2005; Zvara et al., 2014);

more depressive symptomatology (Gullone, Ollendick, & King, 2006); and observed (Zvara

et al., 2014) and child-reported (Dallaire et al., 2012) harsh and intrusive parenting.

There is limited research that has examined associations among the quality of children's family drawings and their conduct problems or CU traits. Goldner and Scharf (2011) found that 8 to 12-year-old children's drawings of their family characterised by less vitality and family pride, and more tension, bizarreness (unusual signs or symbols, angry facial features, and morbid fantasy themes) and global pathology, were concurrently associated with more severe conduct problems. In a small clinic-referred sample of 3 to 15-year-old children with conduct problems, Kloft et al. (2017) invited all family members attending an initial assessment to complete a family drawing, which was coded using a modified version of Fury et al.'s (1997) global rating scales. The study found that more family dysfunction (composite variable) was represented in the drawings of children with high than low CU traits prior to treatment, and that reduced emotional distance in children's family drawings was more strongly related to fewer conduct problems in children with high, than low, CU traits. Further, families of children with high, but not low, CU traits showed improvement in their representations of family relationships following treatment. Finally, Wagner et al. (2015) found that more dysfunctional representations of family relationships in children's drawings were concurrently related to higher CU traits, but not conduct problems, at 6 years of age in a high-risk community sample. Based on this preliminary evidence, the current study expected that children with more severe conduct problems and higher CU traits would represent more dysfunctional family relationships in their drawings using the FAD-T.

Chapter 4 Summary: The Current Study

The current study sought to provide an in-depth profile of parenting and parent-child attachment relationships in children referred to a clinic with Oppositional Defiant Disorder (ODD) and/or Conduct Disorder (CD). The study had a particular interest in children with high CU traits and the extent to which these were associated with more problematic relationship indicators. This research project was designed and commenced in 2012. At that time, there was a debate in the literature regarding whether child CU traits and their associated conduct problems were related to the quality of their parent-child relationships (for a review, see Waller et al., 2013). As described in Chapter 2, early influential research had shown that parenting practices were related to conduct problems for children with low, but not high, CU traits. This was a concern for clinicians since all evidence-based interventions for conduct problems in early and middle childhood focus on parent management techniques (Woolgar & Scott, 2005). The first research exploring associations among measures of parent-child attachment relationships and child CU traits and conduct problems was published in 2012 (e.g., Bohlin et al., 2012; Pasalich, Dadds, Hawes, et al., 2012), and began to address a clear gap in the literature. The study of child CU traits using attachment theory has gained considerable momentum in recent years, and the current study aims to contribute to this literature.

Novel contributions from the current study. These may include:

- The fact that no previous research has used the Emotional Availability Scales or Mind-Mindedness Interview to investigate child CU traits and their associated conduct problems.

- Single studies have previously used the MacArthur Story Stem Battery, Family-Attachment Drawing Task or the Caregiving Helplessness Questionnaire to investigate

associations between these aspects of parent-child attachment relationships and child conduct problems and CU traits. As a result, the current study may extend preliminary research addressing these constructs.

- The current study examines associations among parenting, parent-child attachment relationships and child conduct problems and CU traits for mothers and fathers separately. The review of the CU traits research found only one study using the Alabama Parenting Questionnaire (Mendoza-Diaz et al., 2018), another using the Parenting Stress Index-Fourth Ed.-Short Form (Fanti, Colins, et al., 2017), and 12 studies overall, that included both mother- and father-child relationships in their analyses. An in-depth analysis of the father-child relationship in relation to child conduct problems and CU traits may add novel findings to a limited literature.

- The measures included in the current study offer a comprehensive assessment of parenting and parent-child attachment relationships experienced by children with conduct problems and CU traits at a single point in time. Among these assessments, the current study may be able to identify those characteristics of parent-child relationships most relevant to the current severity of child conduct problems and CU traits. This may contribute to future research that applies these findings to the assessment and treatment of conduct problems and CU traits in young children.

Research hypotheses. The current study expects that parents of children with more severe conduct problems and higher CU traits will report more problematic parenting practices. Specifically, it is predicted that:

- Fewer positive and more negative parenting practices will be associated with more severe conduct problems and higher CU traits in children.

- More parent helplessness and frightened or frightening caregiving will be associated with more severe child conduct problems and higher CU traits, whereas child caregiving is not expected to be reported by parents.

- More parenting stress will be related to more severe conduct problems and higher CU traits.

The current study expects parent mind-mindedness as an indicator of parents' tendency to represent their child in terms of mental states will be lower in the context of more severe conduct problems and higher CU traits. Specifically, it is expected that:

- Lower parent mind-mindedness will be associated with more severe conduct problems and higher CU traits.

- Mental state descriptors will be more negative and less positive in the context of more severe child conduct problems and higher CU traits.

The current study predicted that less optimal parent and child emotional availability will be related to more severe conduct problems and higher CU traits in children.

Finally, the current study expected that children with more severe conduct problems and higher CU traits would present more negative representations of their parents and themselves, and use problematic strategies to manage stress, during their doll play narratives, and display more dysfunctional representations of their family relationships in their family drawings.

CU traits as a moderator. This study also explored whether any relations among these aspects of parenting and parent-child attachment relationships and conduct problems might depend on the severity of child CU traits. No specific predictions regarding moderation were made, as previous research has produced mixed findings (see Chapter 2 for the review).

Mothers and fathers. The above hypotheses are also explored for mothers and fathers separately. Previous research shows differences in associations among parent-child relationships and CU traits according to parent gender (e.g., Kochanska et al., 2013; Pasalich et al., 2011).

Control variables. Since studies show that CU traits may be expressed differently according to child gender (Fontaine et al., 2010; Sevecke, Kosson, & Krischer, 2009) and age (Dadds et al., 2009), and low parent education is identified as a risk factor for the development of child conduct problems (Nagin & Tremblay, 2001), these variables were controlled for in all analyses. Chapter 5 briefly outlines the study procedure. Results are presented in Chapters 6 to 10.

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Chapter 5: Methods

Introduction

This research project aimed to explore associations among parenting and parent-child attachment relationships and child conduct problems and CU traits in a clinic-referred sample of 3 to 9-year-old children diagnosed with Oppositional Defiant Disorder (ODD) and/or Conduct Disorder (CD). Conduct problems and CU traits in children were assessed through parent-reported questionnaires and parent responses on a clinical interview using the Diagnostic and Statistical Manual of Mental Disorders - 5 (DSM-5; American Psychiatric Association, 2013) criteria. A number of aspects of parenting and parent-child attachment relationships were assessed, including: parent perceptions of their parenting practices, caregiving helplessness and parenting stress as measured by parent-report questionnaires; parents' representations of their child – assessed using a brief "describe your child" interview; parent and child emotional availability – assessed during a 30-minute observation of parent-child interactions; and, children's representations of their attachment relationships and themselves – measured using doll play narrative and family drawing tasks. Detailed descriptions of the sample and the measures included in this study are outlined in the following sections.

Participants

Participants were mothers (n = 92) and fathers (n = 36) of 92 children (66 boys; 71.70%), who were between 3.83 and 9.00 years of age (*M* = 6.15 years, *SD* = 1.59) and referred to an outpatient child mental health clinic in a large metropolitan children's hospital. A diagnosis of child ODD and/or CD was an inclusion criterion for this study. Forty-one per cent of the 225 families who met inclusion criteria over a period of 18 months from June

2013 to December 2014 agreed to participate. Informed parent consent and child assent were

obtained prior to participation. Consistent with the population at the clinic, most children

were from two-parent families (80%), middle- (25%) to high-income (60%) households, had

a Caucasian/European cultural background (83%), spoke English at home (98%), and had

parents who were post-secondary educated (83% mothers; 78% fathers). Mothers were all

nominated as primary caregivers and, on average, child participants had more than one

sibling ($M = 1.33$, $SD = 0.84$). All fathers were partners of mothers participating in the study.

There were no significant differences in demographic variables (maternal age or education,

number of siblings, child age and gender, cultural background) for mothers whose partners

did (n = 36) and did not (n = 56) participate in study, with the exception that household

income was significantly lower for mothers without participating partners as the group

included single mothers. Children with intellectual disabilities, developmental delay, serious

medical concerns, primary diagnoses other than CD or ODD, and families with parents

and/or children requiring a foreign language interpreter were ineligible to participate in the

study.

Procedure

After gaining ethics approval from relevant hospital and university ethics committees,

parents of clinic-referred children who met the eligibility criteria were invited by email to

participate. Information and consent forms and questionnaires were presented online using

the Qualtrics (2005) platform. After completing questionnaires, the researcher, who is a

practicing clinical psychologist, administered a diagnostic interview via a telephone

appointment. All questionnaires and interviews were completed by the primary caregiver, and

where possible, the secondary caregiver as well. Parents then attended a laboratory at the

hospital with their child where they participated in a number of interactive tasks.

A brief interview question was administered at the commencement of the laboratory session while the child waited in reception. Parents were asked to describe their child through the Mind-Mindedness Interview (MMI; Meins et al., 1998). On three occasions, when child separation anxiety or behavioural difficulties prevented the child waiting apart from their parent during administration, the MMI was administered via telephone afterwards, rather than during the research session. The child was then invited into the laboratory, and the parent and child participated in a 30-minute semi-structured play activity, which was video-recorded and later coded using the Emotional Availability Scales, 4th edition (Biringen, 2008). The parent was then requested to wait in reception while the child was administered two tasks. The first was a family drawing task (Family-Attachment Drawing Task (FAD-T; Fury et al., 1997)), and the second was a doll play narrative task (MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003)), in which children completed eight stories initiated by the interviewer using acted or verbal responses and standard props. The videotaped child responses were later scored in JoAnn Robinson's laboratory in the United States of America (USA) using the MacArthur Narrative Coding Manual (J. Robinson et al., 2007). For secondary caregivers, the laboratory research session involved only the MMI and EA Scales assessments, as the MSSB and FAD-T had been completed with the primary caregiver. The laboratory tasks took approximately 60 minutes to complete.

Measures

Parent report questionnaires. Questionnaires were used to assess parent perceptions of child CU traits and behaviour, parenting practices, caregiving helplessness and parenting stress.

Child CU traits and conduct problems. Child CU traits and conduct problems composite scores were computed by pooling items from the Strengths and Difficulties

Questionnaire (Goodman, 1997) and the Antisocial Process Screening Device (Frick & Hare, 2002) according to the approach developed and validated by Dadds et al. (2005).

Strengths and Difficulties Questionnaire. The parent-report version of the Strengths and Difficulties Questionnaire (SDQ: Goodman, 1997, 2001) is a 25-item rating scale of child behaviour and general psychopathology that yields a total difficulties score and five subscale scores: hyperactivity; conduct problems; emotional symptoms; peer problems; and prosocial behaviour. The SDQ has been shown to have robust psychometric properties, and converges with other child behaviour checklists and independently-rated DSM-IV diagnoses of childhood disorders (Goodman, 2001; Hawes & Dadds, 2004; Viding et al., 2005).

Antisocial Process Screening Device. The parent-report version of the Antisocial Process Screen Device (APSD; Frick & Hare, 2002) is a 20-item temperament and behaviour rating scale that assesses childhood features of psychopathy. It requires parents to rate items 0 (not at all true), 1 (sometimes true), or 2 (definitely true), and yields a total score and three subscales: CU traits (six items; e.g., ''Is not concerned about the feelings of others''); narcissism (seven items; e.g., ''Uses or cons other people to get what he/she wants''); and impulsivity (five items; e.g., ''Acts without thinking of the consequences''). Two items do not load onto any individual subscales.

Applying the method developed and validated by Dadds et al. (2005), items were pooled from the SDQ and APSD to produce composite scores for child CU traits and conduct problems. Previous studies show that this approach produces greater reliability than the comparable scales from those individual instruments (Adolphs et al., 2005; Dadds et al., 2008; Dadds et al., 2009; Hawes & Dadds, 2005, 2007). The CU traits composite score consists of three items from the CU traits subscale of the APSD, five reverse-scored items

from the prosocial behaviour subscale of the SDQ, and one item from the conduct problems

subscale of the SDQ (Dadds et al., 2005; Hawes & Dadds, 2007). The conduct problems

composite score was developed from nine items from the impulsivity and narcissism scales of

the APSD, and three items from the conduct problems subscale of the SDQ (Dadds et al.,

2005; Hawes & Dadds, 2007). These items comprising the CU traits and conduct problems

composite scores are shown in Table 7. Internal consistency was adequate for the CU traits

(mothers: α = .73; fathers: α = .68) and conduct problems (mothers: α = .83; fathers: α = .85)

composite scores.

Table 7

SDQ and APSD Items Comprising the CU Traits and Conduct Problems Composite Scores

Item	Item Source
CU traits composite score:	
• Considerate of other people's feelings	SDQ – Prosocial Behaviour
• Shares readily with other children, for example, toys, treats, pencils	SDQ – Prosocial Behaviour
• Helpful if someone is hurt, upset or feeling ill	SDQ – Prosocial Behaviour
• Kind to younger children	SDQ – Prosocial Behaviour
• Often volunteers to help others (parents, teachers, other children)	SDQ – Prosocial Behaviour
• Generally well-behaved, usually does what adults request	SDQ – Conduct Problems
• Is good at keeping promises	APSD – CU Traits
• Feels bad or guilty when she/he does something wrong	APSD – CU Traits
• Is concerned about the feelings of others	APSD – CU Traits
Conduct problems composite score:	
• Often fights with other children or bullies them	SDQ – Conduct problems
• Often lies or cheats	SDQ – Conduct problems
• Steals from home, school or elsewhere	SDQ – Conduct problems
• Blames others for his/her mistakes	APSD – Impulsivity
• His/her emotions seem shallow and not genuine	APSD – Narcissism
• Lies easily and skillfully	APSD
• Brags excessively about his/her abilities, accomplishments, or possessions	APSD – Narcissism
• Uses or cons other people to get what he/she wants	APSD – Narcissism
• Teases, makes fun of other people	APSD – Narcissism
• Seems to think that he/she is better than other people	APSD – Narcissism
• Can be charming at times, but in ways that seem insincere or superficial	APSD – Narcissism
• Engages in illegal activities	APSD

Alabama Parenting Questionnaire. The Alabama Parenting Questionnaire

(APQ; Shelton et al., 1996) is a 42-item questionnaire. Five parenting dimensions associated

with conduct problems in children and adolescents (Dadds et al., 2003; Shelton et al., 1996)

are calculated:

1. involvement (10 items; e.g., "You play games or do other fun things with your child";
   "You ask your child about his/her day in school");

2. use of positive reinforcement (six items; e.g., "You reward or give something extra to
   your child for obeying you or behaving well"; "You hug or kiss your child when
   he/she has done something well");

3. poor monitoring/supervision (10 items; e.g., "Your child is at home without adult
   supervision"; "You get so busy that you forget where your child is and what he/she is
   doing");

4. inconsistent discipline (six items; e.g., "You threaten to punish your child and then do
   not actually punish him or her"; "The punishment you give your child depends on
   your mood"); and

5. discipline practices (10 items: three relating to corporal punishment (e.g., "You spank
   your child with your hand when he/she has done something wrong"; "You yell or
   scream at your child when he/she has done something wrong") and seven to non-
   corporal methods of discipline (e.g., "You use time out (make him/her sit or stand in a
   corner) as a punishment"; "You give your child extra chores as a punishment")).

Items are endorsed on a 5-point scale from 1 (Never) to 5 (Always). As discussed in

Chapter 4, research shows that the APQ is a reliable and valid measure of parenting practices

across a variety of community and clinical samples (e.g., Dadds et al., 2003; Elgar,

Waschbusch, Dadds, & Sigvaldason, 2007; Frick, Kimonis, et al., 2003; Hawes & Dadds,

2006; R. J. McMahon & Frick, 2007). Previous research indicates that the parenting

dimensions can be combined into two composites. The first is a positive parenting practices score calculated by averaging the standardised scores of the positive reinforcement and involvement scales. The second is a negative parenting practices score computed by averaging the standardised scores of the inconsistent discipline, corporal punishment, and poor monitoring/supervision scales (Frick, Christian, & Wootton, 1999; Shelton et al., 1996). Internal consistency was satisfactory for the positive (mothers: $\alpha = .80$; fathers: $\alpha = .82$) and negative (mothers: $\alpha = .75$; fathers: $\alpha = .66$) parenting practices composite scores.

Caregiving Helplessness Questionnaire. The Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011) is a 26-item scale measuring caregiver representations of relationship characteristics suggestive of the dynamics that characterise disorganised parent-child attachment according to three dimensions. These dimensions are:

1. child caregiving (six items; e.g., "My child is good at tending to and caring for others"; "My child is very sensitive to the feelings and needs of others");

2. frightened or frightening caregiving (six items; e.g., "I am frightened of my child"; "Sometimes my child acts as if he/she is afraid of me"); and

3. parent helplessness (seven items; e.g., "When I am with my child, I often feel out of control"; "I often feel that there is nothing I can do to discipline my child").

Seven filler questions are not included in subscale scores. For missing items on the CHQ (the only measure to have missing data in this study; n = 4 cases), the average of the scores for the missing item's subscale was substituted for that particular item. The CHQ has demonstrated reliability and validity in relation to: child internalising and externalising behaviour problems; infant socioemotional adjustment; parenting stress; parent psychopathology; a number of attachment-related life events; parent role reversal or confusion; maternal sensitive responsiveness; and disorganised attachment (George &

Solomon, 2011; Lecompte & Moss, 2014; Toscano et al., 2018; Vulliez-Coady, Obsuth,

Torreiro-Casal, Ellertsdottir, & Lyons-Ruth, 2013).

The items contributing to the child caregiving subscale capture children looking after,

entertaining or cheering up "others". The six items as a group lack face validity in directly

assessing the dynamic of role-reversed caregiving, whereby the child is nurturing the parent

to maintain protective connection with them. Instead, four items describe "show-off"

behaviour, and the other two items describe general caring towards others. Several items

appear similar to those measuring child CU traits in this study. This could confound the

results for child caregiving. This will be explored in the results in Chapter 7.

With the exception of the frightened or frightening caregiving scale for mothers,

internal consistency was adequate for the frightened or frightening caregiving (mothers: α =

.46; fathers: α = .64), parent helplessness (mothers: α = .86; fathers: α = .88), and child

caregiving (mothers: α = .69; fathers: α = .64) subscales. Given the low internal consistency,

the frightened or frightening caregiving scale was not included in analyses for mothers.

Parenting Stress Index-Fourth Ed.-Short Form. The Parenting Stress Index-

Fourth Ed.-Short Form (PSI-4-SF; Abidin, 2012) is a widely used and brief 36-item measure

of parenting stress. It generates a total stress score, and three subscales:

1. parental distress;

2. parent-child dysfunctional interaction; and

3. difficult child.

Parents endorse items on a 5-point scale from 1 (Strongly Disagree) to 5 (Strongly

Agree), with higher scores representing greater levels of distress. The parental distress score

(mothers: α = .87; fathers: α = .83) represents a parent's perception of caregiving

competence, social support, and stresses associated with the restrictions placed on other life

roles because of the demands of being a parent (12 items; e.g., "I feel trapped by my responsibilities as a parent"; "I am not as interested in people as I used to be"). The parent-child dysfunctional interaction score (mothers: α = .81; fathers: α = .85) assesses the extent to which the parent perceives the child as not meeting expectations and finds that interactions with the child are not reinforcing his or her parenting role (12 items; e.g., "Sometimes I feel my child doesn't like me and doesn't want to be close to me"; "I expected to have closer and warmer feelings for my child than I do, and this bothers me"). The difficult child scale measures the temperament or behavioural characteristics of the child that influence the parent-child relationship (12 items; e.g., "My child makes more demands on me than most children"; "I feel that my child is very moody and easily upset"). The total stress score (mothers: α = .90; fathers: α = .90) was used in analyses.

Interview measures. Standardised interviews with the primary and, where possible, the secondary caregiver, were used to establish diagnoses of child behaviour problems and to capture parent mind-mindedness.

Diagnostic interview – externalising disorders. Diagnoses were based on an updated version of the Diagnostic Interview Schedule for Children, Adolescents and Parents (DISCAP; Holland & Dadds, 1997) and included changes to externalising disorders criteria described in the Diagnostic and Statistical Manual of Mental Disorders - 5 (DSM-5; American Psychiatric Association, 2013). Using a semi-structured format, parents were asked to endorse (yes or no) statements corresponding to diagnostic criteria, with further information requested, as appropriate. The DISCAP produces categorical (i.e., diagnosis or no diagnosis) and continuous (i.e., clinical symptom severity on a 0-8 scale) variables. The interview was conducted by the researcher (a clinical psychologist), with the primary and, when available, secondary caregiver. Parents were administered only the externalising disorders components of the DISCAP. Inter-rater reliability was established with an

experienced child and adolescent psychiatrist making independent diagnoses based on 20%

of the annotated interview schedules, "blind" to the primary clinician's diagnosis. Cohen's

Kappa scores for the ODD, CD and "With Limited Prosocial Emotions" specifier of CD

(LPE) diagnoses were 1.00, 1.00, and .81, respectively, and ODD severity rating agreement

yielded an intra-class correlation (ICC) of .82.

Mind-Mindedness Interview. The parent's tendency to represent the child with

respect to mental states was measured through coding parent responses to a single-question:

"Can you describe [child's name] for me?" (Meins et al., 1998). Parents were informed that

there were no right or wrong answers and, if they sought guidance, they could describe any of

their child's characteristics that they liked. The purpose and scoring procedures were not

obvious to parents, which reduced the likelihood of socially desirable responses. The Mind-

Mindedness Interview (MMI; Meins et al., 1998) was conducted separately for mothers and

fathers. Responses were videotaped and transcribed verbatim.

Two coders rated mind-mindedness from the transcripts in accordance with the mind-

mindedness coding manual (Meins & Fernyhough, 2010, 2015). Each child descriptor was

initially allocated to one of four exhaustive and exclusive categories:

1.   mental;

2.   behavioural;

3.   physical; or

4.   general attributes.

Mental attributes included references to the child's mental life (e.g., "he's very

sensitive"), imagination, interest, metacognitive capacity (e.g., "she is always wondering why

things are the way they are"), intellect (e.g., "intelligent"), and will (e.g., "he knows what he

wants"). Any comments relating to emotions (e.g., "happy", "caring", "loving") were also

placed in this category. Behavioural attributes included descriptors of the child's

characteristic interactive style (e.g., "cheerful", "naughty"), activities, and sociability (e.g.,

"she's very active", "he's timid"). Examples of physical attributes included "he is very tall

for his age", or "she is our eldest child". Descriptors that did not fit into the first three

categories (e.g., "typical girl", "lovely", "delightful") were classified as general descriptors.

The mind-mindedness score was calculated as the number of mental descriptors expressed as

a proportion of the total number of child descriptors. This was to control for differences in

parental verbosity (Meins & Fernyhough, 2010, 2015). Higher proportional scores indicated

greater mind-mindedness. Intra-class correlations were high for a subsample of 25 (27% of N

= 128) interviews: mental (ICC = .90); behavioural (ICC = .85); physical (ICC = .95); and

general attributes (ICC = .76) descriptors. Disagreements were resolved through

conferencing.

The valence of the mental descriptors was also coded following the approach of

Demers et al. (2010a, 2010b), with each mental descriptor classified as positive, neutral, or

negative. Words such as "strong-willed" or "stubborn" were characterised as negative mental

state descriptors if the context indicated the parent experienced this characteristic as

oppositional. Attributes such as "knows what he wants" were classified as neutral, and those

such as "bright" and "caring" were classified as positive. Positive, neutral, and negative

mental descriptors were also calculated as a proportion of the total number of mental

descriptors. Scores for positive and negative mental descriptors were used in analyses. Intra-

class correlations (n = 25) were high: positive (ICC = .86), neutral (ICC = .89), and negative

(ICC = .82) mental descriptors.

Observational measures. As noted in the procedure, parents and children

engaged in a free play session in the laboratory and children completed a doll story

completion task and drawing of their family. All were videotaped for later coding.

Emotional Availability Scales. The quality of the parent-child relationship was assessed using the Emotional Availability (EA) Scales, 4th edition, coding manual (Biringen, 2008), during 30 minutes of semi-structured play. The semi-structured play comprised four interactive tasks presented in a prescribed order, as follows:

1. A five-minute split-attention task required the parent to complete a questionnaire, while their child was provided with a Hasbro Mr Potato Head toy.

2. A five minute cooperation task required the parent and child to draw simple shapes (i.e., a house and/or a sailboat) together using an Etch-A-Sketch board, with the child and parent prescribed separate knobs based on the child's handedness (i.e., according to seating positions, horizontal knob for right-handed child or vertical knob for left-handed child).

3. The parent and child were invited to "interact as you normally would at home" in 15 minutes of free-play using a Playmobil toy that comprised a castle wall, knights and a king and queen, and props that included weapons, armour, horses and furniture.

4. Finally, the parent was requested to instruct their child to pack away the free-play toys into a bucket, with "please let [child's name] pack away the toys [himself/herself] as much as possible". A time limit of five minutes was allocated for this task. The semi-structured play for each parent and child dyad was videotaped.

The age range of child participants (3 to 9 years of age) meant that the current study used both the Infancy/Early Childhood and the Middle Childhood/Youth Versions of the EA Scales, 4th edition, coding system (Biringen, 2008). The EA Scales assess four dimensions of parent emotional availability:

1. sensitivity;
2. structuring;

3. non-intrusiveness; and

4. non-hostility.

The *sensitivity scale* assesses a parent's ability to create and maintain an authentically positive affective atmosphere, accurately perceive and appropriately respond to the child's emotional cues, and show creativity, flexibility and acceptance of the child during interactions. The *structuring scale* measures the extent to which the parent follows the child's lead, adequately guides and scaffolds the child's activities, and sets appropriate limits – all of which are successfully received by the child. The *non-intrusiveness scale* assesses the extent to which a parent is involved in the child's play without over-directing, over-stimulating, interfering, or over-protecting, which supports the child's autonomy. High scores thus reflect less intrusive behaviour. The *non-hostility scale* evaluates the extent of a parent's covert (expressions of boredom, impatience, subtle anger) or overt (threatening, frightening, criticising, or humiliating actions or comments) hostility. Again, high scores indicate the absence of hostile behaviours.

Two dimensions of child emotional availability to the parent (responsiveness and involvement) were also assessed. The *child responsiveness scale* assesses the extent and consistency with which the child responds to parent initiations during the interaction with positive affect, emotional receptiveness and social appropriateness. The *child involvement scale* assesses a child's ability to positively involve the parent in his or her activity as an audience, fellow player or support figure. Each EA scale consists of seven subscales, with two subscales rated from 1 (non-optimal) to 7 (optimal) and five subscales rated from 1 (non-optimal) to 3 (optimal), producing a total score out of 29. The coder also assigns each EA scale a direct global score for each subscale from 1 (non-optimal) to 7 (optimal), consistent with earlier versions of the EA measure. With a view to maximising the range in order to

explore individual differences, the total scores (1-29) for each EA scale were used in this study.

Coders of the EA Scales received three days of in vivo training from Zeynep Biringen and were certified by attaining reliability through the EA Scales laboratory in Colorado, USA. An independent and experienced EA Scales coder (also trained by Biringen), blind to any clinical information or study hypotheses, rated all videotaped parent-child interactions (both mothers and fathers). Inter-rater reliability was established through the double coding of 26 (20%) videotaped parent-child interactions by the researcher. Intra-class correlations were satisfactory for both total and direct scores on each EA dimension: sensitivity (total ICC = .84, direct ICC = .81); structuring (total ICC = .87, direct ICC = .87); non-intrusiveness (total ICC = .86, direct ICC = .82); non-hostility (total ICC = .82, direct ICC = .82); child responsiveness (total ICC = .79, direct ICC = .76); and, child involvement (total ICC = .91, direct ICC = .88).

There is an extensive literature demonstrating the reliability and stability of the EA Scales across contexts and over time (see Biringen et al., 2014 for a review). Validity of the EA Scales has been established across: child gender and age (e.g., Biringen et al., 1999; Easterbrooks et al., 2012); cultural backgrounds (e.g., Lok & McMahon, 2006); typical and atypical development (e.g., van IJzendoorn et al., 2007); high-risk and clinical populations (e.g., Chaudhuri, Easterbrooks, & Davis, 2009; Wiefel et al., 2005); and through its associations with measures of parent-child attachment (e.g., Altenhofen, Clyman, Little, Baker, & Biringen, 2013; Biringen et al., 2012; Ziv et al., 2000) and maternal representations of attachment and caregiving (e.g., Biringen, Brown, et al., 2000; Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000).

A number of methods have been developed to summarise the EA scales. These include: factor analysis (Garvin, Tarullo, Ryzin, & Gunnar, 2012); cluster analyses to identify dyadic EA patterns (Easterbrooks, Chaudhuri, & Gestsdottir, 2005); summing the EA Scales scores to yield an EA composite (Wiefel et al., 2005); and assigning a rating that is theorised to map onto parent and child attachment styles: the Emotional Attachment and Emotional Availability (EA2) Clinical Screener (Biringen, 2008). This latter approach has more recently been refined and named the Emotional Attachment Zones Evaluation (EA-Z; Saunders & Biringen, 2017). The EA-Z uses an algorithm (see Table 8) based on the sensitivity and responsiveness direct scores to classify the parent and child into four continuous zones believed to map onto categorical attachment representations, as assessed using the Strange Situation Procedure. The four zones are:

1. emotionally available (secure; 85-100);

2. complicated (insecure-ambivalent; 70-80);

3. detached (insecure-avoidant; 45-60); and

4. problematic/disturbed (disorganised; 15-30).

According to this approach, a parent is classified as emotionally available when he or she displays mostly positive affect, is responsive to the child's emotional needs, and accepting of the child. The parent is classified as: complicated when he or she shows inconsistent affect and responsiveness to the child; detached when he or she is emotionally withdrawn, rejecting or unresponsive to child cues; and problematic/disturbed when he or she is frightening, overwhelmed and/or highly insensitive to the child's emotional needs during interactions.

A child is classified as emotionally available when he or she shows mostly positive affect towards the parent, responds appropriately to adult initiatives, and pursues age-

appropriate autonomy within the context of the parent-child relationship. The child, however, is classified as: complicated when he or she is often distressed, over-connected, and/or excessively dependent on the parent; detached when he or she is emotionally distant and/or shut down and avoidant of the parent; and problematic/disturbed when he or she appears fearful, dissociative, emotionally dysregulated and behaviourally disorganised towards the parent.

The EA-Z was coded for descriptive purposes and demonstrated satisfactory inter-rater reliability for parent (ICC = .87) and child (ICC = .77) scores. Preliminary evidence supports the construct validity of the EA-Z parent and child scores through associations with measures of attachment (Attachment Q-Sort) and parent-child relationship quality (Baker et al., 2015; Espinet et al., 2013). See Table 8.

Table 8

EA Scales Direct Scores Converted to EA-Z Scores and Zones

Sensitivity	Responsiveness	EA-Z score	EA-Z zone
7.0	7.0	100	
6.5	6.5	95	Emotionally Available
6.0	6.0	90	
5.5	5.5	85	
5.0	5.0	80	
4.5	4.5	75	Complicated
4.0	4.0	70	
3.5	3.5	60	
3.0	3.0	55	Detached
2.5	2.5	45	
2.0	2.0	30	
1.5	1.5	25	Problematic/Disturbed
1.0	1.0	15	

The EA-Z scores and zones when calculated by the above algorithm are limited by their heavy reliance on the parent sensitivity and child responsiveness scales. The current

study intended to incorporate all parent and child EA scales in providing a summary of the observed parent-child interactions. Consequently, two composite scores were computed. A parent EA composite score was calculated by averaging the standardised total scores of the sensitivity, structuring, non-intrusiveness and non-hostility scales. A child EA composite score was produced by averaging the standardised total scores of the responsiveness and involvement scales. These composite scores were calculated for mother- and father-child relationships separately. Cronbach's alphas for the parent EA composite score were .90 for mothers and .90 for fathers, and for the child EA composite score were .94 for mothers and .96 for fathers. To minimise a Type 1 error, the parent and child EA composite scores were used in subsequent hypothesis testing involving the EA Scales.

Child representations of attachment. Child representations of their family relationships were assessed using the MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003) and the Family-Attachment Drawing Task (FAD-T; Fury et al., 1997).

The MacArthur Story Stem Battery. The MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003), designed for children between 3 and 8 years of age, uses standardised story stems to activate and appraise children's internal representations of self and others across a range of social-emotional dilemmas. All story stems consist of a brief narrative introduced by the interviewer using props and family figures and speaking in character. The stimulus ends with an emotionally laden dilemma or conflict, which intends to activate the child's attachment system. The interviewer then invites the child to "show and tell me what happens next" in order to complete the story. A standard set of prompts are used to assist the child to focus on the central theme of each story. Mother, father, grandmother, older sibling, and younger sibling "Duplo" family figures were used as appropriate in each story, with the gender of the sibling dolls matched to that of the participant. To ensure that the procedure was understood, the child was initially presented with a warm-up story

(birthday party). Then, seven story stems were administered with the following themes and order of administration:

1. child spilling juice at the dinner table (Spilled Juice);

2. child witnesses mother accusing father of losing the keys (Lost Keys);

3. child cuts finger while using a prohibited knife at home (Cooking Band-Aid);

4. child climbs a high rock at the park after being told to be careful (Outing to the Park);

5. one sibling takes a cookie from the jar and requests the other not to tell their parents (Cookie Jar);

6. parents go on an overnight trip while grandmother babysits (Separation);

7. parents return from their overnight trip (Reunion).

These story stems were selected for their relevance to the child-parent attachment relationship (separations, discipline contexts, risk/threat) as well as children's moral and empathic responses and their ability to resolve interpersonal conflicts. The scripts and procedures for administering these story stems are available in Bretherton, Oppenheim, Emde, and the MacArthur Narrative Working Group (2003), and Bretherton and Oppenheim (2003). Time for administration of the entire battery of story stems ranged from 14 to 63 minutes in this sample, with an average of 27 minutes.

Coding. Children's play narratives were coded for parent and self-representations of attachment, as well as the use of avoidant or dissociation strategies by two independent coders using the MacArthur Narrative Coding Manual at JoAnn Robinson's laboratory in Connecticut, USA (J. Robinson et al., 2007). Avoidant strategy examples include: repetition of story theme(s); denial of story theme(s); off-topic play; or sudden sleep onset. Dissociation

strategy examples include: fantasy proneness; spacing out; intrusive traumatic material; or identifying with the aggressor.

Parent representations. Children's representations of their parents were assessed based on nine codes that indicated positive, disciplinary and negative representations of mothers and fathers, as well as the quality of triadic family relationships (positive, parent splitting, or negative) as present or absent. Individual scores for each participant were averaged across the seven stories (presented earlier). Inter-rater reliability for 11 participants (12% of sample) was established between two independent coders, including JoAnn Robinson, the lead author of the coding manual. Intra-class correlations for codes of children's parent representations ranged from .86 to 1.00. As part of the inter-rater reliability training process, coding for an additional eight participants was completed through conferencing. A very large number of scores were generated (106 codes for each of the seven story stems for each participant) so data reduction was necessary.

An initial principal components factor analysis revealed three factors for parent representations, which explained 32%, 28% and 21% of the variance, respectively, with eigenvalues ranging from 2.89 to 1.85 (eiganvalues greater than 1.00 are a recognised cut-off for identifying factors). The theme "parent splitting" was excluded as it did not load above .27 on any factor. A principal component analysis of the remaining eight items was conducted using varimax rotations, with three factors explaining 89% of the variance. The three factors were labelled positive, disciplinary and negative parent representations. The items loading on each factor are displayed in Table 9. Composite scores were computed for positive and negative parent representations by averaging the standardised scores of the relevant codes. Positive parent representations described protective, caretaking, affectionate, warm, caring, and helpful behaviour of both mothers and fathers towards the child, and triadic family representations where both parents show unified positive feelings towards the

child. Negative parent representations included harsh, punitive, rejecting and ineffectual

behaviours by the parent towards the child, and triadic family representations where both

parents victimised the child. The positive and negative parent representations composite

scores had Cronbach's alphas of .90 and .97, respectively.

Table 9

Parent Representations Factor Loadings

Codes	Negative	Positive	Disciplinary	ICCs
Negative mother	.95			1.00
Negative father	.94			.84
Negative triangulation	.97			.88
Positive mother		.87		.86
Positive father		.92		.87
Positive triangulation		.84		.93
Disciplinary mother			.89	1.00
Disciplinary father			.91	.93
Eigen value	2.85	2.47	1.80	
Variance	36%	31%	23%	

Note. Factor loadings < .40 are suppressed.

Table 10 provides an excerpt from an 8-year-old girl's response to the "Cooking

Band-Aid" story stem, which scored high for positive parent representations. An excerpt

from a 4-year-old boy's response to the "Spilled juice" story stem is also included. This

scored high for negative representations of the parents.

Table 10

Excerpts from Children's Responses on the MSSB that Demonstrated Positive and Negative Representations of their Parents

Positive parent representation	Negative parent representation
Story stem: Cooking Band-Aid, 8-year-old girl	*Story stem: Spilled Juice, 4-year-old boy*
Child: Mummy and Daddy said, "it's okay Rhonda [child character], nice people work at the hospital, so you don't need to be scared."	Child: He hid Mum's keys (action: indicates child doll is responsible).
Child: And Daddy gave her a medicine that the doctors gave her to make her go sleepy.	Child: And he tells Mum (action: child doll whispers to mother doll).
Child: And then, when Rhonda went to sleep, they looked at her finger and took the bug out.	Child: "What! I'm going to give you a wallop." (action: mother doll repeatedly strikes child doll).
Child: And then, when she woke up, and her finger was fine, and it had a little Band-Aid on it. (action: child doll stands up; participant appeared happy).	Child: Then, Mum tells Dad that Robert [child character] hides the keys.
Child: And Mummy and Daddy said, "you have been such a good girl, let's go and get an ice-cream from the shop" (action: child doll between parent dolls).	Child: And then, Dad comes for his wrestle (action: father doll repeatedly strikes and lies onto top of the child doll).
Child: So they took Rhonda to the shop, and Rhonda got a chocolate ice cream (action: all dolls moving in close proximity across the table).	Child: And then Robert can't get up (action: child doll lying on the laboratory table after father doll moves away).
Child: Daddy got a strawberry ice cream, and Mummy got a banana ice cream.	
Child: And then they went back home.	
Child: And said, "it's been a big day. Let's clean up the kitchen and then we'll go to bed" (action: parent and child dolls move toward kitchen props).	

Child self-representations. Children's self-representations were appraised using a combination of content themes and performance codes that were scored as present or absent. Content themes included 46 codes across the categories of interpersonal conflict, empathy, morality, dysregulated aggression and narrative emotions. Performance codes comprised 14 codes that assessed children's expressed emotions, narrative coherence, reflective capacity, requests to stop, and direct or indirect style, in their doll play narratives. Individual scores for each participant were averaged across the seven stories. Inter-rater reliability was established for all 60 performance and content codes, with 12 codes (eight content, four performance) excluded from further analyses due to unsatisfactory intra-class correlations of less than .60. Data reduction for the remaining 48 items, using an initial principal components factor analysis revealed the first four factors explained 15%, 9%, 9% and 5% of the variance, respectively. The next five factors had eigenvalues between 1.89 and 2.20, with each explaining between 4% and 5% of the variance. Solutions for both three and four factors were investigated using varimax rotations of the factor-loading matrix. The three factor solution, which explained 40% of the variance was preferred due to:

1. the levelling off of eigenvalues on the scree plot (see Figure 3);

2. the insufficient number of primary loadings and difficulty interpreting the fourth and subsequent factors; and

3. previous studies supporting three self-representation factors (i.e., prosocial behaviour, discipline or interpersonal conflict, and dysregulated aggression) using this measure and coding manual (e.g., Oppenheim, Emde, & Warren, 1997; Woolgar et al., 2001).
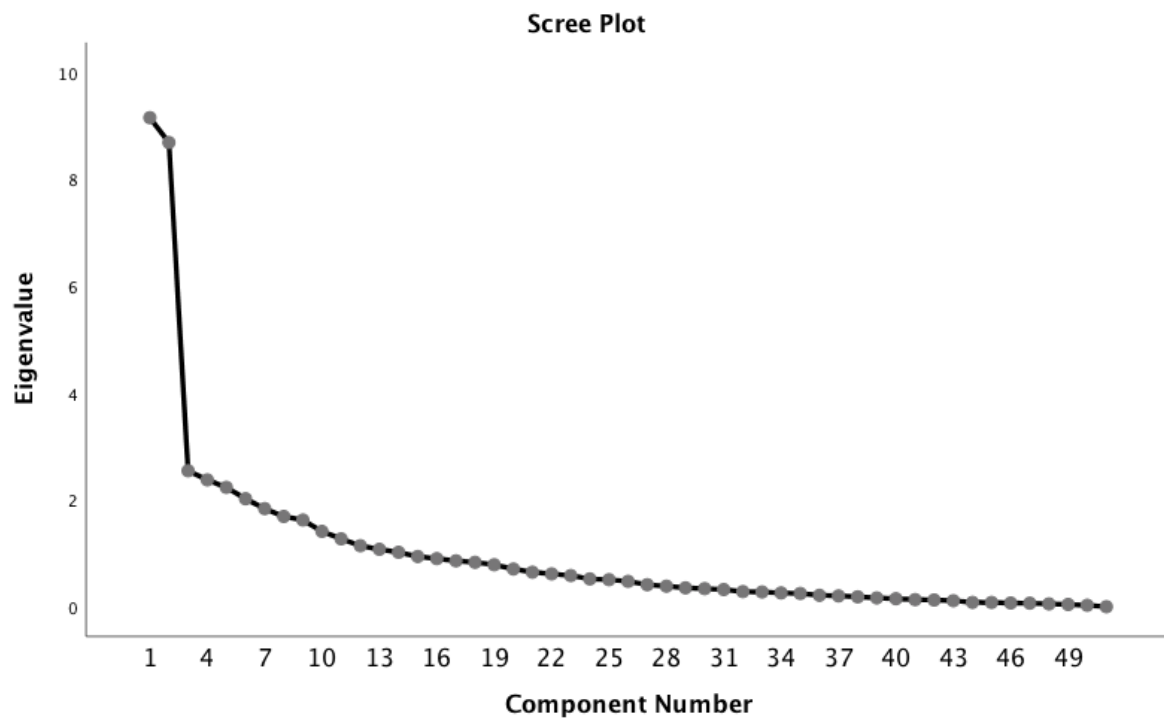
Figure 3. Scree plot of child self-representations factors derived from an initial

principal components factor analysis.

Using a three-factor solution, 11 items were eliminated as they did not load onto a

primary factor above .40. Eight were removed as they had cross loadings with a difference of

less than .20. For the remaining 29 items, a principal components factor analysis was

conducted using varimax rotations, with three factors explaining 50% of the variance. The

factor-loading matrix for this final solution is displayed in Table 11.

Table 11

Child Self-Representations Factor Loadings

Codes	Dysregulated aggression	Prosocial behaviour	Interpersonal conflict	ICCs
Unprovoked dysregulated aggression	.83			.95
Child verbally or physically assaults parent	.82			1.00
Killing or being killed	.59			1.00
Escalation of conflict	.74			.98
Personal Injury	.76			.94
Negative atypical responses	.88			.86
New or worsening danger	.75			.95
Making a mess with objects	.54			.93
Grandiose child power	.50			1.00
Separation distress	.42			.81
Negative final content	.69			.87
Performance: Anger	.73			.94
Conflict resolution: Adult strategy		.66		.64
Sharing		.53		1.00
Empathy, helping, reassurance		.80		.92
Affiliation		.58		.95
Affection		.62		.95
Reparation/guilt		.76		.83
Politeness		.65		.86
Performance: Concern		.76		.66
Performance: Narrative coherence		.50		.83
Competition			.48	1.00
Rivalry/jealousy			.73	.68
Exclusion of others			.64	.71
Non-compliance			.60	.61
Shaming others			.62	.75
Dishonesty			.56	.95
Verbal punishment or discipline			.80	.92
Performance: Sadness			.54	.77
Eigenvalue	6.24	4.59	3.81	
Variance	22%	16%	13%	

Note. Factor loadings < .40 are suppressed.

The dysregulated aggression factor comprised the following themes: severe physical and verbal aggression; death; personal injury; escalation of conflict; negative atypical responses; destruction of objects; danger; grandiose child power; separation distress; and negative final conclusions to stories. It also incorporated the child's display of angry affect in his or her storytelling. Intra-class correlations for the 12 codes comprising the dysregulated aggression composite score ranged from .81 to 1.00.

The prosocial behaviour factor contained the content themes of effective conflict resolution, politeness, and empathic responding (sharing, empathy, helping, reassurance, affiliation, affection, reparation or guilt). It also included narrative coherence and child displays of concern during his or her storytelling. Intra-class correlations for the nine codes comprising the prosocial behaviour composite score ranged from .64 to 1.00.

The interpersonal conflict factor comprised the content themes: competition; rivalry; jealousy; exclusion of others; non-compliance with adults; shaming others; dishonesty; and experiences of verbal punishment. Child displays of sadness during his or her storytelling were also included in this factor. Intra-class correlations for the eight codes comprising the interpersonal conflict composite score ranged from .68 to 1.00.

Composite scores were calculated for the dysregulated aggression, prosocial behaviour and interpersonal conflict factors, based on the mean of the standardised scores comprising each factor. Higher scores indicated greater evidence of that type of self-representation in the child's play narratives. Internal consistency for each scale was determined using Cronbach's alphas. The alpha was excellent for dysregulated aggression at .91 (12 items), and good for prosocial behaviour and interpersonal conflict at .85 (nine items) and .81 (eight items), respectively.

Table 12 provides excerpts from an 8-year-old boy's response to the "Outing to the Park" story stem that scored high for prosocial behaviour. It also includes excerpts from an 8-year-old boy's response to the "Lost Keys" story stem that showed high dysregulated aggression, and a 6-year-old boy's response to the "Outing to the Park" story stem that scored high in interpersonal conflict.

Table 12

Excerpts from Children's Responses on the MSSB Showing Prosocial Behaviour, Dysregulated Aggression and Interpersonal Conflict Self-Representations

Prosocial behaviour	Dysregulated aggression	Interpersonal conflict
Story stem: Outing to the park	*Story stem: Lost keys*	*Story stem: Outing to the park*
Child: 8-year-old boy	Child: 8-year-old boy	Child: 6-year-old boy
Child: And Michael [younger child character] is climbing down and then he falls.	Child: And Robert [child doll] comes in…punch, punch…Dad in the face (action: child doll hits father and father is lying on the table] …and punch Mum in the face. (action: child doll hits mother and mother is lying on the table; child appears amused)	Child: Mummy, can I too [climb up the rock]? (action: younger child doll, "Michael", pleading to mother doll).
Child: The Dad runs over to Michael and says, "are you okay?"		Child: "Never".
Child: And he says, "I think so. My arm is hurt a bit."	Child: (action: stands father up, then stands mother up) "I'm still alive"…. (action: holding mother doll) and, then…	Child: You go behind it (action: moves Michael doll behind rock). I'm going to sneak it.
Child: And then Dad says, "I am going to take you to the doctors, just in case."	Child: "You lost my keys, ahhhh" …. (action: mother doll attacks father doll, and father doll falls off table).	Child: Ah, "she can't see me" (action: Michael doll peaked up above the rock, and then is hidden again behind the rock).
Child: And then Dad takes Michael to the doctor, and Robert [older child character] comes too, and the doctor says, "He's okay, he has just hurt his arm".	Child: And she jumps on his face.	Child: Mum said, "don't climb up" (action: two child dolls in conversation on top of the rock). "I don't care, you get off" (action: Michael doll hits Robert doll [older brother], and Robert doll hits Michael doll, leading to an escalating conflict).
Child: Dad says, "That's a relief".	Child: And he takes a gun, boom …(action: mother doll cartwheeling across the table away from father).	Child: "Oh, oh…not my head" (action: child dolls fighting in the air, and Michael doll falls onto the rock on his head).
	Child: And he kills the mum (action: mother placed out of picture on other side of the table; child appears happy)	Child: (action: both child dolls on their heads on the rock). "I don't like you" (action: fight among child dolls continues on park prop).
		Child: "Stop it" (action: mother and father dolls approach children lying on the table).

Avoidant and dissociation strategies. These strategies include: repetition of story theme(s); denial of story theme(s); off-topic play; self-exclusion; fantasy proneness; spacing out; sudden sleep onset; and identifying with the aggressor. Children's use of these strategies during MSSB administration were assessed by 19 codes, which were averaged across the seven story stems. Three codes were removed due to low intra-class correlations (< .60), with intra-class correlations for the remaining 16 codes ranging from .67 to 1.00. An avoidant/dissociation strategies composite score was created by averaging the standardised scores of the 16 remaining codes. This composite score had adequate internal consistency with a Cronbach's alpha of .72.

As an example, a number of avoidant and dissociation strategies were evident in a 4-year-old boy's response to the "Cookie Jar" story stem. These included: talking about a non-stem related issue or event more than once (e.g., Child: "His Dad is watching, put the story on with Robert…" and later, child: "Michael [child character] can sit there and watch the movie started."); denial of the central issue throughout the narrative (e.g., Interviewer [prescribed prompt]: "And mum said, 'who ate those cookies?'", child: "And I said, 'you and you and you'…. 'no I didn't'", interviewer [clarifying]: "And who said 'you and you and you'?", child: "Well, he can stand on the table and sit on the table."); off-topic play (e.g., Child: "They turn off the light, and they have a sleep for 10 minutes."); and a proneness to fantasy (e.g., child: "It's a dinosaur going 'roar', 'roar'").

In summary, two parent representations (i.e., negative, positive), three self-representations (i.e., prosocial behaviour, dysregulated aggression, and interpersonal conflict), and the child's use of avoidant and dissociation strategies were considered in data analyses.

Family-Attachment Drawing Task. The Family-Attachment Drawing Task (FAD-T; Fury et al., 1997) assesses the quality of children's mental representations of self

and attachment figures as expressed in family drawings. It has previously been used with children between 4 and 12 years of age (e.g., Goldner & Scharf, 2011; Schechter, Zygmunt, Coates, et al., 2007). Children were provided with a white A4 piece of paper oriented at landscape perspective, and 10 colour marker pens placed on the table in a fixed order. Children were then instructed, "Please draw a picture of yourself and your family. Tell me when you have finished."

To encourage open responding to the task, no further directions were provided. Task duration for participants ranged from two to 30 minutes, with an average duration of eight minutes. On completion, the child was asked to identify all persons included in the drawing and to state their relationship to the child. These responses were recorded. The child's completion of the family drawing task was videotaped.

Although all child participants completed a family drawing, this study coded family drawings only for children aged 5 years and older. A review of the drawings of the 3 to 4-year-old children (n = 32) suggested that developmental limitations in drawing skills may have influenced their responses on this task, which had the potential to confound representation coding. This reduced the number of family drawings in the data analysis to 60.

Coding. Family drawings were rated on eight global dimensions of relationship quality, according to the coding system developed by Fury et al. (1997) and Fury (1996). This coding system was selected due its foundation in attachment theory, and its previous use with young children. The coding scheme yields two positive and six negative dimensions: vitality/creativity; pride/happiness; vulnerability; emotional distance/isolation; tension/anger; role-reversal; bizarreness/dissociation; and global pathology (see Table 13). Family drawings were de-identified and arranged into age groups to assist with developmental comparisons of children's drawing skills. Each dimension was rated on a seven-point rating scale, with 7 denoting very high and 1 very low scores for that dimension.

Table 13

Family-Attachment Drawing Task Dimensions

Dimension	Description
Vitality/Creativity	Emotional investment in the family drawing, as indicated by completeness, embellishment, colour, creativity and energy.
Pride/Happiness	Emotional connectedness to the family, as shown by belongingness, happiness, family pride, and supportive adults.
Vulnerability	Feelings of vulnerability and ambivalence, as expressed by disproportionate figures (small or large), placement of figures on the page (floating, separated, or bunched), and exaggeration of body parts and/or facial features.
Emotional Distance/Isolation	Feelings of emotional distance and/or loneliness on part of the child, as exhibited by anger, neutral or negative affect, physical barriers between mother and child, and the mother being disguised or distorted (e.g., monster-like).
Tension/Anger	Tension and anger inferred from figures that are colourless, without positive facial affect, scrunched, constricted, rigid, careless, scribbled, or with "false starts".
Role-Reversal	Perceptions of the parents as weak or vulnerable, as indicated by the child being drawn larger in size than the parent, the child "floundering" apart from the family, and distorted body extremities.
Bizarreness/Dissociation	Feelings of hostility, betrayal and abandonment revealed in unusual signs or symbols, angry or aggressive facial features, and morbid fantasy themes.
Global Pathology	Overall degree of pathology in the family drawing revealed in global organisation, completeness of figures, use of colour, detail, affect and background scene.

Note. Adapted from Fury et al. (1997) and Fury (1996).

In Figure 4a, for example, the family drawing of an 8-year-old boy received a global pathology score of 7 (very high) because it contained a number of false starts, incomplete figures, and a sad and emotionally alienated figure. All figures were separated behind a drawn barrier from a carefully drawn dismembered sheep (arrows provided the instructions for reconstructing the sheep). In Figure 4b, a 7-year-old boy's family drawing received a global pathology score of 4 (moderate), as it comprised both positive (complete, centred, grounded and differentiated figures, and organised family construction) and negative (lack of background details and colour, neutral facial expressions, child's figure most distant from his parents, and no animation) features that created an uncertain overall emotional tone to the drawing. The family drawing of an 8-year-old girl in Figure 4c received a global pathology

score of 1 (very low). It appears secure and happy, organised, and depicted family members who were highly individuated, colourful, embracing, complete, grounded, and showing positive affect.

Figure 5 shows the family drawings of younger children. In Figure 5a, the family drawing of a 6-year-old boy received a global pathology score of 6 (high). It comprised incomplete figures with an absence of facial expressions, lacked colour, the child's figure was separated from and floating ominously above the family, and there was no clear size distinction among the figures. The family drawing of a 5-year-old boy in Figure 5b received a global pathology score of 4 (moderate). It depicted both positive (some indications of positive connectedness and belonging in the family, and family figures showed positive affect and were differentiated by size) and negative (careless and poorly developed drawing with no colour or background detail, the sibling figure was small in stature, and the child's figure was separated from his mother by his father) characteristics. In Figure 5c, the family drawing of a 5-year-old girl received a global pathology score of 2 (low). This was because the figures were complete and colourful, expressed feelings of security and happiness in the family, and appeared connected to each other.

The principal investigator scored 48 (80%) of the family drawings and, as part of training a second coder, scored the remaining 12 (20%) through conferencing. The two coders were provided with the child's age and the location of their figure in the family drawing. The second coder then independently scored 20 (33%) of the family drawings to establish inter-rater reliability. With the exception of role-reversal (ICC = .54), the intra-class correlations of the family drawing codes were adequate and ranged from .71 to .84. Role-reversal was not included in subsequent analyses.
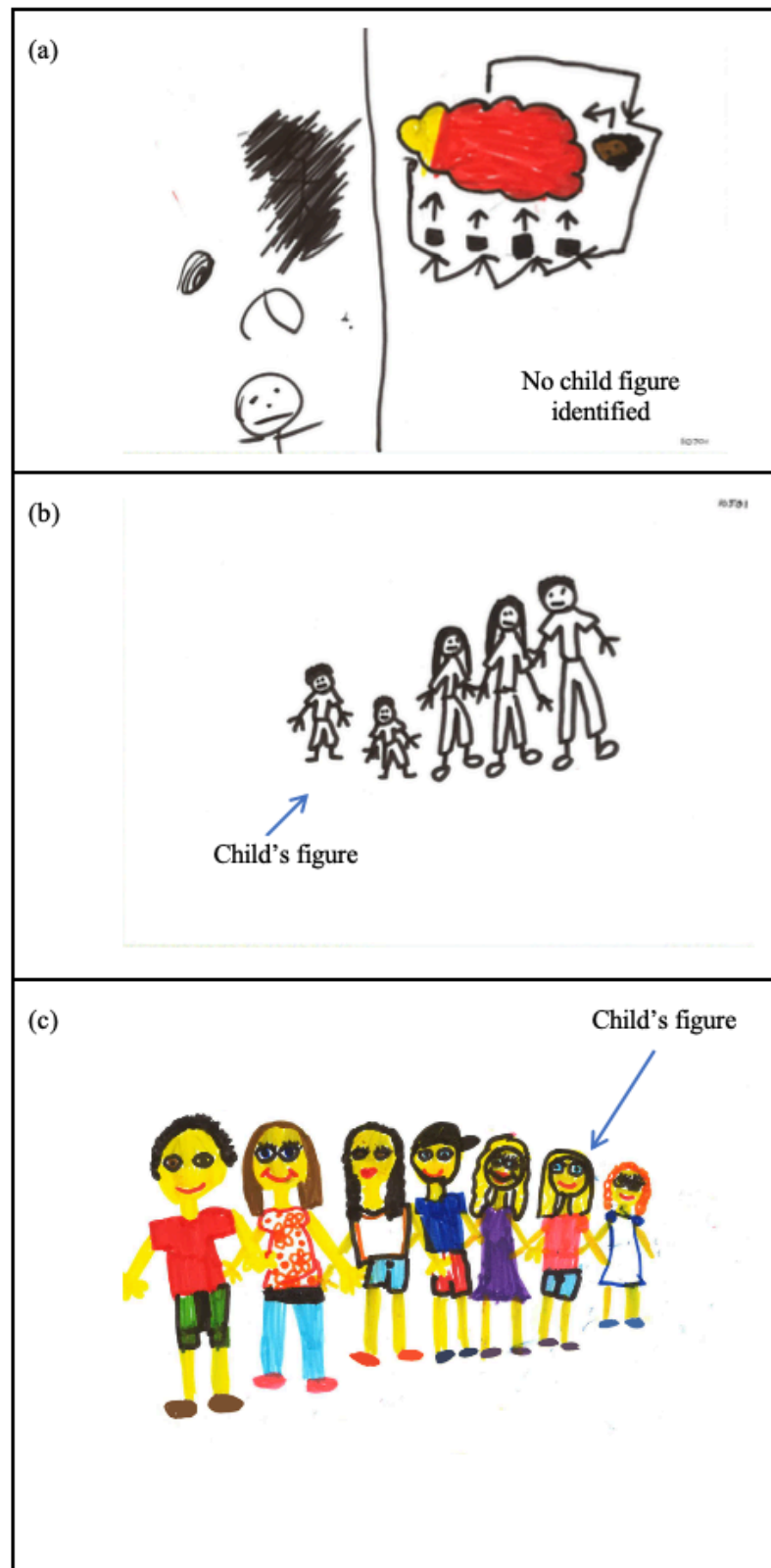
Figure 4. Examples of 7 to 8-year-old children's family drawings that received high

(a), moderate (b), and low (c) global pathology scores.
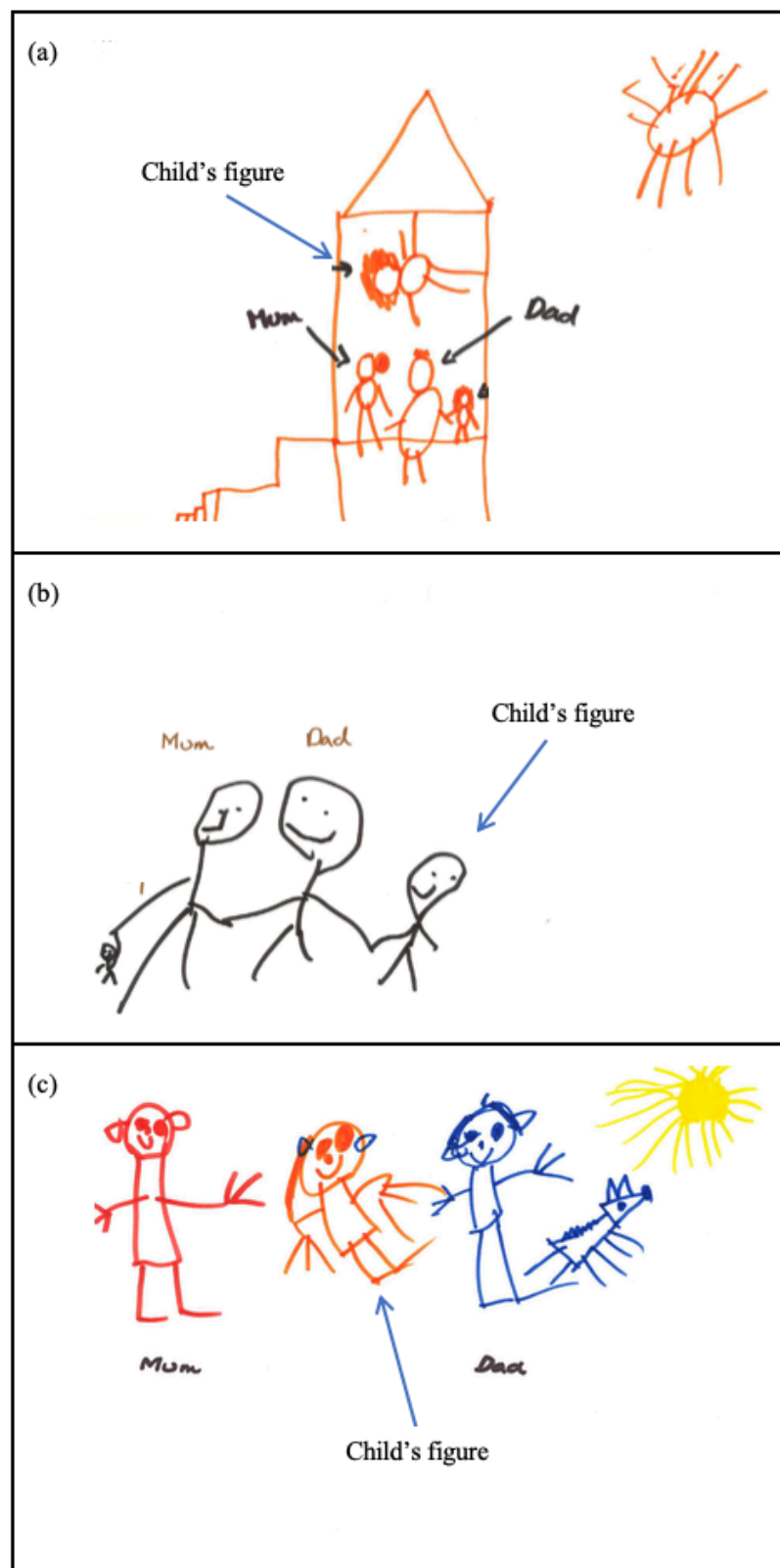
Figure 5. Examples of 5 to 6-year-old children's family drawings that received high (a), moderate (b), and low (c) global pathology scores.

Approach to Data Analysis

The key research questions addressed in the current research were:

1. Are parenting and parent-child attachment relationships associated with the severity of child CU traits in a clinic-referred sample of children with ODD and/or CD?; and

2. Are indices of parenting quality and parent-child attachment relationships associated with the severity of child conduct problems, and if so, are any significant associations moderated by the severity of their CU traits?

Accordingly, child CU traits and conduct problems, assessed using either parent-report questionnaires or a clinician-rated diagnostic interview, were the dependent variables in all analyses (described in detail in Chapter 6). Descriptive statistics and distributions for the child CU traits and conduct problems variables are reported first, and then bivariate associations among the variables measuring child CU traits and conduct problems and family demographics are explored. In line with literature on CU traits in children (e.g., Dadds, Allen, et al., 2012; Waller et al., 2014), all analyses controlled for conduct problems when examining associations among study measures and CU traits, and vice versa.

The independent variables in this study were the various measures of parenting and parent-child attachment relationships, which were grouped as follows: parent experiences of caregiving; parent representations of their child; observations of parent-child interactions; and child representations of their parents. For each grouping, descriptive statistics and distributions of the relevant independent variables were reported, and bivariate associations among the independent variables and family demographic variables were used to identify control variables. Bivariate analyses explored associations among each grouping of independent variables and child CU traits and conduct problems for mothers and fathers separately. Significant associations were investigated further in multivariate analyses.

Binary logistic regressions (mothers and fathers separately) examined whether the relevant independent variables were associated with an increased likelihood of diagnoses of CD or the "With Limited Prosocial Emotions" specifier of CD (LPE), when controlling for family demographic variables, and either the parent-informed LPE diagnosis or ODD severity ratings as appropriate. Analyses of covariance (mothers and fathers separately) examined whether relevant independent variables were significantly associated with ODD severity ratings derived from the diagnostic interview and/or parent-reported child conduct problems and CU traits from the questionnaires, when controlling for family demographic variables, and the parent-informed LPE diagnosis or parent-reported child CU traits or conduct problems as appropriate.

The small sample size for fathers (n = 36) meant that the numbers of predictors needed to be limited, so interaction effects were not tested and family demographic variables were not included as control variables. For mothers, interaction effects were tested to explore whether severity of child CU traits moderated associations among the independent variables and child conduct problems. Research suggests that different levels of CU traits represent distinct developmental pathways to conduct problems in childhood, and not vice versa (Frick, 2012), and a systematic review showed that previous studies have not examined whether different levels of child conduct problems moderate associations among aspects of parent-child relationships and child CU traits (Waller et al., 2013). Consequently, the current study did not test severity of child conduct problems as moderators in analyses.

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Chapter 6: Child Conduct Problems and CU Traits in the Sample

Introduction

This chapter describes conduct problems and CU traits in children in the clinic-referred sample based on a diagnostic interview and parent-report questionnaires for mothers and, where possible, fathers. Results were available for 92 mothers, and 35 fathers (one father did not provide questionnaire data nor participate in the clinical interview). Characteristics of the sample informed the selection of dependent variables and covariates to be used in subsequent analyses. Associations among the parent-report and clinical interview measures of child conduct problems and CU traits, among mother and father reports of child conduct problems and CU traits, and among family demographic variables and child conduct problems and CU traits, are also explored.

Clinician-Rated Diagnostic Interview

As shown in Table 14, all children received a diagnosis of Oppositional Defiant Disorder (ODD), and 28% (n = 26) received a comorbid diagnosis of Conduct Disorder (CD), according to primary caregiver reports (all mothers) on the diagnostic interview using the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition criteria (DSM-5; American Psychiatric Association, 2013). Secondary caregiver (all fathers) responses to the diagnostic interview yielded ODD and CD diagnoses for 94% (n = 33) and 14% (n = 5) of children, respectively. In the presence of an ODD or CD diagnosis, 24% (n = 22) and 23% (n = 8) of children met diagnostic criteria for the "With Limited Prosocial Emotions" specifier of CD (LPE) according to mother and father reports, respectively. The LPE is the diagnostic

reference to CU traits in the DSM-5. A substantial proportion of children also met criteria for

other externalising disorders (Attention-Deficit/Hyperactivity Disorder (ADHD) and

Intermittent Explosive Disorder (IED)) according to both mother and father responses to the

diagnostic interview.

Table 14

Externalising Psychiatric Diagnoses According to DSM-5 Criteria

DSM-5 diagnoses		Mothers (n = 92)		Fathers (n = 35)	
ODD diagnosis	n	92	100%	33	94%
Severity	Mean	5.87		5.33	
	S.D.	1.39		1.19	
	Range	3-8		3-8	
CD diagnosis	n	26	28%	5	14%
LPE diagnosis*	n	22	24%	8	23%
Severity	Mean	4.46		4.40	
	S.D.	1.03		0.89	
	Range	2-6		3-5	
IED diagnosis^	n	34	77%	11	52%
Severity	Mean	5.53		5.00	
	S.D.	1.05		0.63	
	Range	3-8		4-6	
ADHD diagnosis+	n	41	45%	11	31%
Combined	n	17	19%	5	14%
Predominantly Inattentive	n	9	10%	0	0%
Predominantly Hyperactive	n	15	16%	6	17%
Severity	Mean	5.61		5.45	
	S.D.	1.07		0.93	
	Range	3-8		4-7	

Note. * LPE diagnosis with or without a concurrent CD diagnosis
Note. ^ IED diagnostic criteria applicable for children 6 years and over: mothers, n = 44; fathers, n = 21.
Note. + Mothers and fathers reported currently prescribed medication at n = 11 or 12% of sample and n = 3 or 9% of sample, respectively.

Study variables. Since all primary and 94% of secondary caregiver responses to the

diagnostic interview yielded an ODD diagnosis, ODD severity ratings, derived from the

interview, were used in analyses for both mothers and fathers. Small group numbers

prevented the use of CD severity ratings for mothers (n = 26) and fathers (n = 5).

Consequently, hypothesis testing was based on clinician-rated diagnoses of CD and LPE

(yes/no), as well as clinician ODD severity ratings, based on mothers' and fathers' responses to the diagnostic interview. Figure 6 (following) shows that clinician-rated ODD severity based on mother and father interview responses had normal distributions with no outliers.

Mothers
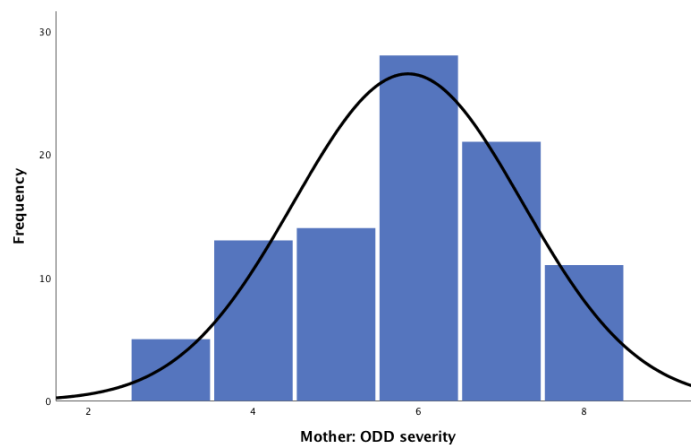
Fathers
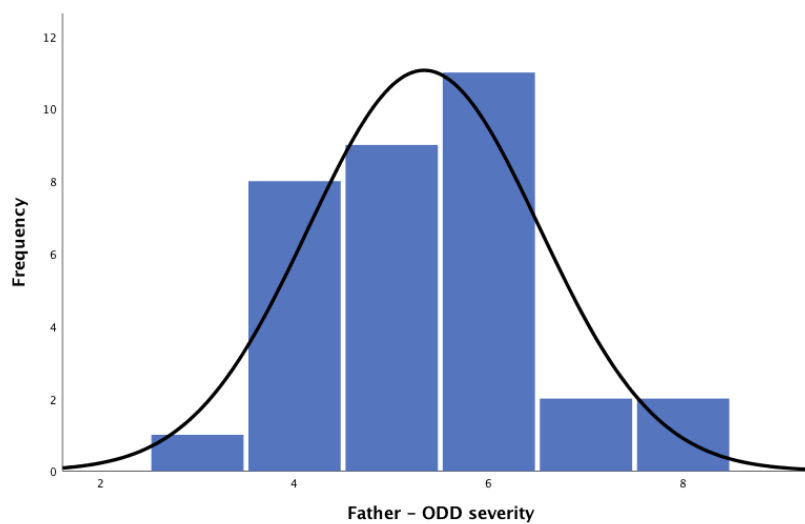
Figure 6. Distributions of ODD severity ratings for mothers and fathers.

Parent-Report Questionnaires

The distributions of the CU traits and conduct problems composite scores for the parent-report questionnaires (combined SDQ and APSD items) are shown for mothers and fathers separately in Figures 7 and 8. Using the outlier labelling rule (Hoaglin & Iglewicz, 1987), a single outlier (extremely high score) was identified for child conduct problems reported by one father. This high score was changed to a score two standard deviations from the mean (Winsorised). The CU traits and Winsorised conduct problems composite scores were normally distributed.
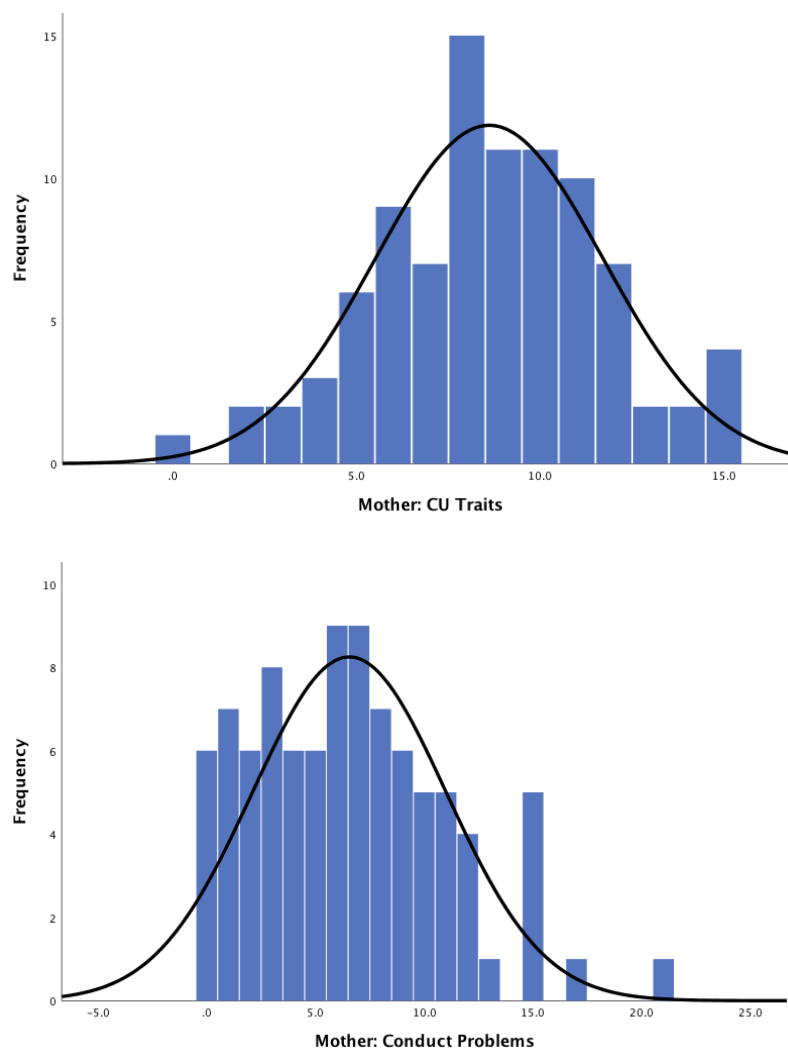
Figure 7. Distributions for mother-reported CU traits and conduct problems composite scores.
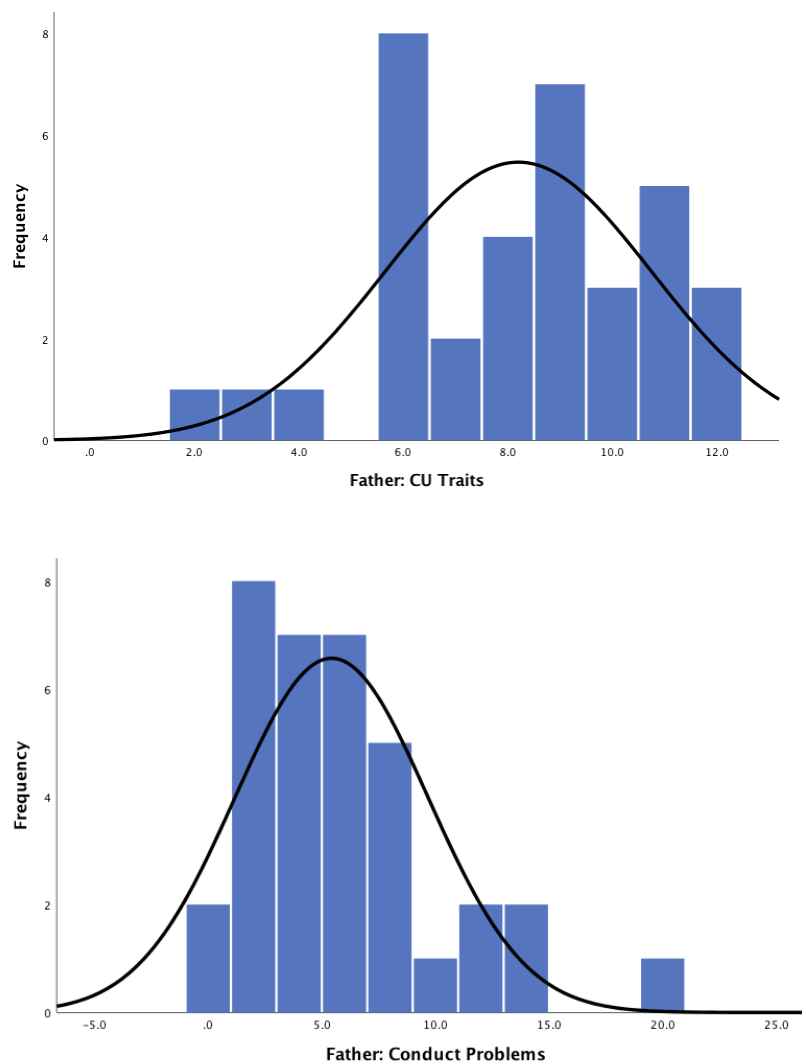
Figure 8. Distributions for father-reported CU traits and conduct problems composite scores.

Table 15 shows descriptive statistics for child CU traits and conduct problems as measured by parent-report questionnaires for mothers and fathers. Mothers and fathers reported mean CU traits composite scores of 8.61 and 8.20, respectively. These scores can be compared to previously reported mean CU traits composite scores ranging from 2.70 to 5.57 in community samples (e.g., Dadds, Allen, et al., 2014; Dadds et al., 2005), and from 6.53 to 9.42 in clinic-referred samples (e.g., Hawes & Dadds, 2007; Hawes, Dadds, Brennan,

Rhodes, & Cauchi, 2013). Mothers and fathers reported mean conduct problems composite scores of 6.55 and 5.29, respectively. Previous studies have reported mean conduct problems composite scores ranging from 3.16 to 4.57 in community samples (e.g., Dadds et al., 2008; Dadds et al., 2016) and 10.60 in clinical samples (Hawes & Dadds, 2005). Thus, current scores for CU traits seem consistent with clinically elevated levels; but, contrary to expectation, parent-reported conduct problems in the current study more closely resembled community, rather than clinical, levels of severity. It should be noted that six mothers and two fathers reported conduct problems composite scores of 0 (bearing in mind that all children met diagnostic criteria for ODD, with moderate to severe impairment), and 29% and 37% of mothers and fathers, respectively, reported scores of 3 or less.

Table 15

Bivariate Correlations and Descriptive Statistics for Child Conduct Problems and CU Traits

Conduct problems variables	1		2		3		4		5	Mean	S.D.
Mothers											
Parent-rated (n = 92)											
1. CU traits	-									8.61	3.10
2. Conduct problems	.37	**	-							6.55	4.45
Clinician-rated (n = 92)											
3. LPE diagnosis	.48	**	.37	**	-					0.24	0.43
4. ODD severity	.23	*	.55	**	.24	*	-			5.87	1.39
5. CD diagnosis	.17		.54	**	.38	**	.62	**	-	0.28	0.45
Fathers											
Parent-rated (n = 35)											
1. CU traits	-									8.20	2.55
2. Conduct problems	.43	**	-							5.29	3.85
Clinician-rated (n = 35)											
3. LPE diagnosis	.36	*	.41	*	-					0.23	0.43
4. ODD severity	.32		.64	**	.32		-			5.33	1.19
5. CD diagnosis	.39	*	.79	**	.36	*	.53	**	-	0.14	0.36
Mothers (n = 35)			Fathers (n = 35)								
1. CU traits	.46	**									
2. Conduct problems			.53	**							
3. LPE diagnosis					.41	**					
4. ODD severity							.63	**			
5. CD diagnosis									.51	**	

* $p < .05$; ** $p < .01$

Dependent Variables for the Current Study

The current study assessed child CU traits using the CU traits composite score from the parent-report questionnaires and the LPE diagnosis from the clinical interview. Child conduct problems were measured by the conduct problems composite score from the parent-report questionnaires and the ODD severity rating and CD diagnosis from the clinical interview. These dependent variables were considered for mothers and fathers separately in all analyses. This approach was considered advantageous for several reasons. First, the CU traits literature and DSM-5 recommend a multiple method and informant approach to the assessment of conduct problems in childhood (e.g., Frick et al., 2014b). Second, parent responses to questionnaires may be confounded by parent emotions and attributions about their child and relationship, their concurrent stress and mental health, and defensive processes, such as social desirability or denial (Bennetts et al., 2016). Clinician-rated diagnoses and severity ratings based on parent responses to a clinical interview may be more objective and offer the possibility of corroborating parent reports on the questionnaire measures. Third, disruptive behaviour disorder diagnoses from the clinical interview provide an indication of typology and severity of child conduct problems not captured by parent-report questionnaires. Accordingly, this study included two CU traits and three conduct problems dependent variables in analyses.

Table 15 shows descriptive statistics for, and bivariate correlations among, the five dependent child CU traits and conduct problems variables used in this study for mothers and fathers separately. The associations among the parent-reported CU traits composite score and the clinician-rated LPE diagnosis were significant and positive for both mothers and fathers, with moderate effect sizes (see Table 15). These moderate associations could reflect differences in the items that assessed CU traits in the questionnaires and diagnostic interview measures. Or it could show that clinicians and parents had only moderate agreement when

assessing child personality traits. The associations among the parent-reported conduct problems composite score and clinician-rated CD diagnosis and ODD severity were all significant, and strongly positive, for both mothers and fathers.

The CU traits and conduct problems composite scores were significantly correlated, and the LPE diagnosis was more strongly associated with a CD diagnosis than with ODD severity, for both mothers and fathers. There were no significant differences between scores for mothers and fathers on conduct problems and CU traits variables, although higher ODD severity ratings for mothers than fathers approached significance ($t(123) = 1.98$, $p = .050$). As shown in Table 15, mothers and fathers were in strong agreement for their ratings of child conduct problems, and moderate agreement in their ratings of child CU traits, as assessed by either the parent-report questionnaires or clinical interview.

With regard to family demographics, child age and gender, parent education level, household income, number of siblings in the family, and parent relationship status, were not significantly associated with mother or father reports of child CU traits and conduct problems on the questionnaires or diagnostic interview measures. Despite no supporting evidence in the current study, prior research suggests that conduct problems and CU traits are expressed differently by girls and boys (e.g., Charles, Acheson, Mathias, Furr, & Dougherty, 2012; Stickle, Marini, & Thomas, 2012), and at different ages (e.g., Dadds et al., 2009). Taking a conservative approach and, given the broad age-range in the sample, child gender and age were included as control variables in all multivariate analysis for mothers. Note: these variables were not employed for fathers due to small numbers limiting the number of predictor variables it was appropriate to include.

Chapter 6 Summary: The Current Study

In summary, primary caregiver responses (n = 92 mothers) to the clinical interview indicated that all 92 children participating in the research project were diagnosed with ODD, 28% (n = 26) with CD, and 24% (n = 22) met criteria for LPE. Hypothesis testing will be based on ODD severity ratings and the diagnoses of CD and LPE from the clinician-rated diagnostic interview, as well as parent-reported CU traits and conduct problems from the questionnaires, considered for mothers and fathers separately. CU traits were associated with more severe conduct problems on both the diagnostic interview and questionnaire measures, parent-reported CU traits and the clinician-rated LPE diagnosis showed moderate concordance, and parent-reported conduct problems and the clinician-rated ODD severity ratings and CD diagnosis showed strong associations. Mothers and fathers showed moderate to strong agreement on their ratings of child behaviour and CU traits, and there were no significant associations among family demographic variables and the study measures of child CU traits or conduct problems.

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Chapter 7: Parent Perceptions of Their Caregiving

Introduction

Parent perceptions regarding their caregiving experiences with their child were assessed using: the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996); the Caregiving Helplessness Questionnaire (CHQ; George & Solomon, 2011); and the Parenting Stress Index-Fourth Ed.-Short Form (PSI-4-SF; Abidin, 2012). A number of scores were derived from these measures (outlined in detail in the methods section, Chapter 5): positive and negative parenting practices captured as composite scores from the APQ; child caregiving, parent helplessness and frightened or frightening caregiving as three subscale scores from the CHQ; and a total score for stress related to parenting from the PSI-4-SF. The frightened or frightening caregiving scale was not included in analyses for mothers due to low internal consistency. Results were available for 92 mothers and 35 fathers (one father did not provide any questionnaire data, and another father completed all but the CHQ questionnaire, i.e., n = 34 for caregiving helplessness variables).

It was expected that more severe child conduct problems and higher CU traits would be associated with mother and father reports of fewer positive and more negative parenting practices, more parent helplessness and frightened or frightening caregiving (only for fathers), and more parenting stress. The parents of children with conduct problems and high CU traits, however, were not expected to report child caregiving (child looking after the parent or others). This study also explored whether any significant relationships between child conduct problems and parenting practices, caregiving helplessness, or parenting stress might depend on the severity of child CU traits. No specific predictions were made regarding moderation, as previous research has produced mixed findings (refer to Chapter 2). The

approach to data analysis for the study has been outlined in detail in Chapter 5 and is briefly summarised here.

Bivariate analyses explored associations among parenting practices, caregiving helplessness, parenting stress, and child CU traits and conduct problems for mothers and fathers separately and, in order to identify control variables, any associations among study and family demographic variables. Significant bivariate associations were then investigated further in multivariate analyses of covariance or binary logistic regressions, controlling for relevant family demographic variables and either child CU traits or conduct problems, as appropriate.

The small sample size for fathers (n = 35) meant that the number of predictors needed to be limited, so family demographic variables were not included as control variables for these analyses. Also, interaction effects were not tested. For mothers, interaction effects were tested to explore whether child CU traits moderated any significant associations among parenting variables and child conduct problems. As described in Chapter 6, CU traits were measured via the LPE diagnosis from the clinical interview and the CU traits composite score from the parent-report questionnaires. Child conduct problems were assessed by the ODD severity rating and CD diagnosis from the clinical interview, and the conduct problems composite score from the parent-report questionnaires.

Finally, the unique relations of the different measures of parenting (parenting practices (APQ), caregiving helplessness (CHQ) and parenting stress (PSI-4-SF)) with child conduct problems and CU traits were explored based on significant associations identified. Multivariate analyses of covariance and binary logistic regressions (mothers and fathers separately) investigated the strongest predictors of child conduct problems or CU traits,

controlling for family demographic variables (mothers only) and either child conduct

problems or CU traits, as appropriate.

As described in Chapter 6, child age and gender were included as control variables in

all analyses. Since low parent educational attainment is an established risk factor for the

development of childhood conduct problems (Loeber et al., 2000), and the level of parent

education could possibly influence the nature of parent reporting on questionnaire measures,

a conservative approach was taken. Parents' level of education was also controlled in all

analyses.

Preliminary Analyses

Parenting practices (APQ; Shelton et al., 1996). A single outlier for mother

reports of negative parenting practices was identified using the outlier labelling rule (Hoaglin

& Iglewicz, 1987). This high score was changed to two standard deviations from the mean

("Winsorised"). Visual inspection of the distributions, and conventions for interpreting

skewness and kurtosis statistics showed that the positive parenting practices composite scores

for both mothers and fathers, and the negative parenting practices composite score for fathers

had approximately normal distributions. The negative parenting practices composite score for

mothers maintained a positively skewed distribution, even when the outlier was Winsorised.

Since the parenting practices composite scores were to be used as independent variables in

subsequent analyses, transformations of these variables were deemed unnecessary. However,

Spearman's rank correlation coefficients are reported for non-normally distributed and

categorical variables.

The association among positive and negative parenting practices composite scores

was not significant for either mothers ($r = -.14$, $p = .19$) or fathers ($r = -.15$, $p = .39$).

Associations among family demographic variables (i.e., child age and gender, household

income, parent level of educational attainment, number of siblings in the family, mothers'

relationship status) and positive or negative parenting practices revealed that mothers of older

children reported significantly more negative parenting practices ($r = .22$, $p = .033$). Lower

household income was also significantly related to fathers' reports of more negative

parenting practices ($r = -.42$, $p = .012$), and fewer siblings in the family was significantly

related to more positive parenting practices reported by fathers ($r = -.36$, $p = .034$). Since

child age was already planned to be included as a control variable, no further family

demographic variables were included as control variables in analyses for mothers. For those

children who had both parents report on their parenting practices (n = 35), mother and father

reports were significantly correlated for negative ($r = .54$, $p = .001$), but not positive ($r = .22$,

$p = .20$) parenting practices.

Caregiving Helplessness Questionnaire. In relation to the Caregiving

Helplessness Questionnaire (CHQ; George & Solomon, 2011), a single outlier (extremely

high score) was identified for father-reported frightened or frightening caregiving. This score

was changed to within two standard deviations from the mean (Winsorised). When the

Winsorised scores were considered, all caregiving helplessness dimensions were normally

distributed. Spearman's rank correlation coefficients are reported for categorical variables.

Associations among the variables revealed that mother-reported child caregiving was

not significantly related to parent helplessness ($r = -.06$, $p = .54$); however father-reported

parent helplessness was significantly and positively correlated with their reports of frightened

or frightening caregiving ($r = .66$, $p < .001$) and also approached significance with their

reports of child caregiving ($r = -.33$, $p = .053$). Father-reported child caregiving was not

significantly related to their reports of frightened or frightening caregiving ($r = -.11$, $p = .54$).

There were no significant associations among family demographic variables and the CHQ

subscales for either mothers or fathers. The relations among mother and father reports (n =

35) were significant for child caregiving ($r = .43$, $p = .012$), but not parent helplessness ($r = .18$, $p = .31$).

As described in Chapter 4, relatively few studies have used the CHQ. In order to compare the current data with that of previous studies, a factor analysis was conducted on the CHQ. An initial principal components factor analysis with varimax rotation yielded a six-factor solution that accounted for 68% of the variance, with eigenvalues ranging from 5.10 to 1.08 (eiganvalues greater than 1.00 are a recognised cut-off for identifying factors). The 11 items in the first factor related to a frightened parent (27% of the variance). The three items in the second factor pertained to the child cheering up others (13% of the variance). The two items in the third factor related to child caregiving (9% of the variance). Finally, the remaining three factors related to a frightened child. These findings will be discussed in Chapter 11.

Parenting stress. The total parenting stress score from the PSI-4-SF (Abidin, 2012) was used in hypothesis testing. The distributions of scores for mother and father reports of total parenting stress revealed normal distributions with no outliers. There were no significant associations among total parenting stress and family demographic variables for either mothers or fathers. The association among mother and father reports of total parenting stress (n = 35) was also not significant ($r = .28$, $p = .10$). Mothers reported significantly higher parenting stress than fathers: total parenting stress, $t(125) = 3.11$, $p = .002$, and parent-child dysfunctional interaction, $t(125) = 2.70$, $p = .008$, difficult child, $t(125) = 3.43$, $p = .001$, but not parental distress, $t(125) = 1.19$, $p = .24$, subscales.

Associations among the questionnaire measures. As shown in Table 16, mothers' reports of more negative parenting practices were significantly correlated with reports of more parent helplessness, and higher total parenting stress. Higher total parenting stress (mothers) was also correlated with lower scores for child caregiving and more parent helplessness. For fathers (see Table 17), reports of fewer positive parenting practices were significantly associated with higher scores for parent helplessness and for frightened or frightening caregiving, and higher scores for total parenting stress. Higher scores for total parenting stress were also significantly correlated with less child caregiving, more parent helplessness and more frightened or frightening caregiving. These significant correlations had mostly medium to large effect sizes, indicating some, but not complete, overlap amongst certain parenting variables. There were also a number of non-significant associations that, together, suggest that the parenting variables in this study are capturing different constructs.

Table 16

Bivariate Correlations Among Mother-Reported Parenting and Child CU Traits and Conduct Problems

Mothers	1		2		3		4		5		6		7		8		9		10
Child conduct problems																			
1. CU traits	-																		
2. Conduct problems	.37	**	-																
3. LPE diagnosis+	.47	**	.34	**	-														
4. ODD severity rating	.23	*	.55	**	.25	*	-												
5. CD diagnosis+	.22	*	.52	**	.38	**	.65	**	-										
Parenting practices																			
6. Positive parenting	-.24	*	-.10		-.14		.06		-.10		-								
7. Negative parenting+	.00		.17		.13		.12		.09		-.14		-						
Caregiving helplessness																			
8. Child caregiving	-.40	**	.02		-.24	*	.03		.04		.06		.12		-				
9. Parent helplessness	.35	**	.39	**	.31	**	.53	**	.32	**	.02		.35	**	-.06		-		
Parenting stress																			
10. Total stress	.49	**	.37	**	.22	*	.37	**	.24	*	-.09		.36	**	-.21	*	.60	**	-
Mean	8.61		6.55		0.24		5.87		0.28		0.00		-0.04		17.46		17.79		99.65
S.D.	3.10		4.45		0.43		1.39		0.45		1.71		1.98		4.43		5.92		18.74
N	92		92		92		92		92		92		92		92		92		92

$* p < .05; ** p < .01$
+ Spearman's rho

Table 17

Bivariate Correlations Among Father-Reported Parenting and Child CU Traits and Conduct Problems

Fathers	1		2		3		4		5		6		7		8		9		10		11
Child conduct problems																					
1. CU traits	-																				
2. Conduct problems	.43	**	-																		
3. LPE diagnosis+	.42	*	.37	*	-																
4. ODD severity rating	.32		.64	**	.33		-														
5. CD diagnosis+	.42	*	.61	**	.36	*	.45	**	-												
Parenting practices																					
6. Positive parenting	-.50	**	-.40	*	-.35	*	-.38	*	-.45	**	-										
7. Negative parenting	.02		.23		.28		.40	*	.21		-.15		-								
Caregiving helplessness																					
8. Child caregiving	-.42	*	-.02		-.28		-.07		-.20		.19		.10		-						
9. Parent helplessness	.23		.38	*	.28		.49	**	.30		-.49	**	.27		-.33		-				
10. Frightened or frightening caregiving	.47	**	.53	**	.12		.52	**	.48	**	-.40	*	.19		-.11		.66	**	-		
Parenting stress																					
11. Total stress	.46	**	.41	*	.35	*	.32		.39	*	-.39	*	.13		-.45	**	.75	**	.59	**	-
Mean	8.20		5.29		0.23		5.33		0.14		0.00		0.00		16.94		14.29		11.74		88.31
S.D.	2.55		3.85		0.43		1.19		0.36		1.78		1.90		3.20		5.34		2.98		17.24
N	35		35		35		33		35		35		35		34		34		34		35

* p < .05; ** p < .01
+ Spearman's rho

Is Parenting Associated with Child CU Traits?

The first research question concerned associations between parenting styles and experiences and child CU traits. Bivariate correlations are shown in Tables 16 (mothers) and 17 (fathers).

Parenting practices. The current study hypothesised that fewer positive and more negative parenting practices would be associated with higher child CU traits for mothers and fathers – controlling for relevant family demographic variables and the concurrent severity of child conduct problems.

Questionnaire ratings of CU traits. Bivariate correlations shown in Tables 16 and 17 show that fewer positive, but not negative, parenting practices reported by mothers and fathers were significantly associated with parent reports of higher child CU traits. An analysis of covariance (the model explained 22% of the variance) confirmed that fewer mother-reported positive parenting practices, $F(1, 85) = 4.51$, $p = .037$, $\eta_p^2 = .05$, were significantly associated with higher child CU traits (mother-reported), controlling for negative parenting practices, conduct problems, child age and gender, and parent education. Mother-reported child conduct problems were also associated with higher mother-reported CU traits, $F(1, 85) = 14.85$, $p < .001$, $\eta_p^2 = .15$, as expected, with no other significant associations.

Supporting the hypothesis for fathers, an analysis of covariance (the model explained 32% of the variance) revealed that fewer father-reported positive parenting practices were associated with higher father-reported child CU traits, $F(1, 31) = 5.97$, $p = .020$, $\eta_p^2 = .16$, controlling for child conduct problems and negative parenting practices (family demographic variables were not included). Neither father-reported child conduct problems nor father-reported negative parenting practices had a significant association with child CU traits.

The parental involvement and positive parenting subscales of the APQ were combined to produce the positive parenting practices composite variable. Follow-up analyses showed that mothers' reports of less parental involvement ($r = -.27$, $p = .011$), but not positive parenting ($r = -.15$, $p = .16$), and fathers' reports of less parental involvement ($r = -.49$, $p = .003$) and fewer positive parenting practices ($r = -.39$, $p = .020$) were significantly related to higher child CU traits.

Clinician-rated LPE diagnosis. Bivariate correlations in Tables 16 and 17 show that father, but not mother, reports of fewer positive parenting practices were also significantly associated with father-informed LPE diagnoses. There were no significant associations among mother or father reports of negative parenting practices and parent-informed LPE diagnoses.

A logistic regression controlling for ODD severity ratings and negative parenting practices (fathers) revealed that the full model was not significant ($\chi^2(3, N = 33) = 5.56$, $p = .14$), and none of the individual variables, ODD severity ratings (Wald $\chi^2 = 0.98$, $p = .32$), positive parenting practices (Wald $\chi^2 = 0.59$, $p = .44$), or negative parenting practices (Wald $\chi^2 = 1.12$, $p = .29$), significantly distinguished between those with or without a father-informed LPE diagnosis.

Caregiving helplessness. It was expected that mother reports of more parent helplessness, and father reports of more parent helplessness and frightened or frightening caregiving, would be associated with higher child CU traits. It was also expected that the parents of children with high CU traits would not report child caregiving (looking after others).

Questionnaire ratings of CU traits. Bivariate correlations displayed in Tables 16 and 17 show that lower scores for child caregiving for mothers and fathers, higher scores for

parent helplessness for mothers, and higher scores for frightened or frightening caregiving for fathers, were significantly associated with parent reports of higher child CU traits.

Separate analyses of covariance for mothers and fathers investigated the associations of caregiving helplessness with child CU traits, controlling for parent-reported child conduct problems and, for mothers, relevant family demographic variables (as above). The hypothesis was supported for mothers. The model explained 37% of the variance and showed that more parent helplessness, $F(1, 85) = 4.88$, $p = .030$, $\eta_p^2 = .05$, low child caregiving, $F(1, 85) = 19.26$, $p < .001$, $\eta_p^2 = .19$, and more severe conduct problems, $F(1, 85) = 11.81$, $p = .001$, $\eta_p^2 = .12$, were significantly associated with higher mother-reported child CU traits. The hypothesis was also supported for fathers (the model explained 49% of the variance), with fathers' reports of low child caregiving, $F(1, 29) = 11.41$, $p = .002$, $\eta_p^2 = .28$, and more frightened or frightening caregiving, $F(1, 29) = 6.69$, $p = .015$, $\eta_p^2 = .19$, significantly associated with their reports of higher child CU traits. Fathers' reports of more parent helplessness, $F(1, 29) = 4.14$, $p = .051$, $\eta_p^2 = .13$, and more severe child conduct problems, $F(1, 29) = 4.06$, $p = .053$, $\eta_p^2 = .12$, approached significance in predicting higher child CU traits.

Clinician-rated LPE diagnosis. Bivariate correlations shown in Tables 16 and 17 reveal that mothers' reports of low child caregiving and more parent helplessness were associated with an LPE diagnosis, based on their clinical interviews. There were no significant associations among fathers' reports of caregiving helplessness and an LPE diagnosis, based on father interviews.

A logistic regression analysis (mothers) including child age and gender, parent education, ODD severity ratings, and child caregiving and parent helplessness showed that the predictors as a set reliably distinguished between children with and without the LPE

diagnosis, $\chi^2(6, N = 92) = 17.66$, $p = .007$. Nagelkerke's R^2 of .26 indicated a relatively weak relationship. The Wald criterion revealed that only child caregiving (Wald $\chi^2 = 5.04$, $p = .025$) and parent helplessness (Wald $\chi^2 = 4.24$, $p = .040$) were significantly associated with an LPE diagnosis. Odds ratios were 0.86 and 1.13, respectively, indicating that parents reporting more parent helplessness (1.13 times) and low child caregiving (0.86 times) had children who were more likely to be diagnosed with LPE.

Parenting stress. The current study hypothesised that mother and father reports of higher parenting stress would be associated with higher child CU traits measured by parent report questionnaires and/or clinical interview.

Questionnaire ratings of CU traits. Bivariate correlations in Tables 16 and 17 show that mother and father reports of higher total parenting stress were associated with higher child CU traits on the parent-report questionnaire measures.

Two analyses of covariance examined these significant associations, controlling for parent-reported child conduct problems and, for mothers, relevant family demographic variables. As predicted, mothers' reports of higher total parenting stress were significantly associated with higher child CU traits, $F(1, 86) = 19.89$, $p < .001$, $\eta_p^2 = .19$ (the model explained 33% of the variance). Among the control variables, more severe child conduct problems, $F(1, 86) = 6.54$, $p = .012$, $\eta_p^2 = .07$, and younger child age, $F(1, 86) = 5.15$, $p = .026$, $\eta_p^2 = .06$, were also significantly associated with higher child CU traits. Follow-up bivariate correlations showed that all three subscales for mothers: more parent-child dysfunctional interactions ($r = .50$, $p < .001$), higher parental distress ($r = .21$, $p = .044$), and perceptions of a difficult child ($r = .45$, $p < .001$) were significantly associated with higher mother-reported child CU traits.

The hypothesis was also supported for fathers (the model explained 28% of the variance), with higher total parenting stress, $F(1, 32) = 4.30$, $p = .046$, $\eta_p^2 = .12$, uniquely associated with higher father-reported child CU traits, controlling for concurrent child conduct problems. Follow-up correlations showed that fathers' reports of more parent-child dysfunctional interactions ($r = .48$, $p = .004$) and having a difficult child ($r = .38$, $p = .026$), but not parental distress ($r = .23$, $p = .19$), were significantly associated with higher child CU traits.

Clinician-rated LPE diagnosis. Higher parenting stress for both mothers and fathers were significantly correlated with parent-informed LPE diagnoses on the clinical interview (Tables 16 and 17). A binary logistic regression analysis, $\chi^2(5, N = 92) = 8.54$, $p = .13$, showed that neither parenting stress (Wald $\chi^2 = 1.69$, $p = .19$) nor any control variable was significantly associated with the LPE diagnosis for mothers, when ODD severity ratings were controlled. For fathers, the model was significant, indicating that the predictors as a set (father-reported conduct problems and total parenting stress) reliably distinguished between children with and without the LPE diagnosis, $\chi^2(2, N = 33) = 6.48$, $p = .039$; the model explained 27% of the variance. The Wald criterion, however, showed that neither father-reported total parenting stress (Wald $\chi^2 = 2.75$, $p = .098$) nor father-reported child conduct problems (Wald $\chi^2 = 1.47$, $p = .23$) uniquely distinguished children with and without an LPE diagnosis.

Most influential aspects of parenting in relation to child CU traits. The above results show that mothers and fathers who reported less positive parenting practices, low child caregiving, and more parenting stress reported higher child CU traits (parent-report questionnaires and/or responses on a diagnostic interview). Mothers, but not fathers (although approached significance at $p = .051$), who reported more parent helplessness, and fathers, but

not mothers, who reported more frightened or frightening caregiving also reported higher child CU traits. These parenting variables were then grouped in multivariate analyses in order to consider their unique relations to child CU traits. For mothers, the analysis of covariance (displayed in Table 18) explained 46% of the variance, showing that mothers' reports of fewer positive parenting practices, more parenting stress, and low child caregiving were all significantly related to higher child CU traits, controlling for conduct problems and family demographic variables. Parent helplessness, however, was no longer significant, controlling for the above variables. Among the control variables, more severe mother-reported conduct problems, and younger child age were related to higher child CU traits.

Table 18

Significant Parenting Variables: Analyses of Covariance for Mother and Father Reported Child CU Traits

Variables	SS	df	MS	F	η_p^2	
Mothers						
Child age	24.69	1, 83	24.69	4.31	.05	*
Child gender	0.14	1, 83	0.14	0.02	.00	
Parent education	1.19	1, 83	1.19	0.21	.00	
Conduct problems	45.05	1, 83	45.05	7.87	.09	**
Positive parenting practices	24.13	1, 83	24.13	4.22	.05	*
Parenting stress	44.57	1, 83	44.57	7.78	.09	**
Child caregiving	81.24	1, 83	81.24	14.19	.15	**
Parent helplessness	2.29	1, 83	2.29	0.40	.01	
$R^2 = .46$ (Adjusted $R^2 = .40$)						
Fathers						
Conduct problems	4.33	1, 27	4.33	1.42	.05	
Positive parenting practices	15.72	1, 27	15.72	5.17	.16	*
Parenting stress	8.22	1, 27	8.22	2.70	.09	
Child caregiving	21.78	1, 27	21.78	7.16	.21	*
Parent helplessness	31.62	1, 27	31.62	10.39	.28	**
Frightened or frightening caregiving	19.43	1, 27	19.43	6.38	.19	*
$R^2 = .60$ (Adjusted $R^2 = .51$)						

* $p < .05$; ** $p < .01$

Note. Child gender: male = 1, female = 2; Parent education: lower = 1 and higher = 2.

A logistic regression analysis with the same set of predictors and the LPE diagnosis as the dependent variable yielded a significant model accounting for 30% of the variance, $\chi^2(8, N = 92) = 20.59$, $p = .008$. Parent helplessness (Wald $\chi^2 = 4.10$, $p = .043$) and child caregiving (Wald $\chi^2 = 5.31$, $p = .021$) were significantly associated with an LPE diagnosis. Odds ratios were 1.14 and 0.86, respectively, indicating that mothers reporting more parent helplessness (1.14 times) and low child caregiving (0.86 times) had children who were more likely to be diagnosed with LPE. Mothers' positive parenting practices (Wald $\chi^2 = 2.81$, $p = .094$) and parenting stress (Wald $\chi^2 = 0.004$, $p = .95$), however, did not predict LPE diagnoses once ODD severity ratings and other parenting and family demographic variables were controlled.

For fathers, an analysis of covariance (shown in Table 18) explained 60% of the variance. It revealed that fewer positive parenting practices, low child caregiving, more frightened or frightening caregiving, and more parent helplessness were all significantly associated with higher father-reported child CU traits. Fathers' reports of parenting stress and conduct problems were not significantly related to father-reported CU traits. A logistic regression investigated whether fathers with these variables were more likely to have an LPE diagnosis, controlling for ODD severity ratings. The model was not significant ($\chi^2 (6, N = 32) = 8.33$, $p = .22$).

Summary. The results showed that, as expected, reports of fewer positive parenting practices (mothers and fathers) were associated with higher CU traits, but not with an LPE diagnosis. Against expectations, parent-reported negative parenting practices were not significantly associated with parent-reported child CU traits or parent-informed LPE diagnoses. Also, as hypothesised, caregiving helplessness was associated with more severe child CU traits, but the patterns among the subscales differed for fathers and mothers. More

mother-reported parent helplessness and low child caregiving, and more father-reported frightened or frightening caregiving and low child caregiving, were related to higher parent-reported child CU traits. For mothers, but not fathers, more feelings of helplessness and reports of low child caregiving were also associated with the LPE diagnosis. Finally, as expected, mother and father reports of more parenting stress were significantly associated with parent reports of higher child CU traits, but not parent-informed LPE diagnoses.

When significant variables were examined together, mothers' reports of fewer positive parenting practices, low child caregiving and more parenting stress, but not parent helplessness, were uniquely related to higher mother-reported child CU traits. Associations were somewhat different for the LPE diagnosis. Mother-reported parent helplessness and low child caregiving were significantly associated with mother-informed LPE diagnoses. For fathers, positive parenting practices, child caregiving, frightened or frightening caregiving, and parenting helplessness, but not parenting stress, were associated with CU traits, but not the LPE diagnosis.

Is Parenting Associated with Child Conduct Problems?

This section investigated associations among child conduct problems and mother and father reports of their parenting practices, caregiving helplessness and parenting stress. A similar approach to analysis was used, with the addition that interaction effects were tested for mothers to explore whether CU traits moderated any associations among parenting variables and child conduct problems.

Parenting practices. The current study hypothesised that mother and father reports of more negative and less positive parenting practices would be associated with more severe child conduct problems, controlling for relevant family demographic variables and child CU traits.

Questionnaire ratings of conduct problems severity. Bivariate correlations (Tables 16 and 17) show that neither mother nor father reports of negative parenting practices were significantly associated with child conduct problems. Father, but not mother, reports of fewer positive parenting practices, however, were significantly associated with more severe conduct problems. An analysis of covariance controlling for CU traits and negative parenting practices indicated that the hypothesis was not supported for fathers (all *ps* > .08).

Clinician-rated ODD severity ratings. Bivariate correlations shown in Tables 16 and 17 show that father, but not mother, reports of less positive and more negative parenting practices were associated with higher parent-informed ODD severity ratings. An analysis of covariance controlling for the LPE diagnosis and positive or negative parenting practices as appropriate, did not support these hypotheses for fathers (all *ps* > .10).

Clinician-rated CD diagnosis. Fewer father-reported positive parenting practices were significantly correlated with father-informed diagnoses of CD. There were no other significant associations among positive or negative parenting practices and clinician-rated CD diagnoses for mothers or fathers. A logistic regression controlling for fathers' reports of negative parenting practices and the father-informed LPE diagnosis was significant, accounting for 44% of the variance, $\chi^2(3, N = 35) = 9.76$, $p = .021$. However, neither father-reported positive (Wald $\chi^2 = 2.54$, $p = .11$) nor negative (Wald $\chi^2 = 0.21$, $p = .65$) parenting practices uniquely distinguished between children with or without a CD diagnosis based on fathers' responses to the clinical interview.

Caregiving helplessness. It was expected that parent reports of more helplessness and frightened or frightening caregiving would be associated with more severe child conduct problems. No hypotheses were made regarding child caregiving. Child CU traits were explored as a moderator of any significant associations between caregiving helplessness and child conduct problems for mothers, without predictions made in advance.

Questionnaire ratings of conduct problems severity. Mothers' and fathers' reports of more parent helplessness, and fathers' reports of more frightened or frightening caregiving (this subscale had low reliability for mothers), were positively correlated with child conduct problems. Two analyses of covariance were conducted, controlling for parent-reported CU traits and, for mothers, relevant family demographic variables. As displayed in Table 19, the hypothesis was supported for mothers, with more parent helplessness (p = .041) and higher CU traits *(p* = .001) related to more severe child conduct problems. Interaction effects were not significant (CU traits x child caregiving or parent helplessness) and were not included in the final model. The second analysis of covariance did not support the hypothesis for fathers. Controlling for child CU traits, none of the CHQ variables were related to child conduct problems (all *ps* > .20).

Table 19

Caregiving Helplessness: Analyses of Covariance for Mother Reported Conduct Problems and Clinician ODD Severity Ratings

Variables	SS	df	MS	F	η_p^2	
Mother-reported conduct problems (questionnaire)						
Child age	49.98	1, 85	49.98	3.26	.04	
Child gender	12.56	1, 85	12.56	0.82	.01	
Parent education	4.16	1, 85	4.16	0.27	.00	
CU traits	180.93	1, 85	180.93	11.81	.12	**
Child caregiving	50.78	1, 85	50.78	3.32	.04	
Parent helplessness	96.99	1, 85	96.99	6.33	.07	*
		$R^2 = .28$ (Adjusted $R^2 = .23$)				
Mother-informed ODD severity ratings (clinical interview)						
Child age	0.73	1, 84	0.73	0.54	.01	
Child gender	0.64	1, 84	0.64	0.47	.01	
Parent education	1.05	1, 84	1.05	0.78	.01	
LPE diagnosis	4.95	1, 84	4.95	3.66	.04	
Child caregiving	5.54	1, 84	5.54	4.10	.05	*
Parent helplessness	36.07	1, 84	36.07	26.65	.24	**
Child caregiving x LPE diagnosis	6.96	1, 84	6.96	5.15	.06	*
		$R^2 = .35$ (Adjusted $R^2 = .29$)				

* $p < .05$; ** $p < .01$
Note. Child gender: male = 1, female = 2; Parent education: lower = 1 and higher = 2.

Clinician-rated ODD severity ratings. An analysis of covariance (Table 19) investigated whether mother-reported parent helplessness remained significantly associated with ODD severity ratings, controlling for the LPE diagnosis, child caregiving, and relevant family demographic variables. Results revealed main effects for child caregiving ($p = .046$) and parent helplessness ($p < .001$) and a significant interaction (LPE diagnosis x child caregiving, $p = .026$). As shown in Figure 9, mothers' reports of child caregiving were related to higher ODD severity ratings for children with, but not without, an LPE diagnosis. This was confirmed by follow-up bivariate correlations, with child caregiving positively associated with ODD severity ratings for children with ($r = .57$, $p = .006$), but not without ($r = -.06$, $p = .60$), an LPE diagnosis. The interaction effect (LPE diagnosis x parent helplessness) was not

significant and not included in the final model. Further, no family demographic variable was significantly associated with ODD severity ratings.
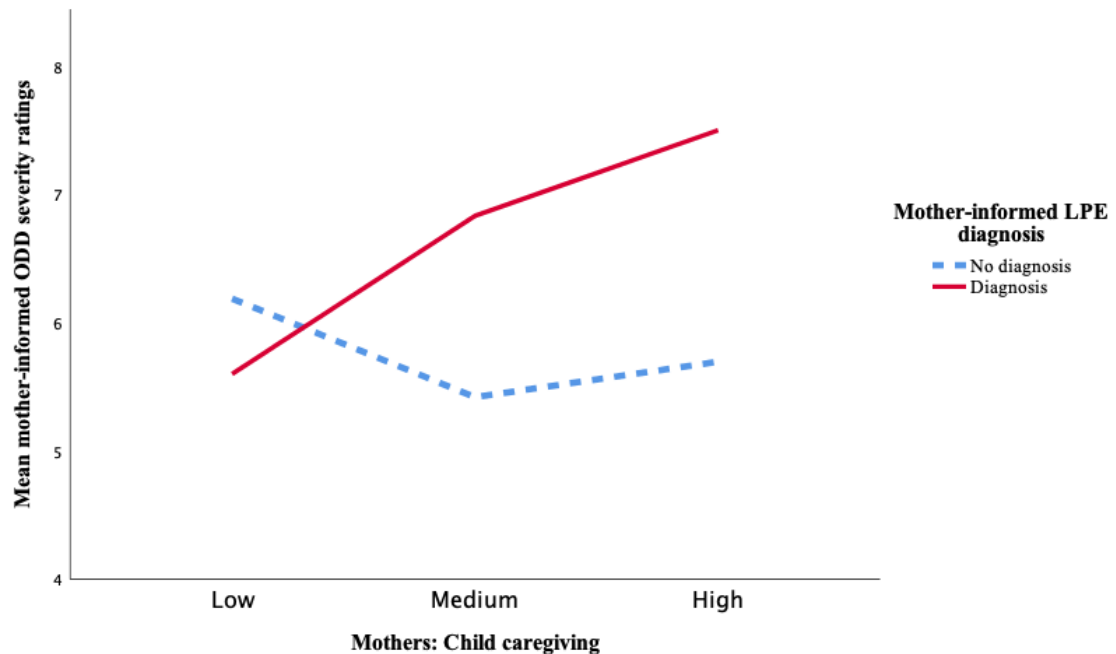
Figure 9. Associations among mother-reported child caregiving and mother-informed ODD severity ratings for children with or without a mother-informed LPE diagnosis.

The analysis of covariance investigated for fathers (parent helplessness and frightened or frightening caregiving, controlling for the LPE diagnosis and child caregiving) showed the hypothesis was not supported, as no control variable and neither parent helplessness, $F(1, 27) = 0.65$, $p = .43$, $\eta_p^2 = .02$, nor frightened or frightening caregiving, $F(1, 27) = 2.97$, $p = .096$, $\eta_p^2 = .10$, were associated with ODD severity ratings.

Clinician-rated CD diagnosis. Bivariate correlations in Tables 16 and 17 show that more parent helplessness (mothers), and more frightened or frightening caregiving (fathers), were significantly associated with CD diagnoses based on the clinical interview.

The first logistic regression investigated whether maternal helplessness was associated with a CD diagnosis from interviews with mothers, controlling for the LPE

diagnosis, child caregiving, and relevant family demographic variables. The full model was significant accounting for 47% of the variance, $\chi^2(7, N = 92) = 36.31$, $p < .001$. The Wald criterion revealed significant main effects for child caregiving, Wald $\chi^2 = 6.51$, $p = .011$, and the LPE diagnosis, Wald $\chi^2 = 4.70$, $p = .030$, and a significant interaction effect, child caregiving x LPE diagnosis, Wald $\chi^2 = 6.49$, $p = .011$. As shown in Figure 10, children who engaged in more caregiving behaviour according to their mothers were more likely to receive a diagnosis of CD, but only if they were also diagnosed with LPE. For those children with an LPE diagnosis, follow-up analyses showed that child caregiving scores were significantly higher for children with ($M = 18.15$, $SD = 4.12$) than without ($M = 11.78$, $SD = 2.39$) a CD diagnosis, $t(20) = -4.27$, $p < .001$. Higher reports of parent helplessness were marginally associated with a CD diagnosis, Wald $\chi^2 = 3.82$, $p = .051$, OR = 1.12, with no significant associations for family demographic variables (although child gender approached significance, Wald $\chi^2 = 3.75$, $p = .053$). The interaction effect (parent helplessness x LPE diagnosis) was not significant and not included in the final model.
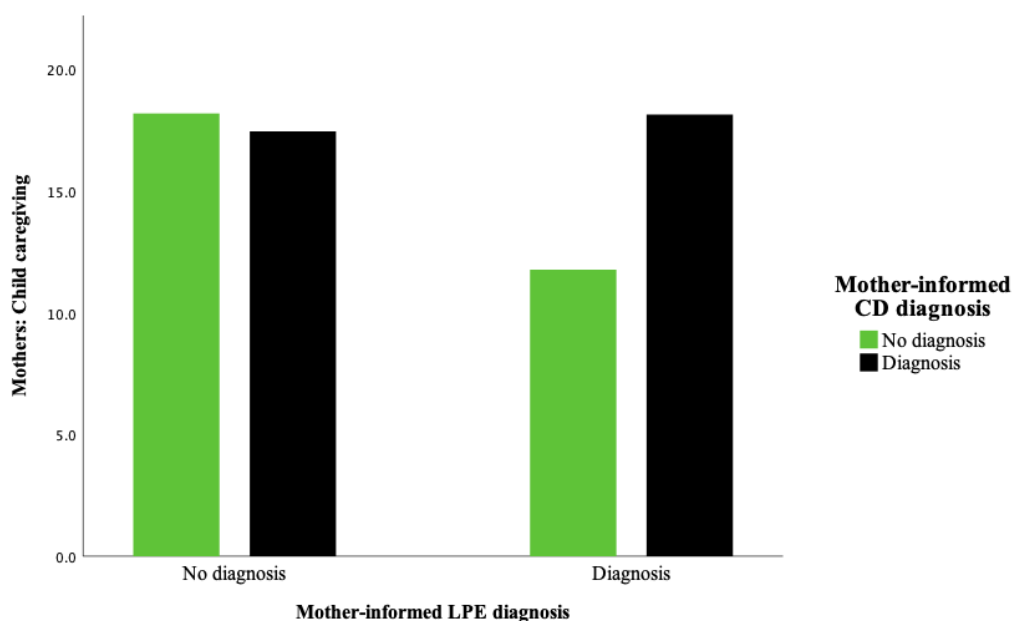
Figure 10. Association between mother-reported child caregiving and mother-informed CD diagnosis for children with and without a mother-informed LPE diagnosis.

With respect to fathers (as noted above, family demographic variables and interaction effects were not included), the model including relevant covariates was significant, $\chi^2(4, N = 34) = 28.40$, $p < .001$. The Wald criterion showed, however, that neither father-reported frightened or frightening caregiving, Wald $\chi^2 = 0.00$, $p = .99$, nor any control variable was uniquely associated with father-informed CD diagnoses.

Parenting stress. Mother and father reports of higher total parenting stress were expected to be associated with more severe child conduct problems, controlling for relevant family demographic variables and child CU traits.

Questionnaire ratings of conduct problems severity. Bivariate correlations in Tables 16 and 17 show that more total parenting stress was associated with more severe child conduct problems for mothers and fathers. For mothers, an analysis of covariance controlling for child CU traits and relevant family demographic variables showed that total parenting stress was not significantly associated with child conduct problems, $F(1, 86) = 3.26$, $p = .075$, $\eta_p^2 = .04$, with child CU traits the only significantly predictor, $F(1, 86) = 6.54$, $p = .012$, $\eta_p^2 = .07$. The interaction between mother-reported total parenting stress and child CU traits was not significant, and not included in the final model. For fathers, neither total parenting stress, $F(1, 32) = 2.44$, $p = .13$, $\eta_p^2 = .07$, nor child CU traits, $F(1, 32) = 3.14$, $p = .09$, $\eta_p^2 = .09$, were uniquely associated with child conduct problems.

Clinician-rated ODD severity ratings. Total parenting stress was significantly correlated with ODD severity ratings for mothers, not fathers (see Tables 16 and 17). An analysis of covariance indicated that total parenting stress was related to higher ODD severity ratings for mothers (the model explained 17% of the variance), $F(1, 86) = 10.51$, $p = .002$, $\eta_p^2 = .11$, controlling for the LPE diagnosis and family demographic variables. None of the control variables nor the interaction effect (total parenting stress x LPE diagnosis) were

significantly associated with ODD severity ratings. Follow-up bivariate correlations showed that mother-reported parent-child dysfunctional interaction ($r = .27$, $p = .010$) and difficult child ($r = .50$, $p < .001$), but not parental distress ($r = .11$, $p = .29$), scores were significantly associated with ODD severity ratings, with significance levels that allow for Bonferroni corrections.

Clinician-rated CD diagnosis. Total parenting stress was correlated with CD diagnoses for mothers and fathers. For mothers, a test of the full model (controlling for the LPE diagnosis and relevant family demographics) was statistically significant, $\chi^2(5, N = 92) = 19.62$, $p = .001$. However, neither total parenting stress (Wald $\chi^2 = 3.20$, $p = .073$) nor any control variable was uniquely associated with the diagnosis of CD. The interaction effect (total parenting stress x LPE diagnosis) was also not significant and not included in the final model. For fathers, the full model (controlling only for the LPE diagnosis) was significant, $\chi^2(2, N = 35) = 8.41$, $p = .015$, and explained 38% of the variance. The Wald criterion, however, showed a marginal effect for total parenting stress (Wald $\chi^2 = 3.79$, $p = .051$, OR = 1.07), whereas the LPE diagnosis (Wald $\chi^2 = 1.20$, $p = .27$) did not predict a diagnosis of CD.

Most influential aspects of parenting on child conduct problems. The results of the above analyses showed that mothers' reports of more parent helplessness, child caregiving (but note interaction effect with the LPE diagnosis), and parenting stress were significantly related to more severe conduct problems (questionnaire) and/or higher ODD severity ratings and CD diagnoses (clinical interview). There were no significant associations among fathers' perceptions of their parenting and their reports of child conduct problems, once CU traits were controlled.

Two analyses of covariance explored whether mother-reported parent helplessness, child caregiving and parenting stress were associated with their reports of child conduct

problems based on questionnaires or clinician ODD severity ratings, controlling for CU traits

and relevant demographic variables. The results displayed in Table 20 show that maternal

helplessness ($p < .001$) and child caregiving ($p = .045$), but not parenting stress ($p = .70$), and

an interaction effect (child caregiving x LPE diagnosis, $p = .039$) were significantly

associated with more severe ODD ratings. No caregiving helplessness variable, however, was

significantly related to mother-reported conduct problems once all variables were included in

the model (child caregiving was marginally related at $p = .060$).

Table 20

Significant Parenting Variables: Analyses of Covariance for Mother Reported Conduct Problems and ODD Clinician Severity Ratings

Variables	SS	df	MS	F	η_p^2	
Mother-reported conduct problems (questionnaire)						
Child age	43.89	1, 84	43.89	2.85	.03	
Child gender	14.02	1, 84	14.02	0.91	.01	
Parent education	1.92	1, 84	1.92	0.13	.00	
CU traits	134.82	1, 84	134.82	8.75	.09	**
Child caregiving	53.57	1, 84	53.57	3.48	.04	
Parent helplessness	49.13	1, 84	49.13	3.19	.04	
Total parenting stress	8.15	1, 84	8.15	0.53	.01	
			$R^2 = .28$ (Adjusted $R^2 = .22$)			
Mother-informed ODD severity ratings (clinical interview)						
Child age	0.76	1, 83	0.76	0.55	.01	
Child gender	0.71	1, 83	0.71	0.52	.01	
Parent education	0.82	1, 83	0.82	0.60	.01	
LPE diagnosis	4.20	1, 83	4.20	3.07	.04	
Child caregiving	5.69	1, 83	5.69	4.16	.05	*
Parent helplessness	21.82	1, 83	21.82	15.96	.16	**
Total parenting stress	0.20	1, 83	0.20	0.15	.00	
Child caregiving x LPE diagnosis	6.00	1, 83	6.00	4.39	.05	*
			$R^2 = .35$ (Adjusted $R^2 = .29$)			

* $p < .05$; ** $p < .01$
Note. Child gender: male = 1, female = 2; Parent education: lower = 1 and higher = 2.

Finally, a logistic regression explored the associations of parent helplessness, child caregiving and parenting stress with the CD diagnosis. The model was significant and accounted for 47% of the variance, $\chi^2(8, N = 92) = 36.68$, $p < .001$. The Wald criterion indicated a significant main effect for child caregiving (Wald $\chi^2 = 6.53$, $p = .011$, OR = 2.17), but not for parent helplessness (Wald $\chi^2 = 1.44$, $p = .23$) or parenting stress (Wald $\chi^2 = 0.36$, $p = .55$). There was also a significant interaction between child caregiving and the LPE diagnosis (Wald $\chi^2 = 6.19$, $p = .013$, OR = 0.46). Among the control variables, the LPE diagnosis (Wald $\chi^2 = 4.36$, $p = .037$) and child gender (Wald $\chi^2 = 3.94$, $p = .047$) were significantly associated with CD diagnoses. The interaction between child caregiving and the LPE diagnosis is a consistent finding. It shows that children with a diagnosis of CD or higher ODD severity ratings engaged in more caregiving behaviours, but only in cases where they also had an LPE diagnosis.

Summary. Contrary to expectations, results revealed no significant associations among mother or father reports of positive or negative parenting practices and child conduct problems measured by either parent-report questionnaires or the clinician-rated clinical interview, once CU traits were controlled.

As expected for mothers, more parent helplessness was uniquely associated with more severe mother-reported child conduct problems based on questionnaire ratings and also with higher clinician ODD severity ratings, but not with CD diagnosis, on the clinical interview, controlling for child CU traits and demographic variables. There were some unexpected interaction effects: Mothers of children diagnosed with LPE reported more caregiving behaviours in their children and more severe ODD symptomatology and increased likelihood of a CD diagnosis. There were no significant associations among caregiving helplessness and child conduct problems for fathers.

Finally, for mothers, more parenting stress was related to more severe ODD ratings, but not increased likelihood of a CD diagnosis, on the clinical interview. It was also not significantly associated with severity of child conduct problems based on the questionnaires. There were no significant associations between total parenting stress and child conduct problems for fathers (note: fathers' parenting stress approached significance in predicting CD diagnoses, $p = .051$).

When significant predictors were considered together, mothers' reports of more parent helplessness were uniquely associated with higher ODD severity, and more child caregiving was significantly associated with CD diagnoses and higher ODD severity ratings, but only for children with the LPE diagnosis.

Chapter 8: Parent Representations of their Child

Introduction

Parent representations of their child was assessed using the Mind-Mindedness Interview (MMI; Meins et al., 1998), which codes parent responses to a single question, "Can you describe [child's name] for me?". Three scores were derived (refer to the methods section in Chapter 5). A parental mind-mindedness score was computed as the number of mental descriptors of the child expressed as a portion of the total number of child descriptors (an aggregate of mental, behavioural, physical and general descriptors). Positive and negative mental descriptors scores were calculated as the number of positively and negatively valanced mental descriptors in proportion to the total number of mental descriptors of the child. Results were available for 92 mothers and 35 fathers (one father did not complete the MMI).

It was expected that lower parental mind-mindedness, and fewer positive and more negative mental descriptors of the child, would be related to more severe conduct problems and higher CU traits in children. These associations were explored for mothers and fathers separately. The study also investigated whether any relations among parental mind-mindedness indicators and child conduct problems differed according to the severity of child CU traits. Previous research has shown mixed findings for moderation (refer to Chapter 2), so no specific predictions were made in advance.

Preliminary Analyses

The distributions of scores for mother and father mind-related words and the positive and negative valence of these words show approximately normal distributions with no outliers. Table 21 shows the descriptive statistics for mothers and fathers separately. There were no significant differences between the mean parental mind-mindedness, $t(125) = 0.34$, $p = .73$, positive mental descriptors, $t(125) = 1.62$, $p = .11$, and negative mental descriptors, $t(125) = -1.15$, $p = .25$, scores for mothers and fathers. All associations among mother and father (n = 35) mind-mindedness variables were non-significant (parental mind-mindedness $(r = .12, p = .50))$, although trends were apparent for positive $(r = .32, p = .059)$ and negative $(r = .33, p = .053)$ mental descriptors (note the small sample size). Child age was positively associated with mind-mindedness for mothers with higher scores for older children $(r = .22, p = .034)$, and higher household income was associated with higher mind-mindedness for fathers $(r = .44, p = .008)$. As in Chapter 7, child age and gender and parent education were consistent covariates in all multivariate analyses for mothers. Parent educational attainment was included as a control variable in case it influenced parents' capacity to verbally describe attributes of their children.

As displayed in Table 21, mothers and fathers reported average parental mind-mindedness scores of 0.52 and 0.51, respectively. A one-way analysis of variance revealed that these two scores were significantly higher than the average parental mind-mindedness scores of 0.21 reported in a clinical sample (Walker et al., 2012), 0.34 in an adopted sample (Fishburn et al., 2017), and between 0.23 and 0.47 in community samples (Lundy, 2013; Walker et al., 2012). Mothers and fathers reported average positive mental descriptors scores of 0.44 and 0.36, respectively. In comparable studies, a one-way analysis of variance showed that mothers' scores were equivalent to, and fathers' scores were significantly lower than, the average positive mental descriptors score of 0.45 reported in a clinical sample (Walker et al.,

2012). It also showed that mother and father scores were significantly lower than the average

positive mental descriptors scores of between 0.59 and 0.65 reported in community samples

(Demers et al., 2010a; C. A. McMahon & Meins, 2012). For negative mental descriptors,

mothers and fathers reported average scores of 0.37 and 0.43, respectively. A one-way

analysis of variance showed that these scores were significantly higher than average negative

mental descriptors scores of 0.25 in a clinical sample (Walker et al., 2012), and between 0.00

and 0.06 in community samples (Demers et al., 2010a; Walker et al., 2012).

Table 21

Bivariate Correlations Among Parental Mind-Mindedness and Child CU Traits and Conduct Problems

Variables	1		2		3		4		5		6		7		8
Mothers															
1. CU traits	-														
2. Conduct problems	.37	**	-												
3. LPE diagnosis+	.47	**	.34	**	-										
4. ODD severity rating	.23	*	.55	**	.25	*	-								
5. CD diagnosis+	.22	*	.52	**	.38	**	.65	**	-						
6. Mind-mindedness	.04		.07		.11		.00		.09		-				
7. Positive mental descriptors	-.02		-.20		-.08		-.07		-.11		-.21	*	-		
8. Negative mental descriptors	.06		.35	**	.04		.24	*	.19		.13		-.71	**	-
Mean	8.61		6.55		0.24		5.87		0.28		0.52		0.44		0.37
S.D.	3.10		4.45		0.43		1.39		0.45		0.18		0.24		0.23
N	92		92		92		92		92		92		92		92
Fathers															
1. CU traits	-														
2. Conduct problems	.43	**	-												
3. LPE diagnosis+	.42	*	.37	*	-										
4. ODD severity rating	.32		.64	**	.33		-								
5. CD diagnosis+	.42	*	.61	**	.36	*	.45	**	-						
6. Mind-mindedness	-.17		-.21		.13		-.33		-.06		-				
7. Positive mental descriptors	-.32		.03		-.11		.15		-.10		.03		-		
8. Negative mental descriptors	.36	*	.04		.04		-.22		.03		-.15		-.80	**	-
Mean	8.20		5.29		0.23		5.33		0.14		0.51		0.36		0.43
S.D.	2.55		3.85		0.43		1.19		0.36		0.16		0.25		0.30
N	35		35		35		33		35		35		35		35

* *p* < .05; ** *p* < .01
+ Spearman's rho

Is Parental Mind-Mindedness Associated with Child CU Traits?

Questionnaire ratings of CU traits. Bivariate correlations in Table 21 show that neither parental mind-mindedness nor positive mental descriptors were significantly related to parent-reported child CU traits for either mothers or fathers. More negative mental descriptors were significantly associated with higher parent-reported child CU traits for fathers, not mothers. The significant association for fathers was followed up with an analysis of covariance, controlling for father-reported conduct problems. The hypothesis was supported (the model explained 32% of the variance), as more father-reported negative mental descriptors, $F(1, 31) = 5.23$, $p = .029$, $\eta_p^2 = .14$, and higher father-reported child conduct problems, $F(1, 31) = 8.60$, $p = .006$, $\eta_p^2 = .22$, were significantly associated with higher father-reported child CU traits.

Clinician-rated LPE diagnosis. Bivariate correlations in Table 21 revealed no significant associations among mother- and father-reported parental mind-mindedness, positive and negative mental descriptors, and parent-informed LPE diagnoses.

Summary. Results found little support for the hypothesis that parental mind-mindedness would be associated with child CU traits, with the exception that more negative mental descriptors reported by fathers were significantly associated with higher father-reported child CU traits when controlling for father-reported conduct problems.

Is Parental Mind-Mindedness Associated with Child Conduct Problems?

The study expected that lower parental mind-mindedness and fewer positive and more negative mental descriptors of children would be related to more severe child conduct problems, controlling for relevant family demographic variables and child CU traits. A moderating effect involving the severity of child CU traits was also explored.

Questionnaire ratings of conduct problems. Bivariate correlations in Table 21 revealed that parental mind-mindedness was not significantly related to child conduct problems for either mothers or fathers. Further, mother and father reports of positive mental descriptors were not related to their reports of child conduct problems. However, more negative mental descriptors reported by mothers, but not fathers, were significantly associated with more severe mother-reported conduct problems.

An analysis of covariance indicated that the hypothesis was supported (the model explained 30% of the variance), with mother reports of more negative mental descriptors, $F(1, 86) = 13.63$, $p < .001$, $\eta_p^2 = .14$, and higher CU traits, $F(1, 86) = 15.59$, $p < .001$, $\eta_p^2 = .15$, related to more severe mother-reported conduct problems, taking account of family demographic variables (which were not related to negative descriptors). The interaction effect (negative mental descriptors x child CU traits) was not significant and not included in the final model.

Clinician-rated ODD severity ratings. Parental mind-mindedness and positive mental descriptors were not significantly correlated with parent-informed ODD severity ratings for either mothers or fathers. Mothers, but not fathers, who reported more negative mental descriptors of their child responded to the clinical interview such that their children received higher ODD severity ratings. An analysis of covariance (controlling for the mother-

informed LPE diagnosis and relevant demographic variables) indicated that the hypothesis

was supported (the model explained 13% of the variance), with more mother-reported

negative mental descriptors, $F(1, 86) = 6.22$, $p = .015$, $\eta_p^2 = .07$, and the mother-informed

LPE diagnosis, $F(1, 86) = 4.05$, $p = .047$, $\eta_p^2 = .05$, significantly related to higher ODD

severity ratings. No family demographic variable was significant, and the interaction effect

(negative mental descriptors x LPE diagnosis) was also not significant and not included in the

final model.

Clinician-rated CD diagnosis. Bivariate correlations displayed in Table 21 show

that the parental mind-mindedness variables were not significantly related to parent-informed

CD diagnoses for either mothers or fathers.

Summary. Few significant associations were found to support hypothesised relations

among parental mind-mindedness and child conduct problems. Mother-reported *negative*

mental descriptors were associated with higher mother-reported conduct problems and

mother-informed ODD severity ratings (but not mother-informed CD diagnoses), controlling

for child CU traits, child age and gender, and mothers' level of education. There was no

significant association among father reports of negative mental descriptors and child conduct

problems.

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Chapter 9: Observation of Parent-Child Interactions

Introduction

As outlined in the methods section in Chapter 5, the quality of parent-child interactions was measured using the Emotional Availability (EA) Scales, 4th edition (Biringen, 2008), during 30 minutes of semi-structured play. Results were available for 92 mother-child, and 35 father-child, interactions. The four dimensions of parent emotional availability from the EA Scales (parent sensitivity, structuring, non-hostility and non-intrusiveness) were combined to compute a parent EA composite score, and the two dimensions of child emotional availability (child responsiveness and involvement) were combined to calculate a child EA composite score for hypothesis testing.

It was hypothesised that less optimal parent and child EA would be associated with higher child CU traits and more severe conduct problems (measured by clinician-rated diagnosis and/or parent-report questionnaires). The potential moderating effect of child CU traits on any significant associations among parent or child EA and child conduct problems was also explored.

Preliminary Analyses

EA scales and EA-Z scores. Descriptive statistics for total and direct scores for the six EA dimensions and the EA-Z parent and child scores are shown in Table 22. The EA-Z scores provide a summary of parent and child emotional availability that is based exclusively on the parent sensitivity and child responsiveness direct scores (see Table 8). This score intends to indicate emotional availability typical of different attachment classifications derived from the Strange Situation Procedure. The EA-Z parent scores for mothers and fathers were predominantly in the "complicated" zone: 12% of mothers and 20%

of fathers were rated in the emotionally available zone; 71% of mothers and 63% of fathers in

the complicated zone; 16% of mothers and 17% of fathers in the detached zone; and 1% of

mothers and no fathers in the problematic/disturbed zones. The complicated zone describes

parents who display inconsistent affect (a mix of positive and negative emotions) and

responsiveness to their children during interactions. EA-Z child scores were also primarily in

the complicated zone: 12% of child-mother and 17% of child-father interactions were coded

in the emotionally available zone; 75% of child-mother and 60% of child-father interactions

were in the complicated zone; 12% of child-mother and 20% of child-father interactions in

the detached zone; and 1% of child-mother and no child-father interactions in the

problematic/disturbed zone. A child classified in the complicated zone may show behaviours

that indicate distress, over-connection, and/or excessively dependent behaviour in relation to

the parent. The complicated and detached zones are believed to align with insecure-

ambivalent and insecure-avoidant attachment, respectively, so 87% of mother-child and 80%

of father-child interactions could be indicative of insecure attachment in this study.

The finding that parent and child interactions were primarily in the complicated zone

is consistent with the mean direct scores for the six EA dimensions in Table 22. On average,

mothers and fathers were inconsistently sensitive and structuring, displayed benign levels of

intrusiveness, and were generally non-hostile in their interactions with their child. Likewise,

children were typically complicated (inconsistently positive and negative) in their

responsiveness and involvement with their parents.

Total scores on all six EA dimensions were strongly and positively correlated with

one another (*rs* ranging from .53 to .90 for mothers and .57 to .93 for fathers), supporting the

use of composite variables to reduce Type 1 error. Further, the EA-Z parent and child scores

were strongly and positively correlated for mothers, $r = .64$, $p < .001$, and fathers, $r = .90$, $p <$

.001. For children observed in interactions with both their mothers and fathers (n =35), there

were no significant relations among scores on any of the six EA dimensions (*rs* ranged from

.03 to .23) for mother-child and father-child interactions.

Table 22

Descriptive Statistics for the EA Scales and EA-Z Scores for Mothers and Fathers

EA Dimensions	Mothers (n = 92)				Fathers (n = 35)			
	Min.	Max.	Mean	S.D.	Min.	Max.	Mean	S.D.
Sensitivity								
Total	13.00	27.00	21.93	3.82	10.00	29.00	20.86	3.50
Direct	3.00	6.00	4.67	0.86	2.00	6.50	4.51	0.87
Structuring								
Total	11.00	27.00	21.74	4.12	11.00	27.00	21.36	3.57
Direct	2.50	6.00	4.61	0.84	3.00	6.00	4.59	0.79
Non-intrusiveness								
Total	15.50	26.50	21.97	3.21	10.00	28.00	21.56	3.73
Direct	3.00	6.00	4.73	0.71	2.00	6.00	4.64	0.88
Non-hostility								
Total	18.00	29.00	26.10	2.23	16.00	29.00	25.06	2.72
Direct	4.00	7.00	5.60	0.69	3.00	7.00	5.38	0.80
Responsiveness								
Total	11.50	26.50	21.31	4.04	11.50	27.00	21.34	3.48
Direct	3.00	6.00	4.51	0.94	2.00	6.00	4.57	0.78
Involvement								
Total	13.00	26.00	20.81	3.88	12.50	27.00	21.04	3.30
Direct	3.00	5.50	4.46	0.88	2.50	6.00	4.55	0.77
EA-Z Parent								
Score	30.00	95.00	74.02	10.77	55.00	90.00	75.86	10.18
EA-Z Child								
Score	30.00	90.00	74.89	9.78	55.00	90.00	74.00	11.23

EA composite variables. The distributions for the parent and child EA composite

scores for mother- and father-child interactions had approximately normal distributions, with

no outliers identified. The parent and child EA composite scores were strongly and positively

correlated for both mother-child, $r = .77$, $p < .001$, and father-child, $r = .90$, $p < .001$,

interactions. For those children who participated in interactions with both parents (n = 35),

there were no significant associations among mother and father EA composite scores ($r = .14$,

$p = .42$) or child-mother and child-father EA composite scores ($r = .12$, $p = .50$), indicating

distinct relationships between children and their mothers and fathers.

Associations among family demographic variables and EA composite scores revealed that higher household income was associated with more optimal child EA in mother-child relationships ($r = .33$, $p = .001$), and that mother-child interactions involving single mothers were characterised by lower parent (partnered: $M = 0.13$, $SD = 0.77$; single: $M = -0.55$, $SD = 1.11$; $t(90) = 3.08$, $p = .003$) and child (partnered: $M = 0.11$, $SD = 0.92$; single: $M = -0.46$, $SD = 1.07$; $t(90) = 2.26$, $p = .026$) EA scores. (Note that fathers were all partnered, so could not be differentiated according to their relationship status). Child age or gender, level of parent education, and number of siblings in the family were not significantly associated with composite EA scores. Household income, relationship status and, using a conservative approach outlined in Chapter 6, child age and gender were controlled in subsequent analyses involving EA variables for mothers. (Note that small group numbers meant that control variables were not included in analyses for fathers).

Is Parent or Child Emotional Availability Associated with CU Traits?

Parent-report questionnaires. Bivariate correlations shown in Table 23 revealed no significant associations among parent or child EA composite scores and either mother or father-reported CU traits.

Clinician-rated LPE diagnosis. According to mothers' and fathers' responses on the diagnostic interview, neither parent nor child EA composite scores were related to LPE diagnoses (see Table 23).

Summary. There was no support for the hypothesis that less optimal parent and child EA would be associated with higher child CU traits (measured by parent-report questionnaires or clinician-rated diagnostic interview).

Table 23

Bivariate Correlations Among EA Composite Scores and Child Conduct Problems and CU Traits

Variables	1		2		3		4		5		6		7
Mothers													
1. CU traits	-												
2. Conduct problems	.37	**	-										
3. LPE diagnosis+	.47	**	.34	**	-								
4. ODD severity rating	.23	*	.55	**	.25	*	-						
5. CD diagnosis+	.22	*	.52	**	.38	**	.65	**	-				
6. Parent EA	.05		-.10		.12		-.23	*	-.29	**	-		
7. Child EA	-.07		-.11		-.10		-.22	*	-.25	*	.77	**	-
Mean	8.61		6.55		0.24		5.87		0.28		0.00		0.00
S.D.	3.10		4.45		0.43		1.39		0.45		0.88		0.97
N	92		92		92		92		92		92		92
Fathers													
1. CU traits	-												
2. Conduct problems	.43	**	-										
3. LPE diagnosis+	.42	*	.37	*	-								
4. ODD severity rating	.32		.64	**	.33		-						
5. CD diagnosis+	.42	*	.61	**	.36	*	.45	**	-				
6. Parent EA	.15		.27		-.03		.23		.34	*	-		
7. Child EA	.01		.25		-.08		.27		.38	*	.90	**	-
Mean	8.20		5.29		0.23		5.33		0.14		0.00		0.00
S.D.	2.55		3.85		0.43		1.19		0.36		0.89		0.98
N	35		35		35		33		35		35		35

* $p < .05$; ** $p < .01$
+ Spearman's rho

Is Parent or Child Emotional Availability Associated with Conduct Problems?

Parent-report questionnaires. There were no significant relations among parent or child EA composite scores and father or mother reported conduct problem severity (see Table 23).

Clinician-rated ODD severity ratings. As shown in Table 23, lower scores for mother and child EA were significantly associated with higher ODD severity ratings based on mothers' responses on the clinical interview, small effect sizes. There were no significant

associations among father or child EA composite scores and father-informed ODD severity

ratings.

Two analyses of covariance were conducted to examine whether these associations

for mothers remained significant after controlling for the LPE diagnosis and relevant family

demographic variables (child age and gender, household income, mother's relationship

status). Interaction effects were also tested (CU traits x parent or child EA), with non-

significant interactions removed from the final model. The hypothesis was not supported, as

mothers' EA did not predict mother-informed ODD severity ratings in the multivariate

analysis $F(1, 85) = 3.45$, $p = .067$, $\eta_p^2 = .04$. The only significant main effect was a positive

association between the mother-informed LPE diagnosis and ODD severity ratings, $F(1, 85)$

$= 4.52$, $p = .036$, $\eta_p^2 = .05$, as expected. The interaction between mother EA and the mother-

informed LPE diagnosis was not significant and, therefore, not included in the final model.

The second analysis explored associations between child EA during mother-child

interactions and mother-informed ODD severity ratings, controlling for the same variables.

The results showed that child EA composite scores during mother-child interactions were not

significantly related to ODD severity, $F(1, 85) = 3.07$, $p = .083$, $\eta_p^2 = .04$. The only

significant main effect was the LPE diagnosis, $F(1, 85) = 4.44$, $p = .038$, $\eta_p^2 = .05$, as

expected. There was no significant interaction between child EA and the LPE diagnosis

during mother-child play, and it was not included in the final model.

Clinician-rated CD diagnosis. Less optimal parent and child EA during mother-

child interactions were significantly correlated with mother-informed CD diagnoses (Table

23). Against expectations, more optimal scores for EA (parent and child) in father-child

interactions were significantly associated with a father-informed diagnosis of CD. These

significant associations for mothers and fathers were investigated further using a series of logistic regressions, controlling for relevant variables.

Two logistic regression analyses were conducted to predict mother-informed diagnoses of CD from parent and child EA, respectively, controlling for family demographic variables and the LPE diagnosis. The model for mother EA was significant and accounted for 31% of the variance ($\chi^2(6, N = 92) = 21.93, p = .001$). The Wald criterion revealed mothers' EA (Wald $\chi^2 = 3.87, p = .049$) was the only significant predictor of mother-informed CD diagnoses. An odds ratio of 0.52 indicated that mothers exhibiting less optimal emotional availability (0.52 times) during mother-child interactions had children who were more likely to be diagnosed with CD. The interaction between the LPE diagnosis and mothers' EA was not significant and so not included in the final model. Follow-up analyses displayed in Table 24 showed that mothers exhibited less maternal sensitivity, more intrusiveness and more hostility towards children with a CD diagnosis, than without.

The second logistic regression investigated child EA, with the same control variables. The model was significant and accounted for 30% of the variance, indicating that the predictors as a set reliably distinguished between children with and without a CD diagnosis ($\chi^2(6, N = 92) = 21.13, p = .002$). The Wald criterion, however, revealed that child EA during mother-child interactions (Wald $\chi^2 = 3.22, p = .073$) did not significantly predict mother-informed CD diagnoses. An interaction effect (LPE diagnosis x child EA during mother-child interactions) was not significant and so not included in the final model. Table 24 demonstrates, however, that children diagnosed with CD showed significantly lower responsiveness and involvement with their mothers during an observed interaction.

Table 24

Differences Between Mother-Child EA Scales Scores for Children With and Without CD

Mother-Child EA Scales Total Scores							95% C.I.	
	CD diagnosis	n	Mean	S.D.	t		Upper	Lower
Sensitivity	No	66	21.36	3.60	2.19	*	0.16	3.32
	Yes	26	19.62	2.94				
Structuring	No	66	21.74	3.74	1.66		-0.27	2.99
	Yes	26	20.39	2.96				
Non-intrusiveness	No	66	22.16	3.54	2.52	*	0.45	3.79
	Yes	26	20.04	3.86				
Non-hostility	No	66	25.48	2.50	2.41	*	0.26	2.70
	Yes	26	24.00	3.01				
Responsiveness	No	66	22.00	3.18	3.01	**	0.79	3.86
	Yes	26	19.67	3.71				
Involvement	No	66	21.47	3.12	2.03	*	0.03	3.02
	Yes	26	19.94	3.55				

* $p < .05$; ** $p < .01$

Similar analyses, controlling only for the LPE diagnosis, were conducted for fathers. For father EA, a test of the full model against a constant-only model was statistically significant and explained 43% of the variance, indicating that the predictors as a set reliably distinguished between children with and without a CD diagnosis (χ^2(2, N = 34) = 9.38, p = .009). The Wald criterion showed that father-informed LPE diagnosis ratings (Wald χ^2 = 4.25, p = .039), but not fathers' EA (Wald χ^2 = 3.22, p = .073), significantly distinguished between those with and without a CD diagnosis. The second logistic regression (child EA) was also statistically significant (χ^2(2, N = 34) = 11.31, p = .004) and explained 50% of the variance. The Wald criterion showed that the father-informed LPE diagnosis (Wald χ^2 = 4.61, p = .032), but not child EA (Wald χ^2 = 3.49, p = .062), significantly distinguished between those with and without a father-informed CD diagnosis. Given the very small sample size, it is noted that father and child EA were marginally significant.

Summary. Results provided partial support for study hypotheses that less optimal emotional availability would be associated with child CU traits and conduct problems. Less optimal parent EA during mother-child interactions was significantly associated with CD diagnoses when controlling for the LPE diagnosis and relevant family demographic variables. Despite significant bivariate associations, parent and child EA during mother-child interactions was not significantly associated with mother-informed ODD severity ratings once the LPE diagnosis and family demographic variables were controlled. Similarly, bivariate associations among parent and child EA during father-child interactions and father-informed CD diagnoses were no longer significant once the LPE diagnosis was controlled, but effects were at a trend level, and statistical power was low (n = 35).

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Chapter 10: Child Representations of Attachment

Introduction

Children's representations of their attachment relationships were measured using a doll story stem completion task, the MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003), and a family drawing task, the Family-Attachment Drawing Task (FAD-T; Fury et al., 1997). Results were available for 90 children for the MSSB (two children were unwilling to participate), and 60 children for the FAD-T (children under the age of 5 years (n = 32) were excluded due to a concern that developmental limitations in drawing skill might confound the results). Factor analyses were implemented to reduce the number of variables, yielding composite scores for positive and negative parent representations, as well as prosocial behaviour, interpersonal conflict and dysregulated aggression self-representations. A composite variable was also calculated for the child's use of avoidant and/or dissociation strategies during their doll play narratives (refer Chapter 5). Family drawings were rated on eight global dimensions of relationship quality, according to the coding system developed by Fury et al. (1997) and Fury (1996). Strong correlations among the dimensions (see Table 25) indicated that the global pathology score provided an adequate summary of the quality of child representations using this measure. The six child representation variables from the MSSB, and the global pathology score from the family drawing task, were used in subsequent analyses.

The current research project hypothesised that fewer positive and more negative parent-representations, less prosocial behaviour and more dysregulated aggression and interpersonal conflict self-representations, and the use of more avoidant and/or dissociation strategies on the MSSB, as well as higher global pathology scores on the FAD-T, would be

associated with higher child CU traits and more severe conduct problems (measured by clinician-rated diagnosis and/or parent-report questionnaires), controlling for family demographic variables and child CU traits or conduct problems, as appropriate. Moderation of associations among child representations of attachment and child conduct problems by CU traits were also explored. Additionally, interaction effects for child age and gender were investigated due to prior evidence suggesting that age and gender may influence play narratives and family drawings (e.g., Dallaire et al., 2012; Harrison et al., 2007; von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000; H. S. Waters, Rodrigues, & Ridgeway, 1998).

Preliminary Analyses

MacArthur Story Stem Battery. The distribution of scores for children's representations of their parents (positive and negative) and themselves (prosocial behaviour, dysregulated aggression, interpersonal conflict), and their use of avoidant and/or dissociation strategies, revealed two outliers. These were extremely high scores for the negative parent representations and avoidant/dissociation strategies composite variables. These high scores were changed to two standard deviations from the mean (Winsorised). Positive parent representations, prosocial behaviour, and avoidant/dissociation strategies composite scores had approximately normal distributions. The dysregulated aggression (skewness = 1.54, SE = 0.25; kurtosis = 1.66, SE = 0.50), interpersonal conflict (skewness = 1.24, SE = 0.25; kurtosis = 0.95, SE = 0.50), and negative parent representations composite scores (skewness = 1.65, SE = 0.25; kurtosis = 1.59, SE = 0.50) were positively skewed, indicating they were relatively uncommon. Since the MSSB composite scores were to be used as independent variables in subsequent analyses, transformation of these variables was deemed unnecessary. Spearman's rank correlation coefficients are reported for non-normally distributed and categorical variables.

Among the MSSB variables, Table 25 shows that children's positive parent representations were highly correlated with prosocial behaviour scores, and negative parent representation scores were highly correlated with dysregulated aggression scores, suggesting coherence in children's internal representations of self and others. Against expectations, interpersonal conflict scores were positively correlated with positive parent representations and prosocial behaviour scores. In line with expectation, they were also positively correlated with negative parent representations and dysregulated aggression. Furthermore, children who used more avoidant and/or dissociation strategies during the story stem task also showed more negative, and less positive, representations of the parent, and more dysregulated aggression and less prosocial behaviour self-representations.

Associations among demographic variables and MSSB composite scores revealed that older children had more positive representations of parents ($r = .50$, $p < .001$) and saw themselves as behaving more prosocially ($r = .63$, $p < .001$). Older children also made more references to interpersonal conflict ($r = .48$, $p < .001$), and used less avoidant and/or dissociation strategies during administration of the task ($r = -.41$, $p < .001$). Compared with boys, girls' stories contained more positive ($t(88) = -2.42$, $p = .017$) and fewer negative ($t(88) = 3.19$, $p = .002$) representations of their parents, and showed more prosocial behaviour ($t(88) = -2.21$, $p = .030$) and less dysregulated aggression ($t(88) = 3.39$, $p = .001$) self-representations. Girls also used fewer avoidant and/or dissociation strategies during administration of the task ($t(88) = 3.29$, $p = .001$). Given these significant associations, child age and gender were included as control variables (and potential moderators) in multivariate analyses. Family socio-economic status, level of parent educational attainment, number of siblings in the family, and mothers' relationship status were not significantly related to any of the MSSB composite variables.

Table 25

Bivariate Correlations and Descriptive Statistics for the Measures of Child Representations of Attachment

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
MacArthur Story Stem Battery													
1. Positive parent	-												
2. Negative parent+	-.29 **	-											
3. Prosocial behaviour	.78 **	-.19	-										
4. Dysregulated aggression+	-.32 **	.75 **	-.25 *	-									
5. Interpersonal conflict+	.38 **	.30 **	.49 **	.33 **	-								
6. Avoidant/dissociation strategies	-.52 **	.56 **	-.50 **	.66 **	-.02	-							
Family Drawing													
7. Vitality/creativity	.37 **	-.05	.19	-.18	.13	-.22	-						
8. Family pride	.22	-.22	.11	-.34 **	-.20	-.33 **	.49 **	-					
9. Vulnerability	-.26	.23	-.12	.34 **	.12	.27 *	-.57 **	-.89 **	-				
10. Emotional distance/isolation	-.17	.16	-.14	.26 *	.09	.30 *	-.44 **	-.87 **	.79 **	-			
11. Tension/anger	-.33 **	.20	-.19	.34 **	.05	.47 **	-.58 **	-.85 **	.81 **	.80 **	-		
12. Bizarreness/dissociation	-.26	.26 *	-.06	.38 **	.21	.42 **	-.44 **	-.91 **	.79 **	.75 **	.87 **	-	
13. Global pathology	-.27 *	.18	-.12	.35 **	.16	.38 **	-.55 **	-.95 **	.89 **	.85 **	.90 **	.91 **	-
Mean	0.00	-0.04	0.00	0.00	0.00	-0.01	4.17	4.03	4.52	4.37	3.73	3.32	4.18
S.D.	0.91	0.87	0.68	0.70	0.65	0.41	1.81	1.84	1.72	1.57	1.54	1.69	1.63
N	90	90	90	90	90	90	60	60	60	60	60	60	60

$* p < .05$; $** p < .01$

+ Spearman's rho due to skewed variables

Family-Attachment Drawing Task. The distributions of scores for the eight global dimensions on the family drawing task showed that all dimensions had normal distributions with no outliers. As outlined in the methods section, role-reversal was excluded from further analyses due to poor inter-rater reliability. Table 25 shows bivariate correlations among the seven global dimensions. The global pathology score was moderately and negatively correlated with the vitality/creativity dimension, highly and negatively correlated with the family pride dimension, and highly and positively correlated with all other dimensions (vulnerability, emotional distance/isolation, tension/anger, and bizarreness/dissociation). These strong associations suggest that the global pathology score provided an adequate summary of children's representations of their family relationships elicited from the family drawing task, and so only it was used in hypothesis testing.

Children under 5 years of age were excluded. After that, child age and gender were not significantly associated with any of the global family drawing dimensions, with the exception that boys' drawings were rated as showing significantly more vulnerability than girls ($t(58) = 2.37$, $p = .021$). Higher family socio-economic status was associated with higher scores for family pride ($r = .38$, $p = .003$) and lower scores for vulnerability ($r = -.41$, $p = .001$), emotional distance/isolation ($r = -.33$, $p = .011$), tension/anger ($r = -.41$, $p = .001$), bizarreness/dissociation ($r = -.39$, $p = .002$), and global pathology ($r = -.45$, $p < .001$). Mothers' relationship status, number of siblings in the family, and level of parent educational attainment were not significantly related to any of the global dimensions in children's family drawings. Family socio-economic status was controlled in analyses involving children's family drawing variables (only possible for mothers, as the small group of fathers meant control variables needed to be limited).

Associations among child attachment representation measures. As displayed in Table 25, children's representations elicited on the MSSB and FAD-T measures (scored blind by different coders in different laboratories) were significantly related to each other in theoretically expected ways. Of particular interest, children who represented themselves as more dysregulated in their aggression on the MSSB also expressed significantly less family pride and more vulnerability, emotional distance/isolation, tension/anger, bizarreness/dissociation, and global pathology on the family drawing task. Conversely, children whose stories included more positive representations of their parents on the MSSB showed significantly more vitality/creativity, and less tension/anger and global pathology on the family drawing task. Children with more negative representations of their parents portrayed more bizarreness or dissociation in their family drawings, with no other significant correlations with this variable. Prosocial behaviour and interpersonal conflict representations on the MSSB were not significantly related to any of the family drawing task dimensions. Among a number of significant associations, children's use of avoidant and/or dissociation strategies in completing the story stem task was significantly related to more bizarre or dissociative representations in their family drawings, as well as higher global pathology scores.

Are Child Attachment Representations Associated with Child CU Traits?

Parent-report questionnaires. Bivariate correlations shown in Table 26 revealed no significant associations among children's attachment representations and mother- or father-reported CU traits, irrespective of the representational measure used. So the study hypothesis was not supported.

Clinician-rated LPE diagnosis. Children's representations of attachment were

not significantly related to a diagnosis of LPE based on mothers' interviews for either the

MSSB or FAD-T (see Table 26). However, children who received the LPE diagnosis based

on their fathers' responses displayed significantly more negative representations of their

parents, more dysregulated aggression, and used more avoidant and/or dissociation strategies

on the MSSB, compared with those without an LPE diagnosis. There were no significant

associations between the global pathology score on the family drawing task and a father-

informed LPE diagnosis.

These associations for fathers were followed up with three logistic regression

analyses, controlling for ODD severity ratings. The first logistic regression examined whether

negative parent representations were associated with an LPE diagnosis when controlling for

positive parent representations and ODD severity ratings. A test of the full model against a

constant-only model was not statistically significant, (χ^2(3, N = 33) = 5.06, p = .17). Neither

father-informed ODD severity ratings (Wald χ^2 = 1.07, p = .30), nor positive (Wald χ^2 =

0.17, p = .68) or negative (Wald χ^2 = 1.53, p = .22) parent representations significantly

distinguished between children with and without a LPE diagnosis.

The second logistic regression tested whether dysregulated aggression was associated

with the LPE diagnosis, controlling for ODD severity ratings, and prosocial behaviour and

interpersonal conflict representations. The model was not statistically significant, χ^2(4, N =

33) = 5.52, p = .24, and none of the individual variables, ODD severity ratings (Wald χ^2 =

0.92, p = .34), prosocial behaviour (Wald χ^2 = 0.12, p = .73), dysregulated aggression (Wald

χ^2 = 1.27, p = .26), or interpersonal conflict (Wald χ^2 = 0.01, p = .92), distinguished between

children with and without an LPE diagnosis (fathers).

The final logistic regression examined whether children's use of avoidant and/or dissociation strategies was associated with father-informed LPE diagnoses, controlling for ODD severity ratings. The model was not statistically significant, $\chi^2(2, N = 33) = 5.18$, $p = .075$, and neither ODD severity ratings (Wald $\chi^2 = 1.75$, $p = .19$) nor avoidant and/or dissociation strategies (Wald $\chi^2 = 1.64$, $p = .20$) distinguished between those with and without an LPE diagnosis.

Summary. There was no support for the hypothesis that child attachment representations, elicited either through the doll story completion task or children's family drawings, would be associated with child CU traits (measured by parent-report questionnaires or by clinician-rated diagnostic interview). Several significant bivariate associations among child representations and a father-informed LPE diagnosis were no longer significant once child conduct problems and associated child representations were controlled.

Table 26

Bivariate Correlations Among Child Attachment Representations, CU Traits and Conduct Problems

| Variables	1	2	3	4	5	6	7	8	9	10	11	12
Mothers												
1. CU traits	-											
2. Conduct problems	.37 **	-										
3. LPE diagnosis+	.47 **	.34 **	-									
4. ODD severity rating	.23 *	.55 **	.25 *	-								
5. CD diagnosis+	.22 *	.52 **	.38 **	.65 **	-							
MacArthur Story Stem Battery (n = 90)												
6. Positive parent	.07	.17	-.03	-.05	-.12	-						
7. Negative parent+	.02	.11	.08	.28 **	.29 **	-.29 **	-					
8. Prosocial behaviour	-.08	.13	.05	.04	-.01	.78 **	-.19 **	-				
9. Dysregulated aggression+	-.11	.10	.01	.20	.24 *	-.32 **	.75 **	-.25 *	-			
10. Interpersonal conflict+	.01	.28 **	.03	.20	.19	.38 **	.30 **	.49 **	.33 **	-		
11. Avoidant/dissociation strategies	.04	-.02	.04	.21 *	.11	-.52 **	.56 **	-.50 **	.66 **	-.02	-	
Family Drawing (n = 60)												
12. Global pathology	.01	.20	.06	.31 *	.24	-.27 *	.18 **	-.11	.35 **	.16	.38 **	-
Fathers												
1. CU traits	-											
2. Conduct problems	.43 **	-										
3. LPE diagnosis+	.42 *	.37 *	-									
4. ODD severity rating	.32	.64 **	.33	-								
5. CD diagnosis+	.42 *	.61 **	.36 *	.45 **	-							
MacArthur Story Stem Battery (n = 35)												
6. Positive parent	.07	.08	-.07	-.15	.06	-						
7. Negative parent+	.09	.30	.40 *	.45 **	.19	-.09	-					
8. Prosocial behaviour	.02	.01	-.11	.02	.02	.78 **	-.02	-				
9. Dysregulated aggression+	.08	.31	.41 *	.46 **	.11	-.13	.72 **	-.01	-			
10. Interpersonal conflict+	.17	.16	.14	.29	-.05	.49 **	.29	.50 **	.51 **	-		
11. Avoidant/dissociation strategies	.15	.16	.37 *	.28	.06	-.61 **	.45 **	-.59 **	.57 **	-.07	-	
Family Drawing (n = 20)												
12. Global pathology	.13	-.14	.22	.44	.15	-.32	-.02	-.04	.21	-.02	.28	-

* $p < .05$; ** $p < .01$

+ Spearman's rho

Are Child Attachment Representations Associated with Child Conduct Problems?

Parent-report questionnaires. There was just one significant association among child attachment representations on either the MSSB or the FAD-T and child conduct problems as reported by mothers or fathers (see Table 26). Child representations of more interpersonal conflict were significantly related to more severe mother-reported conduct problems. An analysis of covariance tested whether this association remained significant after controlling for child age and gender, mother-reported CU traits, and other child self-representations (i.e., prosocial behaviour and dysregulated aggression). Interactions (CU traits x child representations, child age x child representations, child gender x child representations) were also investigated, with non-significant interactions removed from the final model.

The hypothesis was not supported (the model explained 30% of the variance), as no family demographic variable and neither child representations of interpersonal conflict ($F(1, 81) = 0.16$, $p = .69$, $\eta_p^2 = .00$), nor prosocial behaviour ($F(1, 81) = 1.03$, $p = .31$, $\eta_p^2 = .01$), nor dysregulated aggression ($F(1, 81) = 2.13$, $p = .15$, $\eta_p^2 = .03$) were significantly associated with mother-reported conduct problems in children. The only significant main effect was that higher mother-reported CU traits, $F(1, 81) = 19.02$, $p < .001$, $\eta_p^2 = .19$, were associated with more severe conduct problems, as expected. While there were no significant interactions between child CU traits or age and child representations, an interaction between child gender and child representations of prosocial behaviour was significant ($F(1, 81) = 4.31$, $p = .041$, $\eta_p^2 = .05$), and an interaction between child gender and child representations of interpersonal conflict approached significance ($F(1, 81) = 3.94$, $p = .050$, $\eta_p^2 = .05$), in predicting mother-reported child conduct problems (see the line graphs in Figure 11).

Against study expectations, child representations of more prosocial behaviour were significantly associated with more severe mother-reported conduct problems for girls ($r = .41$, $p = .038$), but not boys ($r = .03$, $p = .81$), whereas, in line with predictions, child representations of more interpersonal conflict were marginally associated with more severe mother-reported conduct problems for boys ($r = .29$, $p = .019$), but not girls ($r = .03$, $p = .89$). These interactions were supported by bivariate analyses (results are included above).
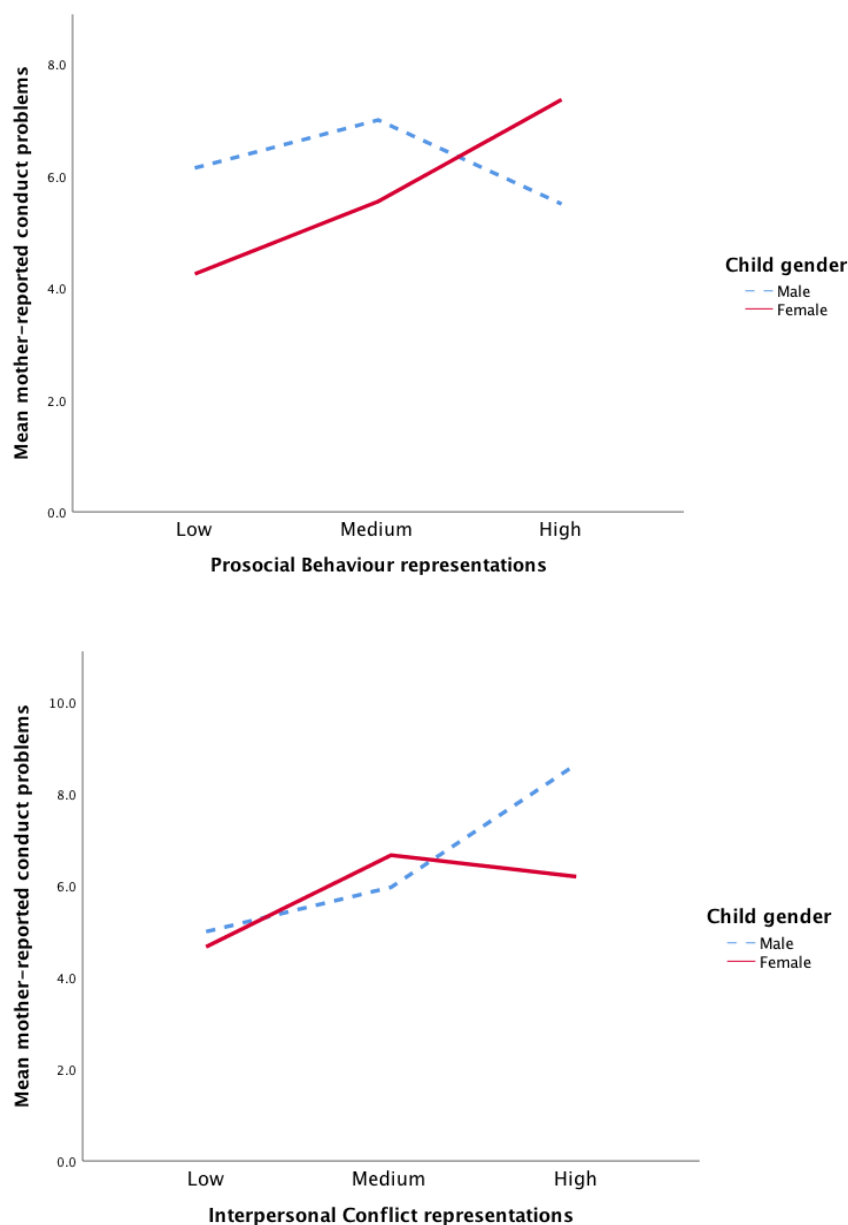
Figure 11. Associations among child representations and mother-reported conduct problems according to child gender.

Clinician-rated ODD severity ratings. Children's more negative representations of their parents and their use of more avoidant and/or dissociation strategies on the MSSB, as well as higher global pathology scores on the FAD-T, related to significantly higher mother-informed ODD severity ratings on the clinical interview (see Table 26). For fathers, children's more dysregulated aggression and negative parent representations on the MSSB were significantly associated with higher ODD severity ratings.

These significant associations were follow-up by a series of analyses of covariance, which controlled for the parent-informed LPE diagnosis and, for mothers, relevant demographic variables. Interaction effects were also tested for mothers (CU traits x child representations, child age x child representations, child gender x child representations). In Table 27, the results for mothers show that children's use of more avoidant and/or dissociation strategies in their play narratives remained significantly associated with higher ODD severity ratings, controlling for child age and gender and the mother-informed LPE diagnosis. However, negative parent representations were no longer significantly related to ODD severity ratings in the multivariate analysis. Higher global pathology scores on the family drawing task were significantly related to higher ODD severity ratings, controlling for child age and gender, household income, and the mother-informed LPE diagnosis. Interaction effects were not significant, and so were not included in the final models.

Table 27

Analyses of Covariance for ODD Severity Ratings for Mothers

Variables	SS	df	MS	F		η_p^2
MacArthur Story Stem Battery						
Child age	0.04	1, 84	0.04	0.02		.00
Child gender	0.01	1, 84	0.01	0.01		.00
LPE diagnosis	8.48	1, 84	8.48	4.66	*	.05
Positive parent representation	0.07	1, 84	0.07	0.04		.00
Negative parent representation	5.48	1, 84	5.48	3.01		.04
		$R^2 = .10$ (Adjusted $R^2 = .05$)				
Child age	1.20	1, 85	1.20	0.67		.01
Child gender	0.09	1, 85	0.09	0.05		.00
LPE diagnosis	9.03	1, 85	9.03	5.07	*	.06
Avoidant and dissociation strategies	7.33	1, 85	7.33	4.12	*	.05
		$R^2 = .11$ (Adjusted $R^2 = .07$)				
Family Attachment Drawing Task						
Child age	5.41	1, 54	5.41	3.05		.05
Child gender	0.10	1, 54	0.10	0.05		.00
Household income	3.45	1, 54	3.45	1.94		.04
LPE diagnosis	3.59	1, 54	3.59	2.02		.04
Global pathology	10.00	1, 54	10.00	5.63	*	.09
		$R^2 = .18$ (Adjusted $R^2 = .10$)				

* $p < .05$; ** $p < .01$
Note. Child gender: male = 1, female = 2.

For fathers, analyses of covariance controlling for the LPE diagnosis (see Table 28) showed that children who displayed more negative representations of their parents received significantly higher ODD severity ratings according to fathers' responses on the diagnostic interview. In addition, child representations showing more dysregulated aggression remained significantly related to higher father-informed ODD severity ratings, controlling for the LPE diagnosis and other self-representations.

Table 28

Analyses of Covariance for ODD Severity Ratings for Fathers

Variables	SS	df	MS	F		η_p^2
MacArthur Story Stem Battery						
LPE diagnosis	1.26	1, 29	1.26	1.06		.04
Positive parent representation	0.03	1, 29	0.03	0.02		.00
Negative parent representation	5.67	1, 29	5.67	4.79	*	.14
$R^2 = 0.24$ (Adjusted $R^2 = 0.16$)						
LPE diagnosis	1.02	1, 28	1.02	0.89		.03
Prosocial behaviour	1.04	1, 28	1.04	0.91		.03
Dysregulated aggression	7.59	1, 28	7.59	6.59	*	.19
Interpersonal conflict	0.00	1, 28	0.00	0.00		.00
$R^2 = 0.29$ (Adjusted $R^2 = 0.19$)						

$* p < .05; ** p < .01$
Note. Child gender: male = 1, female = 2.

Clinician-rated CD diagnosis. Bivariate correlations (see Table 26) revealed that more negative parent representations and dysregulated aggression in children's play narratives were associated with a diagnosis of CD according to mothers' responses on the diagnostic interview. There were no other significant associations among child representations measured by the MSSB or FAD-T and a CD diagnosis for either mother or father responses on the diagnostic interview.

Two logistic regression analyses were conducted to predict mother-informed diagnoses of CD from relevant child representations, controlling for family demographic variables and the mother-informed LPE diagnosis. First, a logistic regression analysis examined whether children's negative parent representations were associated with a diagnosis of CD, controlling for child age and gender, the LPE diagnosis, and the child's positive parent representations. The model was significant, accounting for 32% of the variance ($\chi^2(5, N = 90) = 22.59$, $p < .001$). The Wald criterion revealed that children's negative parent representations (Wald $\chi^2 = 4.56$, $p = .033$) and the mother-informed LPE

diagnosis (Wald $\chi^2 = 11.96$, $p = .001$) were significant predictors. Children displaying more

negative representations of their parents were more likely to be in the CD diagnostic group,

Odds ratio = 2.13. Interaction effects (child age, child gender, or mother-informed LPE

diagnosis x child representations) were not significant, and so were not included in the final

model.

A second logistic regression analysis examined whether child representations of

dysregulated aggression was associated with a diagnosis of CD, controlling for child age and

gender, the LPE diagnosis, and child representations of prosocial behaviour and interpersonal

conflict. The model was significant and accounted for 38% of the variance ($\chi^2(6, N = 90) =$

27.52, $p < .001$). The Wald criterion revealed that child representations of dysregulated

aggression (Wald $\chi^2 = 5.95$, $p = .015$) and the mother-informed LPE diagnosis (Wald $\chi^2 =$

13.28, $p < .001$) were significant predictors, such that children with more dysregulated

aggression representations were more likely to be in the CD diagnostic group, Odds ratio =

3.08. Interaction effects (child age, child gender, or mother-informed LPE diagnosis x child

representations) were not significant, and so were not included in the final model.

Summary. Child doll play narratives characterised by more dysregulated aggression

and more negative representations of their parents elicited through attachment-activating

story stem stimuli were associated with higher father-informed ODD severity ratings and a

mother-informed CD diagnosis. Furthermore, the use of more avoidant and/or dissociation

strategies during the doll story completion task and higher global pathology scores on the

family drawing task were related to higher mother-informed ODD severity ratings. Child CU

traits did not moderate any of these associations. There were two unexpected interactions

involving child gender: child representations of more prosocial behaviour were significantly

associated with more severe mother-reported conduct problems for girls, but not boys; and

child representations of more interpersonal conflict were marginally associated with more

severe mother-reported conduct problems for boys, but not girls, $p = .050$. These results partially support the hypotheses that children with more impaired attachment representations would have more severe conduct problems, as the relations were not consistently observed across reporters (mothers, fathers, clinician) or the measures of conduct problems (parent-report questionnaires, and ODD severity rating or CD diagnosis on the diagnostic interview).

Relations Among Attachment-Related Measures

The attachment-related measures used in the current study assessed the major constructs of attachment theory. These included: parents' representations of their child measured by parent mind-mindedness; parent reports of caregiving helplessness; parent and child dyadic emotional availability; and child representations of attachment assessed by doll play narratives or family drawings. Relations among these measures were explored, with bivariate correlations for mothers and fathers displayed in Tables 29 and 30, respectively.

The findings were in line with predictions from attachment theory. Higher maternal mindedness (propensity to describe their child using mental attributes) was significantly associated with more optimal child emotional availability in mother-child interactions, as measured by the EA-Z classification system. Mothers' reports of more child caregiving behaviour on the CHQ was related to more child representations of dysregulated aggression in their doll play narratives. More optimal child emotional availability during mother-child interactions (EA-Z or composite variable) was significantly related to less disturbed representations of family relationships in children's family drawings. Mothers' more optimal emotional availability (composite variable) during observed interactions was significantly related to fewer representations of dysregulated aggression and the use of less avoidant and dissociation strategies in children's doll play narratives. It was also related to less dysfunctional representations of family relationships in children's family drawings. As

outlined above, child representations on the projective family drawing and doll play narrative tasks were significantly related in expected directions.

For fathers, higher parental mind-mindedness was significantly related to fewer child representations of dysregulated aggression in their doll play narratives. Fathers' experiences of more helplessness in their parenting were associated with child doll play narratives characterised by more dysregulated aggression and negative parent representations, and the use of more avoidant and/or dissociation strategies. Further, father reports of more frightened or frightening caregiving was related to more child representations of dysregulated aggression in their doll play narratives.

Table 29

Bivariate Correlations Among Attachment-Related Measures Used in the Current Study for Mothers

Mothers	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Mind-mindedness	-													
Caregiving Helplessness														
2. Child caregiving	.00	-												
3. Parent helplessness	-.01	-.06	-											
Emotional Availability														
4. Parent: EA-Z	-.02	.04	-.06	-										
5. Child: EA-Z	.21 *	.17	-.16	.64 **	-									
6. Mother EA composite	.01	-.09	-.07	.87 **	.65 **	-								
7. Child-mother EA composite	.14	.06	-.14	.75 **	.91 **	.77 **	-							
MacArthur Story Stem Battery														
8. Positive parent	.01	.06	.11	-.01	.13	.12	.09	-						
9. Negative parent	.09	.09	.02	.00	.00	-.18	-.02	-.39 **	-					
10. Prosocial behaviour	.07	.10	.05	-.11	.10	.00	.06	.78 **	-.30 **	-				
11. Dysregulated aggression	.08	.23 *	-.03	-.08	-.06	-.26 *	-.14	-.40 **	.85 **	-.29 **	-			
12. Interpersonal conflict	.07	.13	.03	-.04	.06	.01	.01	.25 *	.07	.40 **	.17	-		
13. Avoidant/dissociation strategies	-.14	-.02	-.09	-.13	-.18	-.27 **	-.17	-.52 **	.66 **	-.50 **	.66 **	-.01	-	
Family Drawing (n = 60)														
14. Global pathology	-.06	-.01	-.10	-.23	-.37 **	-.33 *	-.37 **	-.27 *	.31 *	-.12	.40 **	.14	.38 **	-

* $p < .05$; ** $p < .01$

Table 30

Bivariate Correlations Among Attachment-Related Measures Used in the Current Study for Fathers

Fathers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Mind-mindedness	-														
Caregiving Helplessness															
2. Child caregiving	-.04	-													
3. Parent helplessness	-.09	-.33	-												
4. Frightened or frightening caregiving	-.13	-.11	.66 **	-											
Emotional Availability															
5. Parent: EA-Z	.13	-.05	-.03	.20	-										
6. Child: EA-Z	.09	-.08	.01	.13	.90 **	-									
7. Father EA composite	.12	-.02	-.04	.21	.92 **	.88 **	-								
8. Child-father EA composite	.05	.07	-.06	.11	.89 **	.94 **	.90 **	-							
MacArthur Story Stem Battery															
9. Positive parent	-.03	.21	-.24	-.22	.11	.13	.03	.17	-						
10. Negative parent	-.33	-.13	.52 **	.27	-.12	-.07	-.05	-.10	-.34 *	-					
11. Prosocial behaviour	-.06	.15	-.18	-.19	-.09	.05	-.11	.04	.78 **	-.27	-				
12. Dysregulated aggression	-.35 *	-.05	.59 **	.38 *	-.21	-.18	-.12	-.19	-.32	.87 **	-.22	-			
13. Interpersonal conflict	.07	.05	.07	.05	.08	.06	.12	.07	.26	.04	.34 *	.20	-		
14. Avoidant/dissociation strategies	-.22	-.25	.34 *	.21	-.26	-.26	-.26	-.31	-.61 **	.68 **	-.59 **	.70 **	-.05	-	
Family Drawing (n = 22)															
15. Global pathology	-.24	.06	.15	.09	-.36	-.33	-.30	-.31	-.32	.23	-.04	.36	-.09	.28	-

$* p < .05$; $** p < .01$

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Chapter 11: Discussion

Overview of Study Findings

The current study used a multi-method approach to explore parenting and parent-child attachment relationships in a clinic-referred sample of young children diagnosed with Oppositional Defiant Disorder (ODD) and/or Conduct Disorder (CD). The study hypotheses focused on the severity of the conduct problems, with a particular interest in CU traits. Child conduct problems and CU traits were assessed by mother and father reports on questionnaires and responses to a diagnostic interview. A multi-method approach was also taken to measuring parenting and parent-child attachment relationships. Methods included parent-report questionnaires, an interview request for parents to describe their child, observed parent-child interactions, and child participation in a narrative doll story stem completion task and completion of a family drawing. Across all study measures, associations with conduct problems and CU traits were considered separately (controlling for the other). The extent to which any associations with conduct problems were moderated by CU traits was also examined. It was expected that more problematic parenting practices and experiences and parent representations of the child, less optimal emotional availability, and more dysfunctional child representations of their parents, themselves and their family would be associated with more severe conduct problems and higher CU traits, including diagnostic thresholds. Hypotheses were largely supported with respect to conduct problems (although results were more compelling for mothers than fathers), but findings related to CU traits were equivocal, with most hypotheses not supported and some unexpected associations.

Conduct problems. Results broadly supported the proposition that more ineffective parenting and dysfunctional parent-child attachment relationships for mothers would be associated with more severe conduct problems in children, controlling for child CU traits and

relevant family demographic variables. More severe conduct problems were associated with mother reports of higher parenting stress, and feelings of parent helplessness. Surprisingly, in the context of more severe conduct problems, mothers reported more child caregiving behaviours (caring, entertaining or cheering up parents and others). This latter finding was restricted to those who also met criteria for the LPE diagnosis. This is discussed further below. Mothers who used more negative descriptors of mental attributes to describe their child also reported more severe conduct problems. These parent report findings were corroborated to some extent by observations, with less optimal maternal emotional availability associated with a diagnostic threshold for child conduct problems.

Children in this study were recruited from a child and family mental health clinic and were all diagnosed with ODD. Observations showed that 87% of mother-child and 80% of father-child interactions were rated in the "complicated" and "detached" zones for emotional availability, indicative of insecure attachment relationships. That is, the vast majority of children in this study, all of whom had diagnosed disruptive behaviour disorders, had problematic parent-child attachment relationships.

Findings assessing child relationship indicators were less consistent. Children with more severe conduct problems provided doll play narratives characterised by more dysregulated aggression and negative representations of their parents, and they used more avoidant and/or dissociation strategies in line with expectation. They also produced family drawings scored as less optimal (less organised with less use of colour, detail and completeness of figures). Unexpectedly, however, severity of child conduct problems was not related to observed child responsiveness to parent initiatives during play, and not to the extent to which the child sought to involve the parent in play activities.

There were other unexpected findings. Child doll play narratives characterised by the child enacting more *prosocial* behaviour were significantly related to more severe mother-

reported conduct problems for girls, but not boys. Child doll play narratives with fewer positive parent representations were not significantly related to their reports of child conduct problems. In addition, mothers' reports of negative and positive parenting practices and their tendency to represent the child in terms of mental states were not related to severity of child conduct problems.

For fathers, there was limited support for hypotheses that dysfunctional aspects of father-child relationships would be associated with more severe conduct problems. As expected and similar to mothers, child doll play narratives containing more dysregulated aggression and negative representations of parents were associated with more severe father-reported child conduct problems. There were no other significant findings. Contrary to expectation, father reports of positive or negative parenting practices, caregiving helplessness, parenting stress (at trend level), and mind-mindedness were not significantly related to the severity of child conduct problems. Furthermore, father and child emotional availability during father-child interactions, child positive representations (prosocial behaviour and positive parent) during child doll play narratives, and global pathology scores on children's family drawings, were not significantly associated with father ratings of child conduct problems. It is possible that these findings were partly due to low statistical power and characteristics of the sample, as there was only a small group of fathers, none of whom were nominated as the primary caregiver.

Child CU traits. There were few significant findings related to child CU traits, with only parent questionnaire measures in line with expectation. Higher child CU traits were associated with mother and father reports of fewer positive parenting practices, low child caregiving behaviour (implying absence of role-reversed caregiving), and higher parenting stress, controlling for child conduct problems. More frightened (parent frightened of the child) and frightening (parent frightening to the child) caregiving was related to child CU traits for fathers (this could not be tested for mothers due to low reliability of this subscale). In addition,

mothers' reports of more parent helplessness were associated with higher child CU traits. Fathers', but not mothers', use of more negative mental attributes to describe their child were significantly associated with higher child CU traits. Against expectations, however, parent (mothers and fathers) reports of negative parenting practices, observed parent and child emotional availability for both mother-child and father-child interactions, and child attachment representations, elicited either through the doll story stem completion task or children's family drawings, were not significantly related to child CU traits.

Clinical Profile of Children in the Current Study

A multi-method approach was used to assess child CU traits and conduct problems in this study. Parents reported on severity using questionnaires, and responded to a clinician-rated diagnostic interview that diagnosed externalising disorders and enabled severity ratings according to Diagnostic and Statistical Manual of Mental Disorders, 5th Edition criteria (DSM-5; American Psychiatric Association, 2013). These measures were administered to mothers (n = 92) and fathers (n = 35) separately. The small group of fathers meant that combining mother and father reports into composite variables for child conduct problems and CU traits was not possible. Consequently, mother and father ratings were considered separately. This provided an in-depth analysis of mothers and fathers perceptions of their child's difficulties.

All children were diagnosed with ODD, and 28% (n = 26) also met criteria for a comorbid diagnosis of CD, according to primary caregiver (all mothers) responses on the clinical interview. Secondary caregiver (all fathers) responses to the diagnostic interview yielded ODD and CD diagnoses for 94% (n = 33) and 14% (n = 5) of children, respectively. Mother and father responses on the diagnostic interview were strongly associated for both ODD and CD, indicating considerable agreement between informants. In addition, diagnoses of ODD and CD were strongly correlated according to mothers' or fathers' reports, consistent with previous research (e.g., Maughan et al., 2004). Also consistent with the literature, there were

significantly more boys (72%) than girls who met inclusion criteria for an ODD and/or CD

diagnosis (American Psychiatric Association, 2013; Demmer et al., 2017).

The "With Limited Prosocial Emotions" (LPE) specifier of CD was assessed for all

children, with 24% (n = 22) and 23% (n = 8) meeting diagnostic criteria according to mothers'

and fathers' reports, respectively. The prevalence of the LPE diagnosis was consistent with

previous reports from clinical samples (Colins, 2016; Frick, 2016b). Mother and father

responses showed moderate to strong agreement. Parent-reported severity of CU traits on the

questionnaires was strongly correlated with the LPE diagnosis for mothers and moderately

correlated for fathers, providing validity for the LPE diagnosis arrived at using the modified

version of the Diagnostic Interview Schedule for Children, Adolescents and Parenting (Holland

& Dadds, 1997). The LPE diagnosis was associated with more severe conduct problems

measured by parent-report questionnaires or parent responses on the clinical interview. Ratings

of higher child CU traits were also related to ratings of higher conduct problems severity on the

parent-report questionnaires for both mothers and fathers. These findings support previous

research that shows CU traits are associated with more severe conduct problems in childhood

(Frick et al., 2014b).

The diagnostic interview also revealed high comorbidity with Intermittent Explosive

Disorder (IED), with 71% (n = 34) and 73% (n = 11) of children aged 6 years and above

receiving a diagnosis based on mother and father responses, respectively. This suggested high

levels of emotion regulation difficulties within the sample. This fits the children's diagnoses of

ODD, which Frick and Nigg (2012) proposed designates a unique group of children with

emotion dysregulation. The IED diagnosis, significantly revised in the DSM-5, has rarely been

investigated in children. Future research could explore the correlates of the IED diagnosis using

larger community and clinical samples.

Further, a substantial number of children were diagnosed with Attention-Deficit/ Hyperactivity Disorder (ADHD) according to mother (45%) and father (31%) responses on the clinical interview. Again, this is consistent with previous research (e.g., Nock et al., 2007), which shows high comorbidity between ODD and CD diagnoses and ADHD. Taken together, diagnosed externalising disorders in the current sample were typical of clinic-referred conduct problems described in the literature.

Since all primary and 94% of secondary caregiver responses to the diagnostic interview yielded an ODD diagnosis, ODD severity ratings were used in analyses for mothers and fathers. Small group numbers prevented the use of CD severity ratings for mothers (n = 26) or fathers (n = 5). Consequently, dependent variables used in analyses involved clinician-rated diagnoses of CD and LPE (categorical), and ODD severity ratings (dimensional), based on mothers' and fathers' responses to the clinical interview. Mother- and father-reported severity of CU traits and conduct problems using questionnaires were also examined as dependent variables.

Using five dependent variables was considered beneficial for the current study in providing a multi-informant and method approach to the analysis of associations among parenting and parent-child attachment relationships and child conduct problems and CU traits. This approach follows recommendations for multiple informants in determining child conduct problems in the CU traits literature and the DSM-5 (e.g., Frick et al., 2014b).

Main Findings

The current study made several novel contributions, most notably regarding associations among caregiving helplessness and child CU traits and conduct problems for mothers and fathers. The results also replicated a number of previous findings from a limited literature, offering further support to an emerging body of research – indicating that positive parenting

practices and parenting stress are related to child CU traits, and that parent emotional

availability and child representations of attachment are related to child conduct problems.

Caregiving helplessness. Results broadly supported the proposition that parent

representations of caregiving helplessness would be associated with the severity of child CU

traits and conduct problems. However, the pattern of results differed for mothers and fathers.

For mothers, reports of more parent helplessness and low child caregiving were both

significantly associated with higher child CU traits and also increased the likelihood of the child

meeting criteria for the LPE specifier of CD. Further, more parent helplessness reported by

mothers was uniquely associated with more severe conduct problems and higher ODD severity

ratings on the clinician-rated diagnostic interview, when controlling for CU traits, child

caregiving, and family demographic variables. There was no evidence that CU traits moderated

these associations. Interestingly, results differed depending on whether the child met criteria for

LPE. Mother reports of more child caregiving were related to higher ODD severity ratings and

increased likelihood of a CD diagnosis, but only for those children with an LPE diagnosis.

Relations with frightened or frightening caregiving could not be tested for mothers due to low

reliability on this subscale.

For fathers, reports of more frightened or frightening and low child caregiving were

associated with higher child CU traits, controlling for conduct problems (note: father's reports

of parent helplessness were also marginally significant). There were no unique paternal

predictors of conduct problems or diagnostic classifications. The small sample size restricted the

analyses that could be conducted, and the results for fathers need to be interpreted with caution.

Results are consistent with previous research linking parent helplessness and frightened

or frightening caregiving with more severe child conduct problems and higher CU traits in a

high-risk sample of 7-year-old children (Willoughby et al., 2015). This study extends this

research by examining a broader age range of children, examining caregiving helplessness

separately for mothers and fathers, and controlling for a number of possibly confounding variables in analyses.

Caregiving helplessness and CU traits. There are several possible interaction dynamics that might link caregiving characterised by helplessness and fear with child CU traits. Compared with others exhibiting conduct problems, children with high CU traits display: more severe and persistent aggressive and antisocial behaviour (Edens, Campbell, & Weir, 2007; Pardini & Fite, 2010); deficits in affective empathy (Dadds, Cauchi, et al., 2012); impaired recognition and responsiveness to distress in others (Woodworth & Waschbusch, 2008); insensitivity to punishment (Pardini, Lochman, & Frick, 2003); and endorse more antisocial values and goals in social situations (Stickle et al., 2009). These characteristics may be frightening to parents and may also make them feel helpless during interactions with their child. Supporting this interpretation, Pasalich, Dadds, Vincent, et al. (2012) found that children with conduct problems and high CU traits had more fear-based interactions with their mothers, not fathers, using an observational measure. Current findings suggest that fear may also characterise the father-child relationship for these children. If parent experiences of attachment-related fear persist, their caregiving systems could be disabled.

Parents with disabled caregiving systems are unable to carry out the protective function of the attachment relationship, and defensively segregated fear threatens to dysregulate caregiving (George & Solomon, 2008). Dysregulated caregiving is associated with overwhelming parent feelings of fear, anger, inadequacy and being out of control, whereby the parent abdicates caregiving either through despair or evaluations of not being able to be involved (George & Solomon, 2011). Dysregulated parents demonstrate hostile and/or helpless caregiving, and describe their child as "wild", "evil" and "uncontrollable" (George & Solomon, 2011). The Caregiving Helplessness Questionnaire (CHQ) assessed parent representations of dysregulated caregiving on two scales: frightened or frightening caregiving, and parent

helplessness. The current results suggest that representations of dysregulated caregiving may develop for parents of children with high CU traits. This is consistent with evidence showing that children with higher CU traits experience less parent involvement (Fanti & Centifanti, 2014) and more hostile, harsh and punitive parenting practices (Mills-Koonce et al., 2016; Viding et al., 2009). It also seems plausible that parents of children with high CU traits may view their children more negatively, and this is supported by study findings that show fathers used more negative mental attributes to describe children with higher CU traits (discussed in more detail below).

George and Solomon (2008) proposed that caregiving systems may also be disabled in a different way. Segregated attachment-related fear can lead to constricted representations of caregiving (George & Solomon, 2011). In these circumstances, parents manage overwhelming fear by blocking memories and affect that is otherwise too threatening to describe (Hesse & Main, 2006). Parents with constricted representations of their caregiving tend to portray their child as angelic, gifted or perfect, a physical or psychological extension of themselves, and as highly sensitive and capable of caring for themselves and others in a protective manner. Since the child is perceived as independent and capable of caring for others and him or herself, this releases the parent from his or her caregiving responsibilities (George & Solomon, 2011). Constricted caregiving can also result in the child taking care of an overwhelmed parent. The current results suggest that parents of children with higher CU traits have less constricted representations of caregiving. It is difficult, however, to interpret these findings, as lower scores are believed to indicate less disturbed parent representations of caregiving.

A more detailed examination of the child caregiving scale of the CHQ may shed some light on these findings. In the current study, higher child CU traits were associated with reports of less caregiving behaviour. The items capture children looking after, entertaining or cheering up "others": "my child is good at tending to and caring for others" (item 2); "my child knows

how to put other people at ease"(item 6); "I feel that my child is a great actor/actress" (item 8);

"my child is very sensitive to the feelings and needs of others" (item 9); "my child likes to be a

clown or family comedian" (item 11); and, "my child is always trying to make others laugh"

(item 17). Toscano et al. (2018) conducted a confirmatory factor analysis and found that these

items loaded onto two factors: "child cheers mothers" (items 8, 11 and 17) and "child

caregiving" (items 2 and 9), suggesting role-reversal in the relationship in terms of care

provision (removal of item 6 improved the final model). These two clusters were also found in

the current study and in George and Solomon's (2011) original exploratory factor analysis,

which were then combined into their child caregiving scale. The six items as a group lack face

validity in directly assessing the dynamic of role-reversed caregiving, whereby the child is

nurturing the parent to maintain protective connection with them. Indeed, only two items

directly assess this, and the others describe more general "show off" behaviour, sometimes

directed to others (friends, teachers).

At face value, it makes sense (hence the study hypothesis) that children with high CU

traits would be less likely to be described as "angelic", sensitive to the needs of others, or

making others happy. However, when "cheering", "class clown" and "comedian" items are

combined with nurturing items, interpretation of results may be confounded, as these former

attributes are similar to some items measuring child CU traits (e.g., reversed-scored:

"considerate of other people's feelings", "often volunteers to help others (parents, teachers,

other children)"). The results for the child caregiving subscale, therefore, need to be interpreted

with caution.

The child caregiving scale has been shown to be positively related to maternal

depression, infant social emotional problems, and parenting stress, but not disorganised

attachment (as theorised), general maternal psychopathology, or sensitive parenting (George &

Solomon, 2011; Huth-Bocks et al., 2016; Toscano et al., 2018). While the CHQ was useful in

the current study to capture a parenting dynamic, further research is required to improve the validity of the child caregiving subscale, particularly for future investigations of role-reversed caregiving and child CU traits.

Role-reversed caregiving has rarely been investigated in studies linking caregiving helplessness with child adjustment difficulties. Despite possible limitations with measurement, the findings of this study suggest that role-reversed caregiving (potentially indicating disorganised attachment) may be a useful construct to explore in future research on children with conduct problems and CU traits. Consistent with the current findings, studies show that children with high CU traits are more likely to have their doll play narratives classified as disorganised, based on examples of violence, chaos, fear, poor coherence, refusal to participate, and use of multiple and incompatible attachment strategies in their story-telling (Bohlin et al., 2012; Pasalich, Dadds, Hawes, et al., 2012). Parent representations of disorganised caregiving, particularly helplessness and fear, may be important targets for treatment of children with CU traits.

Relational dynamics of helplessness and fear are believed to be characteristic of dyads with disorganised attachment relationships. Attachment theory (Bowlby, 1969/1982) proposes that a parent's caregiving system develops reciprocally with his or her child's attachment system. In the case of caregivers who are either frightened or frightening at times of threat, the collapse in child strategies in relation to how to approach the parent when stressed or threatened that is characteristic of disorganised attachment in infancy, evolves during the preschool years into a controlling strategy (either punitive or caregiving) (Cassidy, 2016). So, the current results in relation to the CHQ are suggestive of a disorganised attachment pattern. However, the absence of observational measures of attachment and narrative interviews to capture caregiving representations means this interpretation can be only speculative. Future studies could incorporate narrative interviews that assess for parents' representations of controlling or role-

reversed caregiving, such as the Parent Development Interview (Slade, Aber, Bresgi, Berger, & Kaplan, 2004) or the Caregiving Interview (George & Solomon, 1989). These could be applied to the study of child conduct problems and CU traits in childhood to provide a comprehensive assessment of possible relations with role-reversed caregiving.

The current findings contribute to a limited research base (just seven studies) that has examined the parenting practices of mothers and fathers in relation to child CU traits. Only two have reported associations between fathers' negative parenting practices and CU traits. For example, Trentacosta et al. (2018) found that adoptive fathers' harsh parenting at 27 months predicted child CU traits at 54 months, controlling for earlier CU traits, conduct problems and harsh parenting at 18 months. The current study extends previous research by identifying that fathers of children with high CU traits may feel frightened and engage in parenting that is frightening to the child, and that this occurs concurrently within mutually reciprocal parent-child interactions. There is some existing evidence to suggest that associations between child CU traits and the parent-child relationship are different for mothers and fathers, but findings are mixed in this regard. Some studies have shown that mothers of children with higher CU traits were more emotionally expressive (Pasalich, Dadds, Vincent, et al., 2012), but also less accepting and more dismissing of child emotion during interactions (Pasalich, Waschbusch, et al., 2014), compared with fathers. In a different sample, Pasalich et al. (2011) found that warmth from fathers, but not mothers, was associated with lower CU traits in a clinic-referred sample of 4 to 12-year-old children. On the other hand, there is evidence that mother- and father-child relationships have a comparable influence on the development of CU traits (Fanti, Colins, et al., 2017; Kochanska et al., 2015; Trentacosta et al., 2018; Waller, Shaw, Neiderhiser, et al., 2017). The current research contributes to the very limited research that indicates that fathers' caregiving may uniquely influence and be affected by their child's difficulties. Reducing fear

experienced within the father-child relationship may be helpful for understanding and treating CU traits in childhood.

Fear may also be an important target for mothers in treatment, but in a different way. Mothers of children with high CU traits in the current study reported feeling more helpless and out of control within the parent-child relationship. This may mean that they fail to take charge in the way that the child needs, producing attachment-related fear for themselves and their children (Powell et al., 2014). The current findings suggest that including mothers and fathers when treating conduct problems and CU traits in children is important. Future interventions could be tailored to reduce attachment-related fear for fathers by increasing their confidence in taking charge of child behaviour using non-punitive discipline strategies, building mothers' confidence in understanding and taking charge of their child's emotional needs, or reducing child CU traits so that fathers experience less fear and mothers less helplessness regarding their children.

The current study was unable to assess for associations among frightened or frightening caregiving and CU traits for mothers due to low reliability on this subscale. The frightened or frightening caregiving scale on the CHQ describes parent and child experiences of fear in relationship across six items: child aggression or separation distress, parent coercive discipline or difficulty soothing the child, and parent or child fright. The breadth of these attachment-related fears, delineated separately for parent and child, could contribute to inconsistent responses from parents. As it is currently defined, the concept of frightened or frightening caregiving could be a difficult concept to capture from just six items, further impacting the scale's reliability. In conjunction with findings related to the child caregiving subscale, more work is needed on the CHQ to conceptualise the construct of frightened or frightening caregiving and improve the reliability of the items designed to measure it.

Interestingly, the frightened or frightening caregiving scale showed good internal consistency for fathers (similar to other studies using the CHQ), and it was a unique predictor of

CU traits. The concept of frightened or frightening caregiving could also be important for mothers and needs to be examined in future research. It is possible that social desirability concerns for mothers attending a mental health clinic for their children could have impacted their responses on the frightened or frightening scale. The above-mentioned narrative interview techniques may be a less transparent and threatening approach for assessing dysregulated caregiving in clinical populations.

Caregiving helplessness and conduct problems. Study findings indicated that feelings of helplessness for mothers were also uniquely related to more severe conduct problems and higher ODD severity ratings on the clinician-rated diagnostic interview in children, consistent with prior research (George & Solomon, 2011; Lecompte & Moss, 2014; Linde-Krieger & Yates, 2018; Toscano et al., 2018). Mother-reported frightened or frightening caregiving may have also been relevant for child conduct problems, but could not be reliably assessed, as discussed above. There was no evidence that CU traits moderated associations between caregiving helplessness and conduct problems for mothers. Prior research findings are mixed in this regard. While some studies show that CU traits moderate associations between dysfunctional parenting practices and conduct problems in childhood (e.g., Crum et al., 2015; Oxford et al., 2003), findings in this study are consistent with studies that find no such effects (Hyde et al., 2013; Waller, Gardner, et al., 2015; Willoughby et al., 2013).

Findings differed depending on whether the child met criteria for the LPE diagnosis. More mother-reported child caregiving was related to more severe ODD symptoms and increased likelihood of a CD diagnosis, but only when the child had an LPE diagnosis. Prior research has shown that child caregiving was associated with more severe conduct problems in one study (Toscano et al., 2018), but not in another (George & Solomon, 2011). Neither study considered child CU traits, which could possibly explain the inconsistent findings.

This is an interesting finding, as role-reversed caregiving refers to the parent's perception of the child as controlling their relationship, but in a manner that is helpfully guiding, organising or cheering up the parent. This is incongruent with research that shows that children with conduct problems and high CU traits tend to be aggressive and antisocial and lack warmth, affection, care and empathic responding within their family relationships. As described above, the current results could reflect limitations with the child caregiving subscale of the CHQ, and caution needs to be taken in making interpretations of this finding.

The finding could be explained, however, if parents' reports of child caregiving captured aspects of the characteristic superficial charm of children with high CU traits. That is, children with high CU traits are sometimes described as being delightful, attractive or fascinating towards others, and they may use this charm to influence or make others like them to attain self-interested goals. The results of the current study could indicate that, depending on the context, children with high CU traits may be either coercive or angelic and helpful to attain their goals. This would fit with the proactive, deceitful and thoughtful actioning of antisocial goals described in children with conduct problems and high CU traits. This is speculative and would need to be investigated in carefully designed observations of parent-child interactions.

Although the models involving conduct problem severity were significant for fathers, no single variable from the CHQ had a unique association. This was likely due to low statistical power. This fits with theoretical models proposing that childhood conduct problems develop from multiple interacting risk and protective factors across numerous dispositional, familial and psychosocial domains (e.g., DeKlyen & Greenberg, 2008; Loeber et al., 2009a, 2009b). Among these domains, some research suggests that the quality of the parent-child relationship may be of primary importance (e.g., Burke et al., 2002; Stormshak et al., 2000). The current study is unable to support this assertion when the quality of the parent-child relationship is appraised by father reports of caregiving helplessness.

In summary, this study found that: mother reported parent helplessness was uniquely related to more severe conduct problems and higher CU traits in children; mother-reported low child caregiving was related to higher CU traits, and more child caregiving was associated with more severe conduct problems for children with an LPE diagnosis; whereas more frightened or frightening caregiving and low child caregiving for fathers was uniquely related to higher child CU traits. The broader influence of mothers' caregiving helplessness on their child's difficulties could reflect their more prominent role in the family, as all mothers were nominated as the primary caregiver in this study. Interventions that focus on caregiving helplessness in mothers may be helpful for conduct problems, regardless of the associated level of child CU traits.

Positive parenting and CU traits. As expected, the current study found that fewer positive parenting practices were associated with higher CU traits for mothers and fathers, controlling for parent-reported conduct problems, negative parenting practices and (for mothers) relevant family demographic variables. Results showed that low parental involvement appeared to be the key component indicating compromised positive parenting practices for mothers, suggesting that distance in the mother-child relationship may be a hallmark of family dynamics in the context of higher CU traits in children. Fathers reported lower parental involvement and fewer positive parenting practices for children with higher CU traits (medium effect sizes), suggesting a particularly problematic relationship dynamic. These findings are consistent with previous research that shows fewer positive parenting practices (B. A. Robinson et al., 2016; Waller, Shaw, & Hyde, 2017), lower positive parent involvement (Fanti & Centifanti, 2014; Pasalich et al., 2011) and lower parental warmth (Mendoza-Diaz et al., 2018; Waller et al., 2018) are concurrently related to higher CU traits in early and middle childhood. Longitudinal studies have also shown that limited positive parenting practices predict the development of CU traits during childhood (Hawes et al., 2011; Waller et al., 2014; Waller, Shaw, & Hyde, 2017).

The current study found no significant associations among positive parenting practices and child conduct problems. This suggests that positive parenting practices may be uniquely related to CU traits.

Furthermore, findings for positive but not negative parenting practices suggested that CU traits in childhood may be particularly sensitive to the absence of positive caregiving. Some recent research supports this assertion. Waller, Shaw, and Hyde (2017) found that observations indicating less positive parenting, but not harsh parenting, at 24 months predicted higher CU traits at 42 months in a high-risk community sample. Mendoza-Diaz et al. (2018) found that lower mother and father warmth, but not negative parenting, was related to higher CU traits. In a clinic-referred sample of 3 to 12-year-old children, Kjobli et al. (2018) found that the therapeutic effects of a parent training intervention were partially mediated by positive, but not negative, parenting practices. Pasalich and colleagues (2016) found that an intervention in middle childhood improved positive parenting, which then predicted lower CU traits, and reduced negative parenting, which in turn predicted fewer conduct problems, in early adolescence. Finally, three studies have reported that positive, but not negative, parenting composite scores from the APQ are related to higher child CU traits in middle childhood (Frick, Kimonis, et al., 2003; Masi et al., 2018; Muratori, Lochman, Lai, et al., 2016). Taken together this evidence supports the conclusion that fewer positive parenting practices may be uniquely associated with child CU traits. It is important to note, however, that other studies have found both negative and positive parenting practices contribute to child CU traits (Dadds, Allen, et al., 2012; Hawes et al., 2011; Pardini et al., 2007; B. A. Robinson et al., 2016; Waller et al., 2018), indicating that further research is required to understand the conditions in which positive or negative parenting influence the development of CU traits. Common sense suggests that it's likely to be both.

Taken together, research findings to date may indicate that, while children with higher CU traits are susceptible to negative parenting, they may receive the most assistance from improvements in positive parenting practices, supporting a differential susceptibility perspective for child CU traits. While a few studies show that CU traits can be reduced by decreasing negative caregiving behaviours (e.g., Elizur et al., 2017; Kochanska et al., 2015; Sourander et al., 2016), there is more evidence that promoting parental warmth and involvement (Pardini et al., 2007), sensitivity (Bedford et al., 2015), positive parenting (Hyde et al., 2016) and mental-state talk during parent-child interactions (Wagner et al., 2017) is helpful in early and middle childhood. There is also evidence that treatment modules focused on improving positive parenting and warmth are most effective for reducing conduct problems for children with high CU traits, whereas the disciplinary component of treatment may be less effective (e.g., Hawes & Dadds, 2005; Kimonis, Bagner, et al., 2014; Kimonis et al., 2019).

As noted above, just seven studies have compared the parenting practices of both mothers and fathers in relation to child CU traits. Interestingly, five of these studies show that fathers' positive parenting practices were inversely related to CU traits (Fanti, Colins, et al., 2017; Kochanska et al., 2015; Mendoza-Diaz et al., 2018; Pasalich et al., 2011; Waller, Shaw, Neiderhiser, et al., 2017). For example, in a clinic-referred sample of 4 to 12-year-old children with diagnosed conduct problems, Pasalich et al. (2011) found that higher paternal, but not maternal, warmth measured by the five-minute speech sample was associated with lower CU traits. Waller, Shaw, Neiderhiser, et al. (2017) found that lower positive reinforcement by primary (mothers) and secondary (fathers) caregivers were concurrently related to higher child CU traits at 27 months of age. Only two studies have shown that fathers' negative parenting practices predict the severity of child CU traits (Kochanska et al., 2015; Trentacosta et al., 2018). This research, combined with the current findings, appears to suggest that the inclusion of mothers and fathers in the treatment of CU traits and their associated conduct problems is

important, and that there should be a focus on positive parenting practices, particularly for

fathers.

Parenting stress, child conduct problems and CU traits. Higher parenting

stress was uniquely related to higher CU traits for mothers and fathers when controlling for

conduct problems and, for mothers, family demographic variables. This was in line with

expectations. Follow-up analyses showed that higher child CU traits were related to all three

subscales of parenting stress (parent-child dysfunctional interactions, parental distress and

difficult child) for mothers, and the parent-child dysfunctional interactions and difficult child

subscales for fathers. Given that causation could not be determined within the cross-sectional

design of the current study, worsening parenting stress and higher child CU traits may develop

through mutually reciprocated interactions over time. It is not surprising that parents of children

who exhibit impaired empathy, more aggression, and are unresponsive to authority and others'

distress will report more disagreeable psychological reactions to the demands of being a parent.

It is also possible that higher parenting stress adversely impacts parenting and the parent-child

relationship, which together exacerbates child CU traits.

Prior longitudinal research shows that parenting stress (mothers' and fathers') is

associated with higher CU traits (Fanti, Colins, et al., 2017), and that conduct problems

predicted higher parental distress for children with high CU traits (Fanti & Centifanti, 2014), in

community samples in middle childhood. Current study findings regarding robust associations

with parenting stress suggest that interventions addressing both parent wellbeing and child

conduct problems may improve stress experienced by parents in such circumstances (e.g., Crnic

et al., 2005; Guterman et al., 2009).

Mothers' reports of more parenting stress (total and parent-child dysfunctional

interactions and difficult child subscales) were also associated with higher ODD severity

ratings, when controlling for the LPE diagnosis and family demographic variables. CU traits did

not moderate this association. These results are consistent with previous research (e.g., Barry et al., 2005; Dubois-Comtois et al., 2013). Despite significant bivariate correlations, the associations between conduct problems and fathers' reported parenting stress was not significant (at trend level: $p = .051$) when CU traits were controlled. It is possible that these findings were partly due to low statistical power. Some studies have shown that mothers generally report more parenting stress than fathers (for a review, see Morgan et al., 2002). This was found to be the case in the current study and could possibly explain the significant associations with conduct problems for mothers, not fathers.

Most influential aspects of parenting. The current study explored which of the parenting dimensions assessed was most strongly associated with child conduct problems and CU traits. Results showed that mother-reported positive parenting practices, parent helplessness and child caregiving, and parenting stress were all uniquely related to child CU traits measured by parent-report questionnaires or clinician-rated diagnostic interview, controlling for child conduct problems, family demographic variables, and shared variance among those parenting variables. Further, mothers' reports of more parent helplessness were uniquely associated with higher ODD severity ratings, and more child caregiving was associated with mother-informed CD diagnoses and higher ODD severity ratings, but only for children with the LPE diagnosis. For fathers, controlling for conduct problems and shared variance among these parenting variables, positive parenting practices, child caregiving, frightened or frightening caregiving, and parenting helplessness, but not parenting stress, were each uniquely related to father-reported CU traits, but not the father-informed LPE diagnosis. These results show that less positive parenting and more caregiving helplessness for mothers and fathers, and parenting stress for mothers, are independently related to higher CU traits in early and middle childhood. Therefore, these need to be considered in treatment. Mother's feelings of caregiving helplessness appear particularly important, as they are also uniquely related to child conduct

problems. Interventions that improve child conduct problems are likely to lead to less parenting stress and experiences of caregiving helplessness and increase positive parent-child interactions, which in turn could further improve child conduct problems.

Fathers in the current study. An extensive literature shows that mothers and fathers are important for the social, emotional and cognitive development of children (Lamb, 2010). Fathers are shown to have a unique role in the socialisation of children (Flouri, 2005), and the current results show that fathers' caregiving practices and experiences are related to their children's conduct problems and CU traits. Fathers were all nominated as secondary caregivers in the current study. Primary and secondary caregivers were designated according to their time spent caring for the child during an average week. Primary caregivers are believed to have greater influence on child development than secondary caregivers and are typically preferred by children for the satisfaction of their emotional needs (Kobak, Rosenthal, & Serwik, 2005).

The less time spent by fathers caring for their children may have influenced the current results. First, fathers' reports of their children's conduct problems and CU traits may have been based on less information across fewer contexts than mothers, making them less accurate. This risk may have been limited in the current study since mothers and fathers were in moderate to strong agreement regarding the severity of their child's conduct problems and CU traits. Second, fathers' caregiving experiences may have been less adversely impacted by their child's conduct problems and CU traits than mothers as a result of their reduced exposure to problematic parent-child interactions. Third, reflecting the transactional nature of relationships, fathers' caregiving practices may have had less influence on the development and maintenance of their child's conduct problems and CU traits. These factors could account for some of the non-significant findings for fathers in the current study (although the small sample size of fathers was likely to have had the greatest influence). Future research could compare fathers with primary and secondary caregiving responsibilities to explore whether their different roles in

the household impacts their parenting, the parent-child relationship, and their child's conduct

problems and CU traits. This design would also assist future longitudinal research to identify the

unique contributions of fathers to children's behavioural, social and emotional development,

distinct from their primary or secondary caregiver responsibilities.

Mother emotional availability and child conduct problems. The current study

predicted that less optimal parent and child emotional availability would be related to more

severe conduct problems for mother-child and father-child interactions. This hypothesis was

partially supported. Lower maternal emotional availability increased the likelihood of mother-

informed diagnoses of CD, controlling for the LPE diagnosis and relevant family demographic

variables. There was no evidence that the LPE diagnosis moderated associations between

mothers' emotional availability and their children's CD diagnosis. Follow-up analyses showed

that children of mothers with lower sensitivity and higher hostility and intrusiveness were more

likely to have a CD diagnosis. Child emotional availability during mother-child interactions was

marginally significant ($p = .07$) in predicting mother-informed CD diagnoses, controlling for the

same variables. Mother and child emotional availability were not significantly related to the

other measures of child conduct problems in the current study, despite significant bivariate

associations for ODD severity ratings. The current study found no significant relations among

father-child emotional availability and conduct problems, although both were marginally

significant, father ($p = .07$) and child ($p = .06$) emotional availability, in predicting father-

informed CD diagnoses, controlling for the LPE diagnosis. This was likely due to low statistical

power given only 35 fathers participated in the assessment.

Mother emotional availability was significantly associated with the CD diagnosis, but

not the severity of conduct problems in the current study. The CD diagnostic criteria include a

threshold for a particularly severe form of conduct problems in children, including aggression to

animals and other people, and law-breaking activities, such as deliberately lighting fires,

shoplifting and vandalism (American Psychiatric Association, 2013). It is a relatively uncommon diagnosis in early and middle childhood (Maughan et al., 2004), but once established, predicts later aggressive and antisocial behaviour and significant adjustment problems in familial, psychiatric, economic, legal, academic, social, and physical health domains in late childhood, adolescence and adulthood (e.g., Odgers et al., 2007; Odgers et al., 2008). A diagnosis of ODD in early childhood often precedes a later diagnosis of CD. All children in the current sample had a diagnosis of ODD and 28% (n = 26) and 14% (n = 5) of children were diagnosed with CD based on mothers' and fathers' responses on a diagnostic interview, respectively. Mothers and fathers were in strong agreement in their responses to the CD diagnostic criteria on the clinical interview. The current results show that observations of mothers' dysfunctional parenting were only associated with the most severe and concerning symptom cluster of conduct problems. Given all children had an ODD diagnosis, a ceiling effect could have limited the possibility of significant findings for ODD severity ratings.

A few studies have shown that maternal and child emotional availability are concurrently associated with child conduct problems in early (Harden et al., 2017; Lehman et al., 2002; Yoo et al., 2014; Ziv et al., 2016) and middle (Benton et al., 2019; Dittrich et al., 2017; Easterbrooks et al., 2012) childhood in community samples. For example, Ziv et al. (2016) reported that negative maternal control (a composite variable based on maternal intrusiveness, hostility, structuring) was associated with more severe teacher-reported behaviour and learning problems via less competent social information processing in 3 to 5-year-old children, after controlling for child and family risk factors. Easterbrooks et al. (2012) found that maternal intrusiveness, but not sensitivity or non-hostility, was concurrently associated with more severe teacher-reported conduct problems at 7 years of age in a high-risk sample. The current results are consistent with this previous research and extend it through demonstrating these associations in clinic-referred children with diagnosed conduct problems.

Research also shows that maternal and child emotional availability measured in infancy (Carter et al., 2001; G. E. McMahon et al., 2019) and early childhood (Biringen, Damon, et al., 2005; Biringen, Skillern, et al., 2005; Vando et al., 2008) predicts the later development of child conduct problems in community samples. For example, Biringen, Skillern, et al. (2005) found that maternal sensitivity and a composite score involving the remaining maternal and child emotional availability dimensions assessed at 4 years of age predicted lower levels of observed aggression and/or victimisation, as well as teacher-reported conduct problems, both during the transition to, and at the completion of, kindergarten. A number of studies also show the development of conduct problems for vulnerable children are mediated by emotional availability (Bödeker et al., 2019; Kluczniok et al., 2018; Pinchover & Shulman, 2018; Wurster et al., 2019). In a sample of 5 to 12-year-old children and their mothers who were diagnosed with borderline personality disorder or remitted major depressive disorder, Kluczniok et al. (2018) found that maternal hostility, but not sensitivity, mediated the association between maternal borderline personality disorder and child conduct problems. This research raises the possibility of developmentally sensitive periods for parent-child emotional availability, or that parent and child emotionally availability is most influential on child outcomes only in the context of parent and family risk factors. These possibilities could be investigated in future studies of child CU traits and conduct problems.

The current study was unique in examining associations among father and child emotional availability and child conduct problems. In the only previous study to involve fathers, Berkel et al. (2015) found that preschool-age children shared more with their younger siblings and were more compliant when their fathers (not mothers) showed more sensitivity towards them and lower sensitivity towards their younger siblings. More research that examines associations among father-child emotional availability and child conduct problems is required.

There were no significant associations among parent and child emotional availability and child CU traits for mother- or father-child interactions. These unexpected findings are discussed below.

Child attachment representations and conduct problems. The current study expected that children with more severe conduct problems would present more negative representations of their parents and themselves and use problematic strategies to manage stress during their doll play narratives. They were also expected to display more dysfunctional representations of their family relationships in their family drawings. The results show that doll-play narratives characterised by more dysregulated aggression and containing more negative representations of their parents were uniquely associated with higher father-informed ODD severity ratings and a mother-informed CD diagnosis. Furthermore, the use of more avoidant/dissociation strategies during the doll story narrative task and higher global pathology scores on the family drawing task were uniquely related to higher mother-informed ODD severity ratings. CU traits did not moderate any of these associations.

There were two unexpected interactions involving child gender. First, child representations of more prosocial behaviour were significantly associated with more severe mother-reported conduct problems for girls, but not boys. Second, child representations of more interpersonal conflict were marginally associated with more severe mother-reported conduct problems for boys, but not girls, $p = .050$. These results provide only partial support for the hypotheses that children with more impaired attachment representations would have more severe conduct problems. This is because the relations were not consistently observed across reporters (mothers, fathers, clinician) or the measures of conduct problems (parent-report questionnaires, and ODD severity ratings or CD diagnosis on the diagnostic interview).

Longitudinal studies using the MacArthur Story Stem Battery (MSSB) or Attachment Story Completion Task (ASCT) have shown that children's more disturbed representations of

their parents and themselves, expression of distress, and more impaired performance during doll play narratives at preschool and early school-age predict later conduct problems and lower prosocial behaviour (e.g., Moss et al., 2009; Oppenheim, Emde, & Warren, 1997; Stadelmann et al., 2007). There are similar findings for cross-sectional studies in early and middle childhood (e.g., Davies, Coe, Hentges, Sturge-Apple, & Kloet, 2018; Laible et al., 2004; Warren et al., 1996; Woolgar et al., 2001). Together, this research indicates that children with behaviour problems tend to represent their parents as: more negative (e.g., harsh, punitive, rejecting behaviours); less positive (e.g., fewer protective, caretaking, affectionate, empathic, helpful behaviours); and less disciplinary (less authoritative style: imbalance of firm control with kindness). Children with conduct problems tended to: represent themselves as more aggressive, helpless and combative; use more avoidance strategies: show more distress and fear; and be less coherent in the performance of their narratives. Findings have been consistent for community and clinical samples, across various cultures, and when controlling for child age and gender, language abilities, task engagement, psychosocial risk factors, parenting styles and earlier conduct problems. The current findings are consistent with this literature.

Against expectations, the current study found that representations of *more prosocial* behaviour were related to *more severe* conduct problems for girls, and not boys. This finding is difficult to explain. Compared with boys, girls in the current study tended to show more positive and less negative representations of their parents, more prosocial behaviour and less dysregulated aggression self-representations, and used less avoidant or dissociative strategies in their doll play narratives than boys. This largely fits with previous research (e.g., Buckner & Fivush, 1998; Grych, Wachsmuth-Schlaefer, & Klockow, 2002; von Klitzing et al., 2000). The anomaly in our results could reflect that girls tend to be generally more positive in their doll play narratives, although the association with more severe conduct problems is difficult to explain.

There is very limited research that has examined associations among the quality of children's family drawings and their conduct problems or CU traits. Goldner and Scharf (2011) found that children (8 to 12 years of age) with more severe conduct problems provided drawings of their families characterised by less vitality and family pride, and more tension, bizarre characteristics (e.g., unusual signs or symbols, aggressive facial features, morbid fantasy themes), and global pathology. Kloft et al. (2017) invited all family members attending an initial assessment for the treatment of conduct problems in children between 3 and 15 years of age to complete a family drawing. The study found that more family dysfunction (composite variable) was represented in the drawings of children with high than low CU traits prior to treatment. Reduced emotional distance in the families' drawings was more strongly related to fewer conduct problems in children with high, than low, CU traits. Further, families of children with high, but not low, CU traits showed improvement in their representations of dysfunctional relationships following treatment. The design of the study meant that the child's representations were unable to be discerned from those of other family members, although it indicated that family drawings are a sensitive measure for children with CU traits. Finally, Wagner et al. (2015) found that more dysfunctional representations of family relationships in children's drawings were concurrently related to higher CU traits, but not conduct problems, at 6 years of age in a high-risk community sample. The current results are most consistent with the research by Goldner and Scharf (2011). They contribute to a very small evidence base.

The assessment of children's internal working models of attachment offer insight into their internalised experiences within the family, and how they are likely to interpret their sense of self, others, and self with others in future interactions (Schechter, Zygmunt, Coates, et al., 2007). The results show that children with more severe conduct problems have more disturbed representations of themselves and their family relationships. Their doll play narratives reveal that these children have expectations of harsh, punitive, rejecting and ineffectual behaviour from

their parents towards them and show a propensity to use dysregulated aggression in resolving social-emotional dilemmas. Also, they are likely to be impaired in their ability to process relational and emotional information during stressful contexts, using an avoidant and dissociative style. Within their family drawings, children with more severe conduct problems also represented more emotional disconnection and vulnerability, less support from adults, less happiness and more anger, and more feelings of hostility, betrayal and abandonment, within their family relationships. These cognitive-affective schemas are believed to be used to anticipate, appraise and guide their interactions with other people. Consequently, these children appear vulnerable and may be at risk for poor outcomes across multiple developmental domains (Burke et al., 2014; Kim-Cohen et al., 2009). Interventions, therefore, need to focus on children's mental models of self and relationships and help them to develop more adaptive representations and more effective emotion regulation strategies during stressful moments. According to attachment theory, this is likely to follow from improving security in current attachment-related experiences and then maintaining these experiences over time. There are no current evidence-based interventions that directly focus on altering children's understanding of self and relationships. Therefore, while child doll play narrative techniques may be effective for assessing children's internalised experiences within their families, it is unclear how this information could be used to individualise treatments for children with complex presentations. Instead, it appears that children's representations of the self and others can only be influenced indirectly by interventions that improve attachment security within current parent-child relationships that, if sustained, is theorised to gradually alter children's attachment representations.

Projective drawing tasks are easy to administer and are among the ten most frequently used assessment methods by clinical psychologists in the USA and Britain (Bekhit et al., 2005; Watkins et al., 1995). The current findings support the use of these measures in the context of

child conduct problems. Doll play narrative techniques could complement family drawing assessments by providing a more detailed appraisal of children's representations of attachment, which could be used to individualise treatment approaches.

Indeed, the current study makes a useful contribution in demonstrating that children's representations on the MSSB and FAD-T were significantly related to each other in theoretically expected ways. Children who represented themselves as more dysregulated in their aggression on the MSSB also expressed significantly less family pride and more vulnerability, emotional distance/isolation, tension/anger, bizarreness/dissociation, and global pathology on the family drawing task. Conversely, children whose stories included more positive representations of their parents on the MSSB showed significantly more vitality/creativity, and less tension/anger and global pathology on the family drawing task. Children with more negative representations of their parents produced drawings with more features classified as bizarre or indicative of dissociation. Those who used more avoidant or dissociation strategies in completing the story stem task also produced more bizarre or dissociative representations in their family drawings, as well as higher global pathology scores. This is the second study to explore associations among the FAD-T and the MSSB (Schechter, Zygmunt, Trabka, et al., 2007), and the results further validate each measure, and also the consistency of children's working models of attachment.

Unexpected Results

There were a number of unexpected findings in this study. These related to null findings for some predicted associations among parenting and parent-child attachment relationships and child conduct problems or CU traits. Against expectations, parental mind-mindedness and negative parenting practices reported by mothers and fathers were not significantly related to either child CU traits or conduct problems. Further, parent and child emotional availability for mother-child and father-child interactions, and child representations of attachment on both projective measures, were not significantly related to child CU traits. Possible explanations for

each of these non-significant results are provided, and suggestions made for future research
using these measures.

Negative parenting. The current study found no significant bivariate associations
among mother or father reports of negative parenting practices and child conduct problems or
CU traits. An extensive literature shows that more negative parenting practices are associated
with more severe conduct problems and CU traits in children, both currently and prospectively
(e.g., Humayun et al., 2014; Larsson et al., 2008). With regards to the APQ, previous research
shows that corporal punishment (Childs et al., 2014; Pardini et al., 2007), inconsistent parenting
(Hawes et al., 2011; B. A. Robinson et al., 2016) and poor monitoring or supervision (Brown et
al., 2017; Childs et al., 2014; Hawes et al., 2011; B. A. Robinson et al., 2016) were concurrently
associated with, and predicted, higher child CU traits.

Only four studies using parent-report questionnaires, however, have found that harsh
parenting (Dadds, Allen, et al., 2012; Trentacosta et al., 2018) or poor monitoring (Brown et al.,
2017; Hawes et al., 2011) was associated with higher CU traits in early childhood (average age
of sample in the 3 to 6 year range). As described earlier, research evidence is more consistent in
showing that fewer positive parenting practices are implicated at this age. This suggests that
negative parenting as captured by questionnaires such as the APQ may be more applicable in
relation to the conduct problems and CU traits of older children. Current findings support this
interpretation as reports of negative parenting increased with child age. Further, given that
certain negative parenting practices, specifically inconsistent discipline and poor supervision,
have not been associated with higher CU traits in early childhood, it could have been
problematic computing composite variables in this study. This is supported by research using
the APQ; in that none of the four prior studies have found significant associations between a
negative parenting practices composite variable and the severity of child CU traits (Frick,
Kimonis, et al., 2003; Masi et al., 2018; Mendoza-Diaz et al., 2018; Muratori, Lochman, Lai, et

al., 2016). Consequently, future research may benefit from examining individual aspects (not combined) of negative parenting practices in samples of young children.

Significant associations among negative parenting practices and higher child CU traits appear to be more consistent and in line with expectations when observational measures of parent-child interactions are used, particularly with regard to younger children (e.g., Mills-Koonce et al., 2016; Waller et al., 2012). Observational measures are the preferred methodology for studying parent-child interactions in childhood (Hawes & Dadds, 2006). They offer a window into actual relationship dynamics occurring within a family, and a trained researcher uses consistent and reliable definitions of behaviour to code parent-child interactions. This is likely to be more objective than parent reports of their relationships, as parents are likely to differ in their individual interpretations of the relational constructs being assessed (Aspland & Gardner, 2003). Parent reports are also more susceptible to social desirability, parent mental health status, attitudes, stress and (in clinic-referred samples) expectations about the intervention (Bennetts et al., 2016).

The items describing negative parenting practices on the APQ are transparent to parents, and social desirability may have affected the reliability of parents' responses on this measure. Social desirability may be heightened for parents presenting for treatment at a paediatric mental health service, and for those with very high education levels, as was the case in the current sample. In addition, studies show that parents' responses on questionnaires may be biased according to their child's gender and temperament (e.g., Hayden, Durbin, Klein, & Olino, 2010; Olino, Durbin, Klein, Hayden, & Dyson, 2013), both of which are relevant to the study of CU traits. Future research should employ observational measures of negative parenting practices in samples from broader socio-economic backgrounds to eliminate this possible influence on the results. The current study included observations of negative parenting practices using the Emotional Availability (EA) Scales, with parent intrusiveness and hostility incorporated within

the parent emotional availability composite variable. There was a significant association between maternal emotional availability and child conduct problems, but not CU traits, supporting the use of observational measures with young children.

Research shows that children with high CU traits are insensitive to punishment (Pardini et al., 2003), and have emotionally distant and dysfunctional relationships with their parents (e.g., Fite et al., 2008; Kim et al., 2014). This emotional disconnection within the parent-child relationship may indicate that children with high CU traits are cut-off from current influences of their parents' discipline practices, leading parents to discontinue their discipline efforts. This could account for the non-significant findings for negative parenting practices in the current study, as least in relation to CU traits.

Parental mind-mindedness. This study expected that lower parent mind-mindedness, and more negative and less positive mental state descriptors, would be related to more severe child conduct problems and higher CU traits. Overall, few expected associations were found. The propensity to use mental descriptors to describe the child was not significantly related to CU traits or conduct problems for mothers or fathers, when using parent report questionnaires or a clinician-rated diagnostic interview.

There is limited research and equivocal evidence linking mind-mindedness and conduct problems. There is some evidence that lower mind-mindedness coded from *observed* parent-child interactions during infancy is prospectively related to more severe child conduct problems (Colonnesi et al., 2019), with results more consistent for samples with high family adversity (Camisasca et al., 2018; Easterbrooks et al., 2017; Meins et al., 2013). Centifanti et al. (2016) reported an indirect association between mind-related comments in infancy and lower CU traits at 10 years of age that was explained by differences in emotional understanding assessed at preschool age. These results contrast with the current null findings. It is possible that mind-mindedness may be most influential on children's emotional and social development at younger

ages, and it is also the case that the observational measure (recommended for use with children under two years of age) has been more reliably associated with measures of the parent-child attachment relationship and child social-emotional development than the representational measure, recommended for older children (C. A. McMahon & Bernier, 2017). It is also not clear that the two measures capture the same construct (Illingworth et al., 2016). Recent research has modified the observational measure of mind-mindedness for older children (e.g., Colonnesi, van Polanen, Tavecchio, & Fukkink, 2017; Illingworth et al., 2016), and future research could use this modified version to explore associations among observed parental mind-mindedness and CU traits and conduct problems in older children. Further, since Centifanti et al. (2016) did not find a direct relationship between mind-mindedness and CU traits, future research could explore the presence of mediating variables. Examples include: parenting practices; attachment security; child theory of mind; and child emotional understanding.

It is also possible that the null findings reflect the demographics of the sample. The current study used a clinic-referred sample, but one from middle- to high-income households, with the majority (80%) of parents having a tertiary education. As noted above, Meins et al. (2013), Easterbrooks et al. (2017), and Camisasca et al. (2018) found associations between mind-mindedness and conduct problems only in the context of family adversity, and they proposed that maternal attunement to children's mental states may be a protective factor specially in high-risk families.

Only three studies to date have explored relations between mind-mindedness assessed using the interview measure with older children and child behaviour. Walker et al. (2012) found a significant negative association between parental mind-mindedness and conduct problems for a community, but not a clinically referred, group of 3 to 5-year-old children. Controlling for conduct problems at 6 years of age and various family risk factors, Hughes et al. (2017) found that maternal mind-mindedness was uniquely associated with conduct problems at 12 years of

age, but again only in the context of family adversity. Fishburn et al. (2017) found that parents'

use of more mental descriptors was related to fewer parent-reported conduct problems in three

high-risk samples of adoptive and biological parents with children aged between 2 and 16 years

of age. The findings by Walker et al. (2012) suggest that the mind-mindedness interview may

not be a sensitive measure in clinical samples. This may be because it does not capture the

appropriateness or accuracy of parents' descriptions of their child. Meins noted this as a

limitation of the interview measure (Meins, 2013). Parent's non-attunement to their children is a

hallmark of clinical populations (e.g., Johnson & Lieberman, 2007). Non-attuned, but not

appropriate, mind-related comments in infancy predicted more severe conduct problems at 4

years of age (Colonnesi et al., 2019).

On the other hand, the results provide some support for suggestions that a more nuanced

analysis of mind-related commentary may be required in high-risk samples (Demers et al.,

2010a, 2010b), as some expected associations between the valence of mind-related attributes

and severity of conduct problems and CU traits were found. Meins and Fernyhough (2015)

question the specificity of the valence of mind-related comments over and above the valence of

parent attributions more broadly. It is noted that similar findings were obtained in the current

research when considering the valence of overall descriptors, rather than mental descriptors

specifically. This suggests that the valence measure may be capturing a negative attributional

style.

The current study hypothesised that fewer positive and more negative mental descriptors

would be associated with higher CU traits and more severe conduct problems in children.

Different patterns of associations emerged for mothers and fathers. Controlling for conduct

problems, more negative mental descriptors were associated with higher CU traits for fathers,

not mothers. Alternatively, controlling for CU traits and demographic variables, more negative

mental descriptors were related to more severe conduct problems for mothers, but not fathers, when measured by parent-report questionnaires or clinician-ratings on a diagnostic interview.

Previous studies have shown that positive mind-related descriptors are associated with higher maternal sensitivity, lower hostility, and lower parenting stress (Demers et al., 2010a; C. A. McMahon & Meins, 2012). This contrasts with negative mind-related comments, which were negatively associated with maternal sensitivity in a sample of adolescent mothers (Demers et al., 2010b), and were more common in a clinical sample (Walker et al., 2012). Hughes et al. (2017) found that more positive mind-related descriptors from mothers were significantly related to lower conduct problems for 12-year-old children. However, this effect became non-significant when controlling for family risk factors, earlier conduct problems, and maternal mind-mindedness. Since children with conduct problems and high CU traits reportedly experience higher parental hostility (e.g., Childs et al., 2014; Waller et al., 2012; Willoughby et al., 2013), lower parent sensitivity (e.g., Bedford et al., 2015; Wagner et al., 2015), and higher parenting stress (Fanti & Centifanti, 2014), it follows that they may also be described by their parents as having less positive and more negative mental attributes.

Studies using five-minute speech samples show that lower expressed parental warmth predicts higher CU traits (Waller et al., 2014), and is concurrently associated with more severe conduct problems in children with high CU traits (Pasalich et al., 2011; Waller, Gardner, et al., 2015). Other research shows that negative attributions are associated with more severe conduct problems in early and middle childhood for mothers and fathers (e.g., Johnston, Hommersen, & Seipp, 2009; Nelson et al., 2013; Williamson & Johnston, 2015). The current results are consistent with this body of research – indicating that parents of children with conduct problems and high CU traits have more negative mental representations of their child. It may have been beneficial to use five-minute speech sample analyses on the parent interviews in this study and explore whether coding for emotional tone produced significant associations with child CU

traits or conduct problems. Different associations according to parent gender indicate the importance of considering mothers and fathers, and warrants further research in a larger sample.

Mind-mindedness in clinical populations. Mind-mindedness has rarely been examined in clinical populations. In the current study, the coders noted strikingly detailed and lengthy descriptions when parents were invited to describe their child. The average proportion of mental descriptors was 0.52 for mothers and 0.51 for fathers. These are notably higher than previously reported in a clinical sample (Walker et al., 2012), and somewhat higher than others reported from community samples of children in a similar age-group (Lundy, 2013; Walker et al., 2012). Maternal and paternal scores for mental descriptors were not significantly correlated, suggesting that the construct of parental mind-mindedness represents the parent's unique representation of their child, rather than objective qualities or behaviours of the child. In contrast, mothers and fathers were in significant agreement on their ratings of child conduct problems and CU traits using questionnaire measures, supporting this distinction.

The high proportions of mental descriptors found in this study could also reflect parents' increasing ability to describe mental attributes of their children at older ages. It is likely that awareness and appreciation of child internal attributes increases with children development. In support, the current study found a significant positive correlation between mental descriptors and child age for mothers. The younger age in a Walker et al. (2012) clinical sample (mean age 47 months) could partially explain the lower mental descriptor scores. However, in the only study to examine mind-mindedness in this way for children over 5 years of age, Meins, Fernyhough, and Harris-Waller (2014) reported somewhat lower proportions of mental descriptors than those in this study.

The high scores could also be an artefact of the current study's procedure. The completion of questionnaires and a diagnostic interview prior to the mind-mindedness interview, albeit on a different day and in a different setting, could have established rapport and prompted

a deeper consideration of the child by their parents. This may have resulted in more cooperation with the task and more verbose descriptions of the child. Alternatively, the high proportion of mental descriptors could signify parents' increased focus on, and efforts to, understand and describe their child's conduct problems when presenting for treatment, and also reflect prior clinical and therapeutic activities that focused on understanding the child.

Parents' proportions of positive mental descriptors in this study were lower than some studies (Demers et al., 2010a; C. A. McMahon & Meins, 2012), but not others (Walker et al., 2012), while their proportions of negative mental descriptors were consistently higher than those reported in previous research (Demers et al., 2010a; C. A. McMahon & Meins, 2012; Walker et al., 2012). These findings for valence suggest that the high proportion of negative mental descriptors may be a defining characteristic of clinic-referred children with conduct problems.

Parent and child emotional availability and CU traits. This research expected that less optimal parent and child emotional availability would be related to higher CU traits. The results found no support for this hypothesis, with neither parent (mother and father) nor child emotional availability significantly related to child CU traits measured by parent-report questionnaires, or parent responses to LPE diagnostic criteria on a clinical interview. While the EA Scales have not previously been applied to the study of CU traits in the context of childhood conduct problems, previous research shows that various parent-child relationship constructs theoretically aligned with parent and child emotional availability are associated with child CU traits. Observations of parent-child interactions have shown that lower parental sensitivity (Wagner et al., 2015), more harsh and intrusive parenting (Waller et al., 2012), more non-attuned emotional communication (Pasalich, Dadds, Vincent, et al., 2012), and less parental warmth (Fanti, Colins, et al., 2017) are related to higher CU traits in early or middle childhood. Further, parent-reports of more hostile (Loney, Huntenburg, et al., 2007), inconsistent (B. A. Robinson et al., 2016) and helpless (Willoughby et al., 2015) parenting, and poorer monitoring

(Childs et al., 2014) of their child have been related to higher child CU traits. These parenting characteristics are suggestive of low parental emotional availability.

Perhaps most surprising was the fact that there was no association between conduct problem severity and CU traits and *child* emotional availability. Children with conduct problems show aggressive, uncooperative and irritable or angry behaviour in their family relationships. Those with high CU traits are even less warm, more impaired in their affective responses to their own and other's distress, more insensitive to discipline, "mean", and display more antisocial values and goals in their social interactions (Frick et al., 2014b). These characteristics seem highly suggestive of low child emotional availability. The focus of the EA Scales on the affective quality of parent-child interactions appeared particularly relevant for differentiating between children with high and low CU traits.

There are several possible explanations for these null findings. First, the socio-economic characteristics of the sample may be important. A number of studies of low-risk community samples have found no direct associations between sensitive parenting measured in infancy and child CU traits in early and middle childhood (Bedford et al., 2017; Centifanti et al., 2016; Willoughby et al., 2013). Bedford et al. (2015), however, found that parent sensitivity in infancy was only related to higher CU traits for girls, not boys. The families in the current study had an overall very high socio-economic status, which may have been protective with respect to parents' and children's emotional availability.

Second, previous studies that have found significant associations among sensitive parenting and child CU traits have been based on assessments of parent-child interactions in infancy and have included large samples. Attachment theory (Bowlby, 1969/1982) proposes that sensitive parenting in infancy is most important for the social-emotional development of children. It is possible that parent sensitivity measured in early and middle childhood is not as influential as early caregiving experiences in this domain. There may also be developmentally

sensitive periods or the requirement for chronic harsh and intrusive parenting experiences for

the development of CU traits in childhood. Previous research has predominantly shown

longitudinal associations among observed harsh and intrusive parenting and child CU traits,

with some research showing both prospective and concurrent associations (Humayun et al.,

2014; Waller et al., 2012). It is possible that reciprocal and recurring parent-child interactions

characterised by hostile and intrusive parenting and child aggressive and defiant behaviour over

time, rather than at a single time point, may be necessary to drive the development of child CU

traits. Indeed, the current study is limited by only examining concurrent associations between

parent and child emotional availability and CU traits, without knowledge of the history of the

relationship.

Third, the study found that 87% of mother-child and 80% of father-child interactions

were in the "complicated" or "detached" EA-Z zones, which are believed to map on to insecure-

ambivalent and insecure-avoidant attachment, respectively (Saunders & Biringen, 2017). While

the high proportion of likely "insecure" attachment relationships in this clinically referred

sample is in line with expectations, only one mother-child and no father-child interactions were

rated in the problematic/disturbed EA-Z zone, which is aligned with disorganised attachment

classifications on the Strange Situation Procedure (SSP). This is surprising as a meta-analysis

reports a prevalence of disorganised parent-child attachment relationships as about 15% of

parent-child interactions in the general community (van IJzendoorn et al., 1999), and a much

higher prevalence in clinical samples (DeKlyen & Greenberg, 2016). Further, disorganised

parent-child attachment is most strongly predictive of more severe conduct problems in

childhood (Fearon et al., 2010). As noted earlier, doll play narratives suggesting disorganised

attachment are significantly more common for children with conduct problems and high than

low CU traits (Bohlin et al., 2012; Pasalich, Dadds, Hawes, et al., 2012), and the current study

findings regarding parent helplessness (mothers) and frightened or frightening parenting

(fathers) also suggest a disorganised relationship.

The most prevalent classification (71% of mother-child and 63% of father-child

interactions) in the current study was the "complicated" EA-Z, which corresponds to the

insecure-ambivalent classification (Saunders & Biringen, 2017). Therefore, on average, mothers

and fathers in the current study were judged to be inconsistently sensitive, provide inconsistent

structuring, and display only benign (low) levels of intrusiveness and hostility in their

interactions with their child. Children in the complicated zone are often distressed, over-

connected and/or excessively dependent on the parent. Therefore, the sample in the current

study may have been primarily insecure, but organised rather than disorganised, in their

attachment relationships. Caution is needed, however, in applying classifications of attachment

developed in the SSP to other observational measures, despite the explicit coding scale provided

in the EA Scales (4th edition) for this purpose. Children with disorganised attachment typically

reside in families and communities with high adversity, which was not the case in the current

sample. The current findings suggest that problematic emotional availability may not necessarily

be a characteristic (cause or a consequence) of conduct problems and CU traits in socio-

economically protected samples.

There is another possible explanation. Attachment theory proposes that children with

disorganised attachment relationships only show their fearful, punitive, confused, contradictory

or overbright attachment behaviours during times of stress (Main & Hesse, 1990). At other

times, these children are likely to exhibit organised attachment behaviours. In young children,

child attachment behaviours are revealed by inducing stress in separation-reunion procedures.

This is difficult to replicate in older children. Stress in the current study was induced through

parent and child awareness that they were being observed, the administration of tasks that

required cooperation or compliance with parent instructions, and the unfamiliarity of the

laboratory setting. Separation-reunion procedures or other stress-inducing tasks were not used.

While it was a strength of the study to conduct a lengthy observation of 30 minutes (Biringen et

al., 2014), children and their parents appeared to enjoy the tasks and the very attractive and

engaging toys (potato head construction, cooperative drawing task using an Etch-A-Sketch, and

a castle with knights) included in the EA observation, and reported the experience as "fun". It is

possible that the EA Scales were not sensitive enough to detect disorganised attachment in this

play context. Future research could employ more stressful contexts with which to observe parent

and child emotional availability, such as less stimulating activities and more complicated

cooperative and parent instruction-giving tasks. Stress is induced in doll play narrative

techniques by the interviewer using emotionally laden introductions to the story stems (vocal

tone, facial expressions, and doll play), and this could have contributed to the significant

associations with conduct problems for that measure.

Child attachment representations and CU traits. It was expected that children

with higher CU traits would present more negative representations of their parents and

themselves and use avoidant and/or dissociative strategies to manage stress during their doll

play narratives. They were also expected to display more dysfunctional representations of their

family relationships in their family drawings. The current study found no evidence to support

this hypothesis. Only one previous study has examined associations among child representations

and child CU traits using the MSSB. In a large sample of preschool children, Coe et al. (2018)

also found no significant associations between negative representations of family relationships

(hostile, angry, conflict, unresponsive, and detachment themes) and child callousness at two

time points. The current study extended this finding by using a multi-method approach for the

assessment of CU traits, incorporating all MSSB representational codes in analyses, and using a

larger age-range of children from a higher-risk clinical sample. Despite this, the current study

still found no significant findings for child CU traits. This result, considered in conjunction with

null findings for emotional availability, argues against their problems being relational in origin, but any such interpretation is limited by the cross-sectional design of the study.

Doll play narratives elicit the child's perspective on their family relationships (Woolgar, 1999). Children's representations of prosocial behaviour in their doll play narratives in the current study included themes of empathy, affection, affiliation, reparation/guilt, sharing and conflict resolution, and displays of concern. These are viewed as representations of the self, and they appear to correspond with the central difficulties of children with high CU traits (Frick et al., 2014b). The non-significant association between children's representations of prosocial behaviour and child CU traits appear to indicate that parents and children in this study did not agree on the child's level of empathy, affiliation, guilt and concern and warmth towards others. It is possible that parent perceptions of their child's personality are unduly influenced by their mental health concerns, negative attributions about the child from experiences of persistent problematic behaviour, and high levels of parenting stress. Children may not perceive themselves in the same manner. Results of this study show that children's assessment of their own difficulties are more aligned with their parents' perceptions of their conduct problems (see discussion above), which are more easily observed than CU traits, which are inferred. The perspective of young children on the severity of their CU traits has never been assessed by previous research. Self-report measures of CU traits have only been applied to children who are 8 years of age and above. The multi-informant assessment of conduct problems and CU traits is recommended (see below). Doll play narratives tasks could be specifically designed to access the child's view of their CU traits, which could then be combined with parent and teacher reports for a wholistic understanding of children's personality. This could be an interesting future research endeavour.

Against expectations, child representations of their family relationships in their family drawings were not related to mother or father-reported CU traits. Using the same measure,

Wagner et al. (2015) found that more dysfunctional representations of family relationships in children's drawings were concurrently related to higher CU traits, but not conduct problems, at 6 years of age in a high-risk community sample.

Thus, the current results were consistent in not finding expected associations among child representations and child CU traits for either family drawing or doll play narrative projective techniques. This could confirm the above explanations or suggest that there are limitations with the measurement of CU traits in the current study (discussed further below).

Theoretical Implications

The results have implications for models of conduct problems in childhood as well as attachment theory. These are discussed in the following paragraphs.

Conduct problems. Greenberg and colleagues (1993, 2001) suggest that conduct problems in children develop from the interaction and accumulation of risk and protective factors across four domains: child characteristics; parent-child attachment relationships; parent management strategies; and family ecology. The results from the current study support this model. Children with more severe conduct problems: had higher CU traits (child characteristics domain); displayed more dysfunctional representations of the self and others using projective doll play narrative and family drawing techniques (parent-child attachment relationship domain); experienced more mother-reported caregiving helplessness as well as lower observed maternal emotional availability (parent management strategies domain); and experienced more maternal parenting stress (family adversity domain).

The cumulative risk model proposes that a greater *accumulation* of ecological risk factors leads to adverse cognitive and social-emotional outcomes for children (Sameroff, Seifer, Barocas, et al., 1987). Thus, the profile of risk factors identified across dispositional, familial and psychosocial domains in the current study may have accumulated to increase the likelihood

of more severe conduct problems in children. This model appeared to apply to mothers, rather than fathers. This could reflect study limitations in regard to fathers (see following), and further research is required using large samples of fathers.

The current study found few expected associations among child CU traits and the measures of parenting and parent-child attachment relationships. These findings could support models advocating for heritable pathways to conduct problems for children with high CU traits, or genetic and biological explanations of CU traits in childhood (e.g., Herpers et al., 2014; Viding & McCrory, 2012). The results, however, could also support research showing complex gene-environment interactions for the development of CU traits, with specific aspects of parenting of particular importance (e.g., Kochanska et al., 2015). The current study showed that higher child CU traits were associated with less positive parenting and higher parenting stress for mothers and fathers, and both parents reported low child caregiving in the context of child CU traits. Further, fathers' reports of more frightened (parent frightened of the child) and frightening (parent frightening to the child) caregiving and more negative representations of their child were uniquely associated with higher child CU traits. It is possible that fathers are uniquely affected by and influence their children's CU traits, and there is some research to support this (e.g., Pasalich et al., 2011).

Attachment theory. Although expected associations between attachment-informed measures and child conduct problems and CU traits received only equivocal support, the mixed methods approach and relations among measures support several central constructs of attachment theory. Attachment theory (Bowlby, 1969/1982) proposes that parents' representations of caregiving direct their parenting behaviour during parent-child interactions that, in turn, influence children's attachment behaviour and representations of their family relationships. In a reciprocal process, child representations of attachment are believed to guide their attachment and exploratory behaviour during interactions, which impacts parenting and

parents' representations of their caregiving. The results of this study showed that higher maternal mind-mindedness was related to more optimal child emotional availability during mother-child interactions, and that higher paternal mind-mindedness was significantly related to fewer representations of dysregulated aggression in children's doll play narratives. That is, mothers' and fathers' ability to think about their child as a mental agent with their own thoughts, feelings and desires was related to more responsive and involving child behaviour during interactions and less disturbed child representations of the themselves. The direction of effects cannot be ascertained in this study, but is likely to be mutually influential.

Mind-mindedness assesses parent representations of the child, and it makes sense from an attachment perspective, that it would be directly related to child attachment-related behaviour and internal working models of attachment. Interestingly, parent representations of the child were not related to their emotional availability observed during interactions, as predicted by attachment theory. This could suggest that mothers' representations of their child are directly related to their experiences of being with their child's feelings and behaviours, and mothers' representations are not influencing child attachment-related behaviour by being transmitted through current parenting practices. Further, parent and child representations are proposed to reflect the history of the parent-child relationships, and it follows that they would be directly related (George & Solomon, 2008). It is interesting that the connection between parent and child representations was found for fathers, but not mothers. Further research is required. Parent mind-mindedness (interview or observational measure) has not previously been linked to children's representations of attachment measured by projective measures or their emotional availability during observed interactions in early and middle childhood (C. A. McMahon & Bernier, 2017). Consequently, the current findings make a novel contribution to the mind-mindedness literature.

Parent-reported caregiving helplessness was related to children's representations of attachment in their doll play narratives. In particular, mothers' reports of more child caregiving behaviour on the CHQ were related to more child representations of dysregulated aggression. Fathers' reports of more helplessness were associated with more negative parent and dysregulated aggression representations, and the use of more avoidant and dissociation strategies in children's doll play narratives. More father-reported frightened or frightening caregiving was related to more child representations of dysregulated aggression in their doll play narratives. Attachment theory (Bowlby, 1969/1982) proposes that problematic caregiving experiences are internalised by children into insecure internal representations of attachment. The results support this claim, making a novel contribution to the caregiving helplessness literature.

More optimal mother and child emotional availability during observed interactions were significantly related to less disturbed representations of family relationships in children's family drawings. Further, mothers' more optimal emotional availability was significantly related to fewer dysregulated aggression representations and use of less avoidant and dissociative strategies, and marginally related to fewer negative parent representations of parents, in children's doll play narratives. Children's emotional availability during mother-child interactions was marginally related to the use of fewer avoidant and dissociative strategies in their storytelling. Attachment theory proposes that children internalise attachment-related experiences to develop cognitive-affective-sensorimotor representations, which are then used to appraise, organise and guide attachment and exploratory behaviour in future social interactions. The significant associations among mother and child emotional availability and child representations could be indicative of this process.

Research shows that more sensitive parenting and positive parent-child communications are related to more coherence, positive representations of parents, and prosocial, affectionate and disciplinary themes in children's doll story narratives (e.g., Laible, 2006; Laible &

Thompson, 2002; Oppenheim, Emde, & Wamboldt, 1996; Yoo et al., 2014). Conversely, children's doll story narratives that include negative representations of parents, themes of dysregulated aggression, and more avoidance and/or dissociation strategies and negative affect have been associated with more harsh parenting and dysfunctional parent-child interactions (e.g., Dubois-Comtois & Moss, 2008; Laible et al., 2004; Martoccio, Brophy-Herb, Maupin, & Robinson, 2016; Shamir, Schudlich, & Cummings, 2001). For example, in a community sample of 4 to 8-year-old children, Laible et al. (2004) found that warm parenting predicted prosocial themes and harsh parenting predicted aggressive themes in children's doll play narratives. The current findings, therefore, contribute to existing research that suggests children's representations elicited through doll play narratives may partially reflect actual experiences within parent-child relationships and interactions. This supports current conceptualisations of children's internal working models of attachment (Kerns & Brumariu, 2016). Taken together, the results of the current study appear to support the some of the central constructs of attachment theory, and the way they have been operationalised in early and middle childhood.

Limitations and Directions for Future Research

The current study had a number of strengths, including: the recruitment of a clinic-referred sample of children with conduct problems; the use of parent-report and clinician-rated outcome measures, including mothers and fathers; and multi-method assessments of aspects of the parent-child attachment relationship appropriate to children in early and middle childhood. In using a number of measures with very limited or no previous application in investigating CU traits in childhood, this extended previous research. There were, however, significant limitations.

The measurement of CU traits. There were very few significant associations among parenting and parent-child attachment relationships and child CU traits. There may have been several limitations in the assessment of CU traits in this study.

First, the DSM-5 diagnostic criteria for the "With Limited Prosocial Emotions" (LPE) specifier of CD stipulate that children must exhibit lack of remorse or guilt, callous lack of empathy, shallow or deficient affect, and indifference about performance *in multiple relationships and settings*. Consequently, multiple informants for the assessment of CU traits in childhood is recommended. Studies cited in this research commonly combine mother, father, teacher and, occasionally, child reports to create a single multi-informant score of child CU traits. The current study only included mother and father reports of CU traits. The small number of fathers (n = 35) meant that mother and father reports were not able to be combined at a frequency that permitted a combined CU traits variable for parents. As a result, the measure of CU traits in the current study was overly reliant on mothers' or father' separate perceptions of their child's personality, which could have been biased. Parent reports on questionnaires and interviews can be influenced by their current mental wellbeing and levels of stress, attributions about the child, social desirability or defensive processes (e.g., Briggs-Gowan, Carter, & Schwab-Stone, 1996). The current results show the parents of children with conduct problems, and particularly CU traits, show high levels of stress.

Meta-analytic studies have indicated only a modest correlation ($r = .28$) between the reports of different informants on child emotional and behavioural problems (Achenbach, McConaughy, & Howell, 1987; De Los Reyes et al., 2015), suggesting some agreement across informants, but also considerable discrepancy. Discrepancies also exist across multiple methodologies (e.g., questionnaires and structured interviews) for assessing conduct problems in children (Grills & Ollendick, 2002). The current study showed moderate agreement between mother and father responses on the CU traits questionnaire ($r = .46$) and for the LPE diagnosis on the clinical interview ($r = .53$). These associations were higher than found in other studies (e.g., Frick, Kimonis, et al., 2003). While this level of agreement reduces concern for having separate mother and father ratings of CU traits, in line with diagnostic approaches, the current

study could have been strengthened by including a larger group of fathers and recruiting teachers to develop combined ratings of child conduct problems and CU traits.

Second, data collection for this study commenced in June 2013. This coincided with the publication of the DSM-5. While the diagnostic criteria for ODD and CD mostly remained unchanged, the LPE diagnosis was new and was yet to be incorporated into established clinical interviews for diagnosing psychiatric disorders in children and adolescents. In consultation with the authors of the Diagnostic Interview Schedule for Children, Adolescents and Parents (DISCAP), the principal researcher designed the interview questions that assessed for the LPE specifier of the CD diagnosis (M. R. Dadds' personal communication, March 2013). The reliability and validity of these interview questions in capturing the LPE diagnosis could not be ascertained. However, the current study found that mother- and father-informed LPE diagnoses were significantly related to reports on the current questionnaire measure of CU traits with medium to large effect sizes. This suggests some agreement between the measures.

Third, recent research has examined distinct variants of CU traits in children and adolescents according to the presence ("secondary" psychopathy) or absence ("primary" psychopathy) of significant levels of anxiety symptoms (e.g., Bennett & Kerig, 2014; Kahn et al., 2013; Kimonis, Frick, Cauffman, Goldweber, & Skeem, 2012). Primary CU traits are believed to be heritable, idiopathic and related to unemotional characteristics. Secondary CU traits, however, are proposed to arise from adverse environmental influences, a history of childhood maltreatment, and high levels of affective distress (Flexon, 2015). The vast majority of research has been conducted with adolescents, and shows that secondary CU traits are associated with more severe conduct problems, dysfunctional parenting and parent-child relationships, childhood maltreatment, higher physiological or emotional responses to distress, and more adjustment difficulties, than primary psychopathy. There are also differences in biological functioning between the variants (e.g., Cecil, McCrory, Barker, Guiney, & Viding,

2018; Docherty, Boxer, Huesmann, O'Brien, & Bushman, 2016; Kimonis, Fanti, Goulter, & Hall, 2017; Sethi et al., 2018).

Three studies have recently reported similar findings for the variants of CU traits in childhood (Ezpeleta et al., 2017; Goulter, Kimonis, Hawes, Stepp, & Hipwell, 2017; Humayun et al., 2014). Although further research is required, these preliminary studies suggest that children with CU traits could be further distinguished by the presence or absence of comorbid anxiety. This raises the possibility that interpreting current findings may have been limited by not differentiating between the primary and secondary variants of CU traits.

Finally, future research should consider using the parent and teacher report versions of the Inventory of Callous-Unemotional Traits (ICU; Frick, 2004) for the assessment of CU traits in young children. At the time of the design of this research project in 2012, no studies had used the ICU to assess for CU traits in childhood, and it had only been validated for adolescents (e.g., Kimonis et al., 2008). Instead, 12 of the 28 studies (published prior to 2013) that examined associations among parenting, parent-child relationships and child CU traits used a combined SDQ and APSD measure of CU traits. As a consequence, this was the approach followed in the current study. In recent years, however, research has shown the ICU to be a valid and reliable measure of CU traits in early and middle childhood (e.g., Ezpeleta et al., 2017; Wagner et al., 2015), and a preschool version has been developed. It is now the preferred measure of CU traits and should be considered for future research.

CU traits terminology for preschool-age children. The current study used the term "CU traits" to describe the dimension of children's characteristic patterns of boldness, superficial charm, shallow or deficient affect, lack of guilt or empathy, social dominance, meanness, and a lack of concern about performance in important activities (Frick, 2012; Skeem et al., 2011). Personality traits imply stability and consistency across time, relationships and situations, and CU traits are shown to have moderately stability across childhood (Dadds et al.,

2005; Waller et al., 2012; Willoughby et al., 2011). They are, however, also mutable (Pardini & Loeber, 2008) and only exhibit stability equivalent to ODD and CD symptoms (Klingzell et al., 2016; Loeber et al., 2009a). Further, personality traits are undeveloped and unstable at younger ages, with research preferring to use the term "child temperament" during infancy and toddlerhood. Given these considerations and the relative young age of children in the current sample (average 6.15 years), the term "CU behaviours" rather than CU traits could have been used in this research project. "CU behaviours" has been the preferred terminology for early childhood samples in a number of studies (e.g., Trentacosta et al., 2018; Waller & Hyde, 2017). This term may satisfy some clinicians and researchers who are concerned about the pejorative label of CU traits in clinical and forensic settings (e.g., Edens et al., 2001; Waller & Hyde, 2017) and others who have questioned its validity due to unanswered developmental questions and demonstrated empirical weaknesses for the downward extension of psychopathy constructs from adults to children (Lahey, 2014; Skeem et al., 2011).

Cross-sectional design. The cross-sectional design of the current study means causal explanations cannot be ascertained, and directions of effect between parent and child variables are unclear. There is a considerable body of evidence that child CU traits and conduct problems can impact parenting and parent-child relationships (e.g., Burke et al., 2008; Hawes et al., 2011; Waller et al., 2014). For example, Waller et al. (2014) reported that lower observed and expressed maternal warmth at 2 years of age predicted higher child CU at 3 years of age, and higher CU traits at 2 years of age predicted lower observed maternal warmth at 3 years of age, in a high-risk community sample. The implication of this research is that associations among parenting, parent-child attachment relationships and child CU traits and conduct problems in the current study are likely to be both child and parent driven. Since CU traits have strong biological underpinnings (Viding et al., 2005), complex gene-environment interactions are likely to underpin any associations.

Future longitudinal research could investigate whether parenting and parent-child attachment relationships predict the development of conduct problems and CU traits at different ages during childhood, or vice versa. It might indicate developmentally sensitive periods. This may be particularly relevant for parent mind-mindedness and parent and child emotional availability, as previous research shows that measuring these constructs in infancy, rather than middle childhood, consistently predicts later conduct problems. A cross-lagged longitudinal design with repeated contact points could also allow testing of likely transactional relations among parent and child variables, including the proposition that child CU traits contribute to problematic parenting, parent representations of the child, and insecure parent-child attachment relationships with the caregiver.

Parent-report measures. This study relied on parent-reports for parenting practices, caregiving helplessness, parenting stress, and all dependent variables, which increased the risk for shared method variance (Spector, 2006), and socially desirable reporting. For example, a significant proportion of parents reported very low conduct problem scores on questionnaires, but responded to the clinician-administered interview in a manner that yielded a diagnosis of ODD or CD.

Control group. It is possible the results for conduct problems could have been constrained by a ceiling effect, as all children in the study were diagnosed with ODD and/or CD. If a control group of children without conduct problems were included in this study, the role of parenting and parent-child attachment relationships might have been more apparent. Further, the absence of a control group of non-referred children meant that the current study was restricted to exploring associations related to symptom severity, and this limited the conclusions that can be drawn. Very few studies of CU traits in early and middle childhood have included control conditions, having a similar design to the current study. Future research could be more consistent in recruiting community control groups to strengthen findings.

Fathers. While it was a strength of the study to include fathers, the small number who participated meant that the number of variables that could be included in hierarchical linear regressions was constrained, and precluded testing of interaction effects. Further, participating fathers in this study were all partners of mother participants. These fathers may have self-selected based on their availability, interest in and involvement with their child, and their partner's pressure. This may have led to a skew in how representative the father's group results truly were. Single or separated fathers were not represented, and the group may have comprised more involved fathers with more harmonious couple relationships. The relatively low participation rate overall (38%) is acknowledged here. Despite these limitations, the current study has shown that father-child relationships are important to consider in relation to child conduct problems and CU traits. Future research could include larger samples of fathers, recruit fathers from separated families, and using large samples consider could employ family systems analyses looking at separate and combined effects of mothers and fathers on child conduct problems and CU traits.

Sample Size and Demographics. As noted above, the current study involved a relatively small sample of clinic-referred children (n = 92) and their mothers (n = 92) and fathers (n = 36). Whilst it compared favourably to other studies of clinic-referred children with conduct problems and CU traits, the small sample size limited statistical power in the current study, particularly for the testing of interaction effects. Future research should replicate the analyses conducted in the current study using larger sample sizes. Further, a large number of exploratory analyses were conducted in the current study to test possible moderation effects, which could have increased the likelihood of Type II errors in the findings. With a larger sample of mothers and fathers, future research could create composite variables for child conduct problems and CU traits that would limit the number of analyses required, thereby reducing the possibility of spurious findings.

The current study, due to the location of the clinic, recruited a relatively high socio-economic and educated sample. It is plausible that this higher socio-economic status could operate as a protective factor, and it certainly limits the ability to generalise the results. Low socio-economic status is a risk factor for conduct problems and high CU traits (e.g., Barker et al., 2011), and associations among parent-child attachment relationships and child CU traits and conduct problems have been more consistent in samples with higher family adversity. Future research could recruit families from more varied socio-economic backgrounds to investigate whether the current non-significant results, particularly for CU traits, apply across a broader socio-economic range.

The demographics of the sample could have also been influenced by the voluntary nature of family participation in the study. Since the study was conducted within a public hospital setting, rather than a university-based research clinic, there was no implicit or explicit expectation on referral that families would participate in research activities as part of their engagement with the service. Families were informed of the study only once the referral had been accepted and, to avoid imposing a possible barrier to treatment, the invitation to families emphasised its voluntary nature and that participation would not impact the intervention provided. The study required a considerable time commitment from families. Only 41% of the 225 families who met inclusion criteria over a period of 18 months from June 2013 to December 2014 agreed to participate. While the characteristics of non-participating families cannot be established, those who chose to participate in this research may have been available due to more family resources and less concurrent stressors, and had parents who were more psychologically minded, educated and involved with their children, which provoked their interest in the study. Consequently, among the families referred to the clinic, the current sample may have included less vulnerable and more psychologically-minded families, which could limit the generalisability of the findings. Future research could consider methods for increasing

participation rates in community-based clinics, particularly for vulnerable families (e.g.,

providing small financial incentives or incorporating research activities into scheduled treatment

sessions).

Parent, child and family risk factors. A growing body of research shows that

parent, child and family vulnerabilities predict higher CU traits and their associated conduct

problems in childhood, both directly and through interactions with parenting practices (Hyde et

al., 2016; Mills-Koonce et al., 2016; Willoughby et al., 2013). As an example, in a high-risk

community sample, Waller, Shaw, et al. (2015) found that higher maternal aggressive

personality at 18 months of age, difficult infant temperament at 18 months of age, and lower

maternal empathic awareness at 2 years of age, were indirectly associated with higher child CU

traits at 10 to 12 years of age via lower maternal warmth at 2 years of age. Parent risk factors

include: mothers' antisocial behaviour (Hyde et al., 2016) and psychopathy (Loney,

Huntenburg, et al., 2007; Mendoza-Diaz et al., 2018); low empathic awareness and higher

aggressive personality (Waller, Shaw, et al., 2015; Waller, Shaw, & Hyde, 2017); and fathers'

low eye contact during interactions (Dadds et al., 2011) and certain genetic polymorphisms

(Avinun & Knafo-Noam, 2017). Child factors include: anxiety (Pardini et al., 2007);

fearlessness (Waller, Shaw, & Hyde, 2017; Waller et al., 2016); and certain genetic

polymorphisms (Kochanska et al., 2015; Willoughby et al., 2013). Household risk factors

comprise: more psychosocial adversity (Byrd et al., 2018); lower socio-economic status

(Muratori, Lochman, Manfredi, et al., 2016); chaos in the home (Fontaine et al., 2011; Fontaine

et al., 2010); lower social support (Waller, Shaw, et al., 2015); family instability (Coe et al.,

2017); and household disorganisation (Mills-Koonce et al., 2016). Apart from several aspects of

family adversity, the current study did not assess for any of the above parent, child and family

risk factors. The failure to consider these potentially co-occurring risk factors and their

interactions with parenting and parent-child attachment relationships, may have explained (to some extent) the predominantly null findings in relation to child CU traits.

This may be particularly relevant for the measures included in the current study. Research shows that parent and child emotional availability (Bödeker et al., 2019; Kluczniok et al., 2018; Pinchover & Shulman, 2018; Wurster et al., 2019), child representations of attachment using the MSSB or ASCT (Coe et al., 2017; Davies et al., 2019), and parent reports of their parenting practices (Loney, Huntenburg, et al., 2007; Waller, Shaw, & Hyde, 2017) moderate or mediate associations among child and parent risk factors and child conduct problems. Parent-child attachment relationships (Thompson, 2016) and child CU traits and conduct problems (Frick et al., 2014b) are likely to develop from complex gene-environment interactions, and recent study designs have commenced investigating such interactions (Kochanska et al., 2015). Future research needs to progress these endeavours.

Alternatively, as noted above, given low family adversity in the current sample, these parent, child and family risk factors may have been scarce in the current sample, and this could also explain the non-significant findings, particularly for CU traits.

Caregiving helplessness. Analyses were limited by shortcomings with the CHQ. Relatively few studies to date have used the questionnaire. No studies have reported reliability statistics, or validated it for fathers. Gender stereotypes may contribute to a reluctance to admit helplessness among fathers. Further, the questionnaire is ambitious in that it aims to capture caregiving representations associated with disorganised attachment. This is likely to be difficult to achieve with a self-report measure. The fact that the frightened or frightening caregiving scale lacked internal consistency for mothers suggests that such emotional responses may be quite intermittent or rare, or that the items were not appropriate. This is not inconsistent with the fact that isolated instances of frightened or frightening caregiving may form the basis for classifying children as disorganised (Goldberg, Benoit, Blokland, & Madigan, 2003).

Future research is needed to further explore the construct of caregiving helplessness and how best to capture it. While appealing with respect to feasibility compared with labour intensive interview approaches that require transcription prior to coding, the limitations of self-report questionnaires have been described previously. The items describing parent helplessness and fear were transparent to parents, and social desirability may have affected the reliability of parents' responses on this measure. Issues regarding the mix of items on the child caregiving scales have been discussed in detail earlier. Social desirability may be heightened for parents presenting for treatment at a paediatric mental health service, and for those with high education levels, as was the case in the current sample. Future research should employ observational measures of disorganised caregiving in samples from broader socio-economic backgrounds to eliminate this possible influence on the results.

Mind-mindedness. While the mind-mindedness interview was the first of the face-to-face procedures, it was administered after the questionnaire and diagnostic interview components of the study. Thus, parents may have been primed, explaining the high proportion of mind-related comments. The mind-mindedness interview should perhaps be administered before any other research tasks in future studies. Further, the null findings for mental descriptors raise the possibility that the "describe your child" interview is not an effective measure of mind-mindedness in clinical populations for children older than 4 years of age.

MacArthur Story Stem Battery. This and previous research has found no significant associations among child representations of attachment measured by the MSSB and child CU traits (Coe et al., 2018). It is possible that the MSSB and its MacArthur Narrative Coding System (J. Robinson et al., 2007) had several limitations with regards to investigation of child CU traits.

First, the current study administered seven story stems that included a range of themes (i.e., parent-child attachment, triadic family relations, moral rules and emotions, competence

and parent-child, couple and sibling conflict). This approach generated a large number of codes and data reduction techniques were required to create composite variables. Data reduction may have limited the specificity of the results. Future research could avoid aggregating scores across stories and, instead, examine child representations of attachment separately for story stems most relevant to children with conduct problems and high CU traits (e.g., moral rules and emotions, parent-child conflict, or parent-child attachment). It is possible that associations among children representations of attachment and CU traits may be evident for some, but not other, social-emotional dilemmas.

Second, father characters are not well-represented in story stems from the MSSB. Their inclusion typically fulfils a dyadic parental, rather than paternal, role in the narratives (Woolgar & Murray, 2010). Given that father-child relationships may have an important and unique role in the development of CU traits, the limited role of fathers in the administered story stems may have confounded the current results. Future research using the MSSB to investigate child CU traits could design story stems with more prominent roles for fathers, and examine mother-child and father-child representations separately in analyses. There have been some previous endeavours in this regard (e.g., Verschueren, Marcoen, & Schoefs, 1996).

Finally, there are a number of alternative doll play narrative techniques that could account for some of the limitations of the MSSB and be applied to the study of CU traits (Woolgar, 1999). The Dolls' House Play methodology (Murray, Woolgar, Briers, & Hipwell, 1999) uses an open-ended structure ("what happens in your house?") during four universal family situations (mealtime, bedtime, a negative experience, and a positive experience) to assess for children's representations of their family relationships. This approach provides the child with freedom to select their family dolls (i.e., permits children to include or exclude fathers), determine their prominence in each story stem, and introduce their own themes into their doll play narratives (Woolgar, 1999). Consequently, child doll play narratives using this

methodology may be less likely to be contaminated by the child's desire to provide socially

acceptable answers or the researcher's agenda and frame of reference (Murray et al., 1999).

Child representations of their family relationships revealed in this task have been related to the

severity of their conduct problems (Woolgar & Murray, 2010). Future research could explore

whether this doll play narrative technique also reveals child representations of attachment that

are related to the severity of their CU traits.

Control variables for projective measures. Child intelligence and fine motor or

language ability (which are known to confound performance on drawing and doll play narrative

tasks) were not assessed in the current study (e.g., Pianta et al., 1999; H. S. Waters et al., 1998).

These variables should be measured and controlled in research replicating the findings of the

current research.

Current Study Conclusion

The current study provided a profile of the parenting and parent-child attachment

relationships concurrently experienced by children with clinic-referred conduct problems.

Children with more severe conduct problems had mothers who tended to describe them using

more negative mental descriptors and who reported more parenting stress and feelings of parent

helplessness. For children with an LPE diagnosis, parents reported more caregiving on the part

of the child, suggesting the parent felt the child was in charge. Mothers were also observed to be

less (or more inconsistently) emotionally available when interacting with their child.

Children with more severe conduct problems showed more negative representations of

their parents and dysregulated aggression in their doll story narratives, more dysfunctional

representations of their family relationships in their drawings, and more impairment in their

performance of those tasks. The study did not find associations between conduct problem

severity and parenting or parent-child attachment relationships for fathers, but some associations with CU traits.

Children with conduct problems who showed fewer caregiving behaviours towards others, who experienced fewer positive parenting practices, more parenting stress (as reported by their mothers and fathers), more parent helplessness from their mothers, and more frightened or frightening caregiving from their fathers, were reported by their parents to have higher CU traits. Fathers' use of more negative mental descriptors of their child were also related to higher child CU traits.

Implications for Treatment

The conduct problems of children with high CU traits are resistant to evidence-based interventions that are shown to be effective for children with low CU traits (Hawes et al., 2014). This poor treatment response has been attributed to the unique cognitive, affective, biological and social characteristics of children with high CU traits. For example, insensitivity to discipline and impairment in the recognition of distress in other people described for children with high CU traits may lead to the discipline components of traditional parenting interventions being less effective. As described earlier, longitudinal studies show that more positive, warm, responsive and sensitive parenting (Pardini et al., 2007; Wagner et al., 2017) reduces conduct problems and CU traits in children with high CU traits, and that this occurs more consistently than remediating negative parenting practices (e.g., Waller, Shaw, & Hyde, 2017). A warm, sensitive and responsive parent-child relationship also appears most important for developing a "conscience" in children with a fearless temperament, a characteristic of children with high CU traits (Kochanska, 1997). In support of this, research shows that the positive parenting components of interventions are more effective than the discipline components in improving conduct problems for children with high CU traits (Hawes & Dadds, 2005). Further, Pasalich et al. (2016) found that the Fast Track intervention improved negative parenting practices, which reduced conduct

problems, and positive parenting practices, which reduced CU traits. The current findings also suggest that improving positive parenting practices could be helpful for reducing child CU traits, with any reduction in CU traits likely to increase positive parenting practices and experiences in a transactional manner. Therefore, positive parenting practices should be targeted in interventions for conduct problems in childhood.

Currently, innovative interventions for child conduct problems and CU traits focus on enhancing the positive parenting practices and connected relationship components of current evidence-based treatments, with positive preliminary findings (e.g., Kimonis et al., 2019). For example, Kimonis and colleagues (2012; 2017; 2018) have adapted Parent-Child Interaction Therapy (PCIT), a well-established intervention for young children, to treat child CU traits and their related conduct problems.

PCIT comprises two sequential phases, the Child-Directed Interaction (CDI) phase and (once mastered) then the Parent-Directed Interaction (PDI) phase. The CDI phase focuses on increasing positive parent-child interactions, parental involvement and responsivity within highly enjoyable child-led play. Parents must meet mastery criteria in child-directed play before progressing, which involves achieving high frequencies of labelled praise, descriptions of children's play actions, reflective dialogue for children's utterances, respectful imitations of child play initiatives, and parental warmth, during observed parent-child interactions. Parents must also avoid criticising the child, directing the play, or using questions to promote connection with the child. The PDI phase focuses on improving the consistency of parent consequences for non-compliance (time out) and increasing parent confidence in setting limits and taking charge of child behaviour. The CDI component of PCIT appears particularly relevant to child CU traits.

Kimonis and colleagues (2012; 2018) adapted the standard intervention by: explicitly focusing on coaching parents to engage in warm, emotionally responsive parenting; shifting

emphasis from consequences to reward to achieve effective discipline; and including a module to improve the emotional deficits characteristic of children with high CU traits. Kimonis et al. (2019) found that the adapted PCIT intervention produced decreases in child CU traits and conduct problems, and increased empathy (maintained at follow-up). The results of the current study support a focus on positive parenting practices in interventions addressing child CU traits, and that involving mothers and fathers could be most effective. Improving positive parent-child interactions are likely to improve parents' feelings of efficacy in their parenting, and this could improve caregiving helplessness. In fact, Elizur, Somech and colleagues (2012; 2017; 2018) found that an "ineffective parenting" composite variable, which comprised parenting distress and parent helplessness, mediated improvements in child conduct problems and CU traits following a parent training intervention. Future interventions could assess parents' feelings of efficacy as an indicator of treatment effectiveness.

As families progress with the PDI phase of treatment, parent self-efficacy may be further enhanced as parents are supported to develop their competency in taking charge of child behaviour when required. Clear and consistent limit-setting and successful experiences of child compliance are likely to reduce parent helplessness and parenting stress, and diminish the use of fear as a discipline strategy. The current results suggest that this would positively influence child conduct problems and CU traits.

Increasing parental warmth and firm control is likely to improve "felt security" within the parent-child relationship (Marvin et al., 2016). If this is maintained over time, attachment theory (Bowlby, 1969/1982) would suggest that this would positively effect children's representations of their attachment relationships. More secure child mental representations would guide more prosocial and less aggressive behaviour into the future, as well as supporting more positive relationships with peers and others. In this way, the adapted PCIT program may address the central impairments in parenting and parent-child attachment relationships found in

this study. There is evidence indicating that social learning theory interventions, such as PCIT, can increase children's attachment security and reduce the severity of their conduct problems (Woolgar, Bengo, & Scott, 2013).

The Circle of Security (COS) program (Powell et al., 2014) may also inform treatment with this population. The COS program aims to increase security within parent-child attachment relationships through several treatment elements. First, parents are taught to identify, respond and reflect upon their children's emotional needs when they are exploring their environment or requiring the organisation of their feelings. Mothers of children with more severe conduct problems showed impairment in this capacity in the current study.

Second, parents are invited to reflect upon their own childhood experiences of being parented and to consider how this impacts their parenting and perceptions of their child. This process could help mothers and fathers to address their negative feelings and attributions about their child reported in the current study.

Third, the COS program assists parents to develop a balance between kindness and firmness when taking charge of their child's behaviour and feelings, and to consider the role of fear (referred to as "shark music") in their frightened, frightening or helpless caregiving. This appears highly applicable to parents' reports of caregiving helplessness in the current study.

Finally, the importance of relationship repair following inevitable ruptures (i.e., moments that parents are emotionally unavailable to their children) in parent-child relationships is emphasised by the COS program. That is, following a period of disorganised child feelings, the parent makes concerted efforts to return parent-child interactions to being warm and positive. The current findings suggest that this process could be most helpful for children with conduct problems and high CU traits. Therefore, future interventions for conduct problems and CU traits in childhood could consider incorporating some features of the COS program into their treatment protocols.

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Appendix A of this thesis has been removed as it may contain sensitive/confidential content

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