



Factors associated with child-responsible attributions, harsh discipline use, and callous unemotional behaviours

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Word Count

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Statistics:

Pages	144
Words	22,115
Characters (no spaces)	123,162
Characters (with spaces)	144,510
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Lines	3,880

☒ Include textboxes, footnotes and endnotes

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Introductory Chapter: Thesis Overview

Conduct problems in childhood are associated with a significantly increased rate of mental health problems in later life, increased contact with the criminal justice system and poorer educational and occupational outcomes (NICE, 2017). Efforts to prevent the development of conduct problems in children and adolescents have resulted in a number of effective behavioural training programmes developed for parents of babies through to adolescence (Piquero et al., 2016).

Children who show Callous-Unemotional behaviours (CU) demonstrate particularly high levels of conduct problems (Frick et al., 2014). CU behaviours are characterised as a lack of empathy, guilt and shallow affect shown in children (Frick et al., 2014). Research examining the effectiveness of parenting interventions for children with CU behaviours have shown mixed results. Typically, children with CU behaviour do not respond well to the use of consequences (e.g. time-out), a standard component of most parent training programmes (Hawes & Dadds, 2005; Frick & Morris, 2004). Parenting programmes that capitalise on increasing parental warmth and improving parent-child communication, however, have shown promising results in reducing CU behaviours (Pasalich et al., 2015; White et al., 2013).

The types of attributions that parents make about their children's behaviour have also been implicated in the development of children's conduct problems (Park et al., 2018; Rodriguez & Wittig, 2019). When a parent blames a child for a transgression or wrongdoing (and therefore makes an internal, causal attribution about the child), this can also influence a more hostile and physically punitive method of discipline used on children (Nix et al., 1999; Milner et al., 2019). Despite a wealth of evidence in support of the negative impact that child-responsible attributions can have on children, there is little known about its relationship with

CU behaviour. Therefore, further investigation into the negative impact of child-responsible attributions on parenting and how this may be implicated in the development of CU behaviour is warranted. This research dissertation aimed to synthesise the research looking at child-responsible attributions and harsh discipline use as well as addressing the gap in the literature concerning child-responsible attributions and CU behaviour.

Chapter one is a systematic review of the research literature investigating the link between child-responsible attributions and harsh discipline/ physical punishment risk. Twenty-five papers covering a twenty-year period were accepted for inclusion within the review. Findings revealed that increased use of child-responsible attributions were associated with harsh and punitive methods of discipline. Parents at risk of physically abusing their children and those who had been prosecuted for doing so, were shown to use more child-responsible attributions and harsher discipline methods. To address the methodological limitations of the current research base, longitudinal designs, and alternatives to self-report methods for measuring child-responsible attributions and harsh discipline/physical punishment are needed.

The second chapter of this thesis aims to investigate whether child-responsible attributions are associated with the development of callous-unemotional behaviours in children aged 27 months to 7 years of age using a latent growth curve model on a longitudinal data set. Maternal age, maternal positive affect, maternal psychopathy, infant sex, child oppositional behaviour and psychosocial risk were also included in the analysis. The unique effects of child-responsible attributions and maternal psychopathy on CU behaviour were highlighted. These results have potential implications for the support offered to families of children with CU behaviour.

The systematic review will be submitted to the *Clinical Psychology Review* for publication, whilst the empirical paper will be submitted to the *Journal of Child Psychology*

and Psychiatry. The author will follow the reference style guidelines requested by each journal. The two chapters submitted to the university exceed the word limits allowed for each of the journals. This was to allow for a more in-depth discussion and reflection on the relevant research and theoretical backgrounds. The word limits will be amended according to the journal requirements prior to submission.

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Chapter One: Systematic Literature Review

What is the association between child-responsible attributions and parents' use of harsh, coercive discipline?

Prepared in accordance with guidelines for submission to Clinical Psychology Review (Appendix A).

Abstract

Understanding the risk factors for parents' use of harsh discipline is key to protecting children's social and emotional wellbeing. This systematic review examines the strength of the contribution that hostile, child-responsible attributions make towards the use of harsh discipline and physical punishment. Four electronic databases (PsycINFO, CINAHL, Scopus and Embase) and bibliographic reference lists were searched for relevant literature published between 2000 and 2019. The eligibility criteria included caregivers responsible for the care of a child under the age of 18 years old, the use of a measure of child-responsible attributions and a measure of harsh discipline and/or physical abuse risk. Twenty-five papers were included in the final analysis. The methodological quality of the papers was assessed using the Quality Assessment Tool for reviewing Studies with Diverse Designs (QATSDD). Findings from the analysis revealed that greater use of child-responsible attributions was associated with greater likelihood that the caregiver used harsher discipline and more physically abusive methods. The findings suggest that parenting interventions should include addressing caregivers' attributional styles to reduce punitive methods of discipline and protect children, although the research reviewed did not establish causation. Longitudinal designs and alternatives to self-report measures are needed to address the methodological limitations of the current research.

Keywords: child-responsible attributions, harsh discipline, physical abuse risk, systematic review

Introduction

Parents at risk of using harsh discipline with their children require increased support to protect children's physical and emotional wellbeing. Recent data show that two out of three children are subjected to violent discipline (psychological aggression and/or physical punishment) by their caregivers in a vast majority of countries across the world (UNICEF, 2019). Harsh or violent discipline has been linked with poorer outcomes in children such as higher externalising problems, (e.g. Gershoff, 2002; Milner & Clarke-Stewart, 2008), elevated depression (e.g. Bender et al., 2007) and peer difficulties (Strassberg et al., 1994). A more in depth understanding of the risk factors for discipline use could inform parenting interventions and support parents to find alternative ways of communicating with and understanding their children. Distal risk factors such as family conflict and social deprivation as well as proximal factors such as the way that parents interpret and evaluate their child's behaviour have been studied. This review examines the strength of the contribution that hostile, child-responsible attributions make towards the use of harsh discipline.

Harsh discipline

Harsh and coercive methods of discipline can have a devastating impact on children's physical and psychological wellbeing. Harsh parental discipline involves disciplinary methods that rely on the use of punishment and anger to redirect a child's behaviour (Baumrind et al., 2010; Scaramella & Leve, 2004). It often involves the use of power-assertion (coercion, pressure, forceful or harsh insistence, negativity, and criticism; Kochanska et al., 2003) and can be either verbal or physical (e.g. shouting or yelling and/or spanking or hitting) (Hecker et al., 2016; UNICEF, 2019). Various studies have demonstrated that physical punishment often arises out of disciplinary action (e.g. Gil, 1974; Trocmé & Durrant, 2003). Further, it has been argued that physical punishment essentially constitutes child abuse, since the use of physical punishment can lead to poor socioemotional outcomes.

The NSPCC defines physical abuse as “any way of intentionally causing physical harm to a child or young person” (NSPCC, n.d.). Parents who use harsh discipline (both verbal and physical) are putting their children at risk of significant emotional and behavioural problems and such methods are still being used widely across the world (UNICEF, 2019). Of importance, parents who rely on these methods have children with poorer behavioural outcomes in the long run.

The use of such methods can significantly increase the risk of internalising problems such as depression and social withdrawal (Hecker et al., 2016; Cole et al., 2014; McKee et al., 2007). They can also result in externalising problems such as aggression and disruptive behaviour (Nix et al., 1999; Mendez, et al., 2016). Harsh discipline has also been shown to negatively affect cognitive functioning; exposed children have demonstrated lower working memory capacity and lower academic success (Hecker et al., 2016). Thus, parenting strategies that rely on these coercive methods can be detrimental to children in multiple ways. However, parents’ use of harsh discipline methods can be explained as an action or a reaction; that is, parents may be responding to contextual forces.

Risk factors for harsh discipline use

Parenting, of course, does not occur in a vacuum and there are multiple contextual factors that influence the way a parent disciplines their child. These risk factors can be thought of as a chain of events that includes both distal and proximal factors, i.e. factors that are long-standing and may have played a role in the development of risk (e.g. social deprivation) and factors that precipitate the event and increases the probability of it happening (e.g. high emotional arousal; Black, et al., 2001).

Family stress and conflict has been found to predict higher levels of harsh discipline use in parents (Conger, et al., 2010; Margolin & Gordis, 2000; Martinez & Richters, 1993) and challenging child characteristics have also been found to hamper parental functioning

and predict use of corporal punishment (Koenig, et al., 2010; Jaffee et al., 2004). Pereira et al., (2015) found that under conditions of severe socioeconomic deprivation, parenting stress predicted higher levels of maternal harsh discipline. However, in less severely deprived families, this relation was absent.

There are also several cognitive factors that appear to play a role in harsh discipline use and physical abuse risk. Parents who use aggression against their child are more likely than other parents to think of their child's 'naughty' or 'clumsy' behaviours as stemming from internal and stable characteristics rather than from transient behaviour (Milner, 2003). Parents at risk for using abuse are also less likely to be able to come up with alternative explanations for their child's behaviour and are unlikely to incorporate information about the child's developmental abilities. Thus, parents who use harsh discipline may find it difficult to process information efficiently (Milner, 1993, 2003), and may make attributions about the child's behaviour with hostile intent.

The child-responsible attributions that parents make about their children's behaviour may, of importance, lead to a harsh response oftentimes. When parents make these hostile attributions, they place the blame for a negative behaviour (e.g. breaking a plate or hitting their sibling on the head) within the child, assuming the child has caused that behaviour to happen, on purpose and with hostile intent. This application of blame that holds the child responsible, is one of many factors that can potentially set the conditions for a harsh and abusive parental response.

Aims of the current review

Better understanding of the role that cognitive factors play in predicting harsh discipline use will help to inform parenting interventions and thus support better family functioning. The last review that examined the role of child-responsible attributions as a risk factor for child physical abuse was almost 20 years ago. In their review, Black et al., (2001)

showed that there were distal and proximal risk factors for child physical abuse. Distal risk factors included parental experience of being abused as a child and current family factors such as parent alcohol misuse and living in an impoverished area. More proximal risk factors included the mothers' negative distress (e.g. depression, loneliness, anxiety), the child's behaviour problems, high-risk parenting strategies (e.g. harsh discipline use) and parental negative attributions about the child's behaviour. The current review aims to focus specifically on evaluating evidence for the strength of the association between child-responsible (and hostile) attributions and parental use of harsh discipline methods and physical abuse risk.

Method

Pre-registration of Review Protocol

Before this review was undertaken, it was registered with the International Prospective Register of Systematic Reviews (PROSPERO): www.crd.york.ac.uk/PROSPERO [CRD42020166623].

Eligibility Criteria

Studies were eligible for the review based on the following inclusion criteria: a) the full text was written in English; b) participants were caregivers responsible for the care of a child under the age of 18 years old; c) a measure of child-responsible/intentional/ blaming/ internal and/or hostile parental attributions was used; d) a measure of harsh/ coercive/ punitive/discipline and/or physical abuse risk was used.

Studies were excluded if any of the following criteria were met: a) the caregiver had psychosis; b) the children were identified as having an intellectual disability or neurodevelopmental condition (e.g. Autism/ADHD); c) the study was a doctoral dissertation/thesis, a conference presentation/article; d) the study included neglect and/or sexual abuse when measuring abuse risk in the caregivers and did not separate the analysis based on types of abuse and e) the study was published prior to the year 2000.

Attitudes in favour of using physical punishment have decreased in the UK and US over the last 20-40 years (Heilmann, Kelly & Watt, 2015; UNICEF, 2010). We therefore excluded studies published prior to 2000 to reduce the bias that culturally and socially different attitudes towards punishment might have had on the results of the review. As very few studies also included neglect and/or sexual abuse when studying physical punishment/abuse, we excluded these terms from our search strategy and did not include the study in our final sample unless the types of abuse studied were separated out in the analysis.

Search Strategy

The electronic publication databases PsycINFO, EMBASE, Scopus and CINAHL were searched for relevant published literature in peer-reviewed journals (see appendix B). An initial search was conducted in November 2019 and a second search in February 2020. Attempts were made to identify additional eligible publications by hand searching reference lists. The databases searched titles and abstracts using the following key words and Boolean operators: (hostile OR negative OR causal) AND attribution* AND (harsh OR coercive OR abuse* OR discipline) AND (parent* OR mother* OR father*).

Study Selection

Following the database search in February 2020, duplicate records were identified and removed. In the first stage of selection, titles and abstracts were screened for inclusion by the first author (KJ). The full text papers identified in the first stage were then obtained, read in full and screened against the inclusion criteria by the first author in the second stage. A second rater screened 10 percent of the eligible papers to ensure consistency at the first and second stages. Disagreements and uncertainties were resolved through a discussion with the second rater, first (KJ) and second authors (LC). The reference lists of selected articles that were not present in the original search were also screened for eligibility. The search flow diagram is presented in Figure 1.

Data Extraction

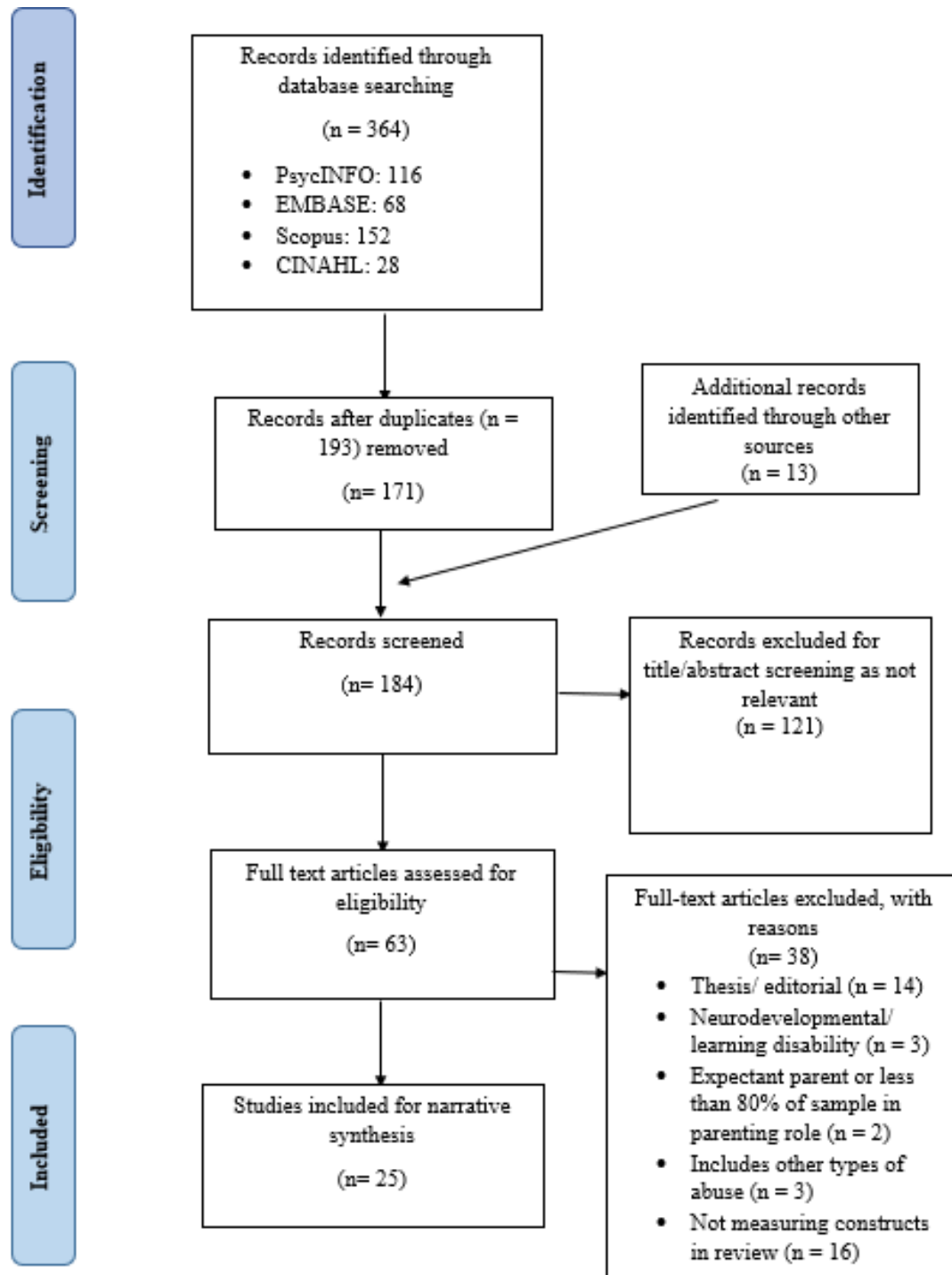
Study details, participant characteristics and main study findings were extracted by the first author (KJ) and are presented in Table 1 and Table 2. Only the aims and findings relevant to this review were extracted.

Assessment of Quality and Risk of Bias

A risk of bias assessment was used to evaluate the quality of the papers reviewed and to guide the interpretation of the findings, as recommended by The PRISMA guidelines (Moher et al., 2009). The Quality Assessment Tool for reviewing Studies with Diverse Design (QATSDD; Sirriyeh et al., 2012) was selected due to the methodological diversity between the studies (see appendix D). The QATSDD assesses study quality across 16 areas and asks for clarity regarding the descriptions of study aims, setting and recruitment, data quality and analysis. Each item is rated for meeting the criteria from 0 (not at all) to 3 (complete).

Figure 1.

Search strategy diagram based on PRISMA guidelines (Moher et al., 2009).



Results

Characteristics of Included Studies

The participant and study characteristics for the 25 included studies are displayed in Table 1. All studies were published from 2000 to 2019 and the majority of these used a cross-sectional design, with three using a longitudinal design; one further study was a controlled trial. Seventeen of these studies were conducted in the United States of America (USA), two in Canada, two in The Netherlands, two in Spain, two in Australia and one in Columbia. Thus, the majority were North American or European.

Mothers were the focus of most studies, with only ten studies also including fathers. Of the 18 studies that disclosed their participant's ethnicity, one of them recruited African American parents only and the other seventeen recruited a mixture of White, Black and Hispanic individuals with some also recruiting from the Native American, Native Alaskan and Asian communities. In over half of these studies, White parents made up two thirds of the sample. Not all the studies disclosed the age or gender of the children, but of those that did, the male/female ratio was roughly 50/50 and children varied in age from six months to 12 years, with the majority recruiting children under the age of six years old.

Over half of the included studies selected their participants from community-based samples whilst seven recruited groups of parents from the community either at high-risk of physically abusing their children or at low-risk. Two studies examined attributions and discipline use/abuse risk in fathers with a history of physical abuse towards their children.

Results of Risk of Bias Assessment

The results of the risk of bias assessment are presented in Table 2. Total quality assessment scores ranged from 45.2% to 83.3%. Common methodological flaws related to sample size considerations in terms of the analysis, justification for the analysis chosen and service user involvement in the design and implementation of the study. Twenty-one out of

the twenty-five papers also used a cross-sectional design which limits inferences about causal relationships.

All the studies failed to provide a priori calculations to justify their sample sizes, and only two briefly mentioned their sample sizes in relation to their analyses. Mention of service user involvement was also low; six studies carried out pilot studies to develop their parent-child vignettes (Dopke and Milner, 2000; Graham, et al., 2001; Montes, et al., 2001) and videotaped parent-child interactions (Dadds, et al., 2003), and audiotapes of infant cries (De Paúl et al., 2006). Ateah and Durrant (2004) piloted all their measures to ensure that each one could be understood by participants.

All twenty-five of the papers stated their aims and objectives within the main body of the report except for Klevens et al., (2000) who also failed to reference a theoretical framework. For this reason, Klevens et al., (2000) scored the lowest in quality (45.2%). However, despite its shortcomings, Klevens et al. were the only authors to examine physical abuse risk factors in a predominantly male and non-white population.

The majority of studies used convenience or volunteer sampling to recruit participants, which may introduce sampling bias and reduce the generalisability of the results. Finally, most studies relied solely on self-report methods to measure parental attributions and discipline use which increases the risk that self-report bias and shared-method variance might influence the results.

Table 1.*Study characteristics.*

Author, year	Location	Study design	N	Parent characteristics (gender, age, ethnicity)	Child characteristics (age, gender)	Sampling method
Ateah & Durrant, 2004	Canada	Cross-sectional	110	100% female. Age: 42% 20-29 years; 53% 30-39 years. Ethnicity: NS.	Age: 36-46 months ($M = 3$ years) 52% female.	Random and convenience sampling
Azar et al., 2016	USA	Cross-sectional	62	100% female. Age: $M = 31.84$, $SD = 6.49$. 83.9% White.	NS	Purposive sampling
Beckerman et al., 2017	The Netherlands	Cross-sectional	53	100% female. Age: 34.0, $SD = 6.7$. Ethnicity: NS.	Age: 2-6 years ($M = 3.7$, $SD = 1.1$) 51% male.	Convenience sampling
Beckerman et al., 2018	The Netherlands	Cross-sectional	105 families (mother/father pairs)	50% female. Age of mothers: $M = 32.7$, $SD = 4.4$. Age of fathers: $M = 35.1$, $SD = 5.0$. Ethnicity: NS.	Age: 1.7-6 years ($M = 3.4$, $SD = 1.1$) 51% male.	Convenience sampling
Butcher & Niec, 2017	USA	Cross-sectional	40	100% female. Age: $M = 34.65$, $SD = 6.64$. Ethnicity: 87% White, 5% Black, 8% Hispanic.	Age: $M = 54.58$ months, $SD = 12.16$. 50% male.	Volunteer sampling
Cooper et al., 2018	USA	Cross-sectional	220	92.7% female. Age: $M = 34.7$, $SD = 10.06$. 17.7% Black, 47.7% White, 34.5% Hispanic.	NS	Purposive sampling
Author, year	Location	Study design	N	Parent characteristics (gender, age, ethnicity)	Child characteristics (age, gender)	Sampling method

Crandall et al., 2018	USA	Cross-sectional	146	100% female. Age: $M = 32.8$ years. 76% White, 13% Black, 5% Hispanic, 1% Asian, 5% other.	Age: 3-7 years ($M = 4.8$) Gender: NS.	Convenience sampling
Crouch et al., 2017	USA	Cross-sectional	183	68.9% female. Age: $M = 33.0$, $SD = 10.3$. 49.2% Black, 38.3% White, 5.5% Hispanic, 0.5% Asian, 0.5% American Indian, 6% other.	NS	Convenience sampling
Dadds et al., 2003	Australia	Cross-sectional	60	100% female. Age: $M = 28.95$ years. Ethnicity: NS.	Age: 2-6 years ($M = 3.3$) 40% female.	Purposive and volunteer sampling
De Paul et al., 2006	Spain	Cross-sectional	95	100% female. Age: High Risk group: $M = 39.31$. Low Risk group: $M = 38.83$. Ethnicity: NS.	Age: 7-12 years Gender: 50/50 across low risk and high-risk groups.	Convenience sampling
Dopke & Milner, 2000	USA	Cross-sectional	50	100% female. High risk group: Age: $M = 32.48$, $SD = 9.80$. 36% Black, 64% White. Low risk group: Age: $M = 34.96$, $SD = 8.01$. 36% Black, 64% White.	Age: $M = 1.76$ Gender: NS	Convenience sampling
Graham et al., 2001	USA	Cross-sectional	75	100% female. Age: Abuse group: $M = 31.9$, $SD = 4.70$. At-Risk group: $M = 32.1$, $SD = 8.03$. Non-abusive group: $M = 31.1$, $SD = 5.86$. 100% Black.	NS	Purposive sampling
Klevens et al., 2000	Columbia	Cross-sectional	91	100% male. Age: NS Ethnicity: NC (all participants recruited from same neighbourhood in Bogotá, Columbia).	Age: < 3 years Gender: NS	Purposive sampling
Leung & Slep, 2006	USA	Cross-sectional	453 couples	Female/Male ratio NC. Mothers: Age: $M = 35.07$, $SD = 5.01$. 82% White, 7.5% Hispanic, 5.8% Black, 2% Asian, 2.7% other. Fathers: Age: $M = 37.25$, $SD = 6.04$. 79.5% White, 9.4% Hispanic, 6.7% Black, 1.8% Asian, 2.6% other.	Age: 2.9-8 years ($M = 5.45$, $SD = 1.46$) Gender: NS.	Random sampling
Author, year	Location	Study design	N	Parent characteristics (gender, age, ethnicity)	Child characteristics (age, gender)	Sampling method

Mammen et al., 2003	USA	Longitudinal	52	84.6% female. 88.4% of adults were child's biological parent. Age: $M = 31.9$, $SD = 5.88$. Ethnicity data available on 50 participants: 54% Black, 46% White.	Age: 6-13 years ($M = 8.6$, $SD = 2.1$) 73.1% male.	Purposive sampling
Milner et al., 2018	USA	Cross-sectional	493	52.9% female. Age: $M = 35.2$, $SD = 8.7$. 79.7% White, 8.5% Black, 9.9% Asian, 1.0% Native American/Alaskan, 0.8% other.	NS	Volunteer sampling
Montes et al., 2001	Spain	Cross-sectional	38	100% female. High risk group age: $M = 36.21$, $SD = 6.16$. Low risk group age: $M = 36.68$, $SD = 6.65$. Ethnicity: NS.	Age: 7-12 years. High risk group: $M = 9.57$, $SD = 1.63$. Low risk group: $M = 9$, $S = 1.63$. Gender: High risk group: 63.2% female, Low risk group: 63.2% female.	Convenience sampling
Park et al., 2018	Canada	Cross-sectional	148 mother-father pairs	50% female. 93.2% biological parents. Age: Mothers: $M = 42.64$, $SD = 4.51$. Fathers: $M = 44.64$, $SD = 4.39$. 45.9% White, 21.6% East Asian, 27.7% Other.	Age: 9-12 years ($M = 10.81$, $SD = 1.15$) 50% female.	Convenience and volunteer sampling
Pinderhughes et al., 2000	USA	Cross-sectional	978	59.4% female. Age: NS. Ethnicity: Mothers: 81.8% White, 16.4% Black, 1.9% Other. Fathers: 90.2% White, 7.6% Black, 2.3% Other.	Age: pre-kindergarten (4 years and under) 48% female.	Convenience sampling

Author, year	Location	Study design	N	Parent characteristics (gender, age, ethnicity)	Child characteristics (age, gender)	Sampling method
Rodriguez, Cook, & Jedrzewski, 2012	USA	Cross-sectional	26	73% female. Age: $M = 30.85$, $SD = 6.37$. 84% White.	Age: < 10 years.	Volunteer sampling
Rodriguez & Tucker, 2015	USA	Cross-sectional	95	100% female. Age: $M = 37.89$, $SD = 6.85$. 56.2% White, 39.3% Black, 6.3% Hispanic.	54.8% female. Age: $M = 7.46$, $SD = 1.13$.	Volunteer sampling
Rodriguez et al., 2018	USA	Longitudinal	203 mothers and 151 fathers	57.3% Female. Age: Mothers: $M = 26.04$, $SD = 5.87$. Fathers: $M = 28.87$, $SD = 6.10$. Ethnicity: Mothers: 50.7% White, 46.8% Black, 1% Asian, 1.5% Native American. Fathers: 54% White, 45.3% Black, 0.7% Asian.	Time point 1: Mothers enrolled during last trimester. Time point 2: infants 6 months. Time point 3: infants 18 months.	Convenience and volunteer sampling
Rodriguez & Wittig, 2019	USA	Longitudinal	186 mothers and 146 fathers	56% Female. Age: Mothers: $M = 26.78$, $SD = 5.76$. Fathers: $M = 29.42$, $SD = 6.16$. Mothers: 51.1% White, 46.8% Black, 1.1% Asian, 1.1% Native American. Fathers: 56.8% White, 42.5% Black, 0.7% Asian.	Time point 2: infants 6 months. Time point 3: infants 18 months.	Convenience and volunteer sampling
Strassberg & Treboux, 2000	USA	Cross-sectional	43	100% female. Age: 13-19 years ($M = 17.7$, $SD = 1.76$) 38% White, 27% Black, 18% Hispanic, 14% other.	Age: 10-34 months ($M = 19$, $SD = 7.78$) 45% female.	Purposive sampling

Author, year	Location	Study design	N	Parent characteristics (age, gender, ethnicity)	Child characteristics (age, gender)	Sampling method
Sturge-Apple., et al., 2014	USA	Cross-sectional	185	100% female. Age: $M = 31.9$. 64% White, 20% Black, 8% Hispanic, 5% Biracial, <1% Asian American, 2% Native American/Alaskan.	Age: 3.5 years. 47% female.	Convenience and volunteer sampling

Note. NC = Not Clear; NS = Not stated.

Table 2.*Quality assessment*

Criteria	Ateah & Durrant, 2004	Azar et al., 2016	Beckerm an et al., 2017	Beckerm an et al., 2018	Butcher & Niec, 2017	Cooper et al., 2018	Crandall et al., 2018	Crouch et al., 2017	Dadds et al., 2003	De Paul et al., 2006	Dopke & Milner, 2000	Graham et al., 2001
Explicit theoretical framework	2	3	3	3	1	1	3	1	3	3	3	3
Statement of aims/objective s in main body of report	3	3	3	3	3	3	3	3	3	3	3	3
Clear description of research setting	3	2	3	3	2	3	3	2	3	3	3	3
Evidence of sample size considered in terms of analysis	0	0	0	0	0	0	0	0	0	0	0	0
Representativ e sample of target group of a reasonable size	2	1	1	2	1	2	3	2	1	2	1	2

Criteria	Ateah & Durrant, 2004	Azar et al., 2016	Beckerm an et al., 2017	Beckerm an et al., 2018	Butcher & Niec, 2017	Cooper et al., 2018	Crandall et al., 2018	Crouch et al., 2017	Dadds et al., 2003	De Paul et al., 2006	Dopke & Milner, 2000	Graham et al., 2001
Description of procedure for data collection	2	3	2	3	3	1	1	3	3	2	2	3
Rationale for choice of data collection tool(s)	1	2	0	1	1	2	1	1	3	3	3	3
Detailed recruitment data	3	1	3	3	3	3	3	3	3	3	3	3
Statistical assessment of reliability and validity of measurement tool(s)	2	3	2	2	1	2	2	2	3	3	3	3
Fit between stated research question and method of data collection	3	3	2	3	3	2	2	2	3	3	2	3
Fit between research question and method of analysis	3	3	3	3	3	3	3	3	3	3	3	3

Good justification for analytical method selected	3	1	0	0	0	1	2	0	0	0	0	1
Evidence of service user involvement	1	0	0	0	0	0	0	0	1	2	2	1
Strengths and limitations critically discussed	3	2	2	3	2	3	3	3	3	2	2	1
Quality score	73.8%	64.2%	57.1%	69%	54.7%	61.9%	69%	59.5%	76.1%	76.1%	71.4%	76.1%

Criteria	Kleven s et al., 2000	Leung & Slep, 2006	Mamm en et al., 2003	Milner et al., 2018	Montes et al., 2001	Park et al., 2018	Pinder hughes et al., 2000	Rodrig uez et al., 2012	Rodrig uez & Tucker, 2015	Rodrig uez, et al., 2018	Rodrig uez & Wittig, 2019	Strassb erg & Trebou x, 2000	Sturge- apple et al., 2014
Explicit theoretical framework	0	2	2	3	3	2	1	3	3	3	3	3	3
Statement of aims/objectiv es in main body of report	3	3	3	3	3	3	3	3	3	3	3	3	3
Clear description of research setting	3	3	2	2	3	3	3	3	2	2	2	3	3
Evidence of sample size considered in terms of analysis	0	0	2	0	0	0	0	0	0	0	0	2	2
Representativ e sample of target group of a reasonable size	1	2	2	2	1	2	2	2	1	3	3	3	3
Description of procedure for data collection	3	3	1	2	2	3	3	2	3	2	2	3	3

Criteria	Kleven s et al., 2000	Leung & Slep, 2006	Mamm en et al., 2003	Milner et al., 2018	Montes et al., 2001	Park et al., 2018	Pinder hughes et al., 2000	Rodrig uez et al., 2012	Rodrig uez & Tucker, 2015	Rodrig uez, et al., 2018	Rodrig uez & Wittig, 2019	Strassb erg & Trebou x, 2000	Sturge- apple et al., 2014
Rationale for choice of data collection tool(s)	1	2	3	3	1	1	0	1	3	1	1	2	2
Detailed recruitment data	1	3	3	3	2	2	3	2	2	2	2	3	3
Statistical assessment of reliability and validity of measurement tool(s)	2	3	3	1	2	3	3	2	3	2	3	3	3
Fit between stated research question and method of data collection	1	2	2	2	2	2	2	2	3	2	2	3	3
Fit between research question and method of analysis	1	3	3	3	3	3	3	2	1	3	3	3	3

Criteria	Kleven s et al., 2000	Leung & Slep, 2006	Mamm en et al., 2003	Milner et al., 2018	Montes et al., 2001	Park et al., 2018	Pinder hughes et al., 2000	Rodrig uez et al., 2012	Rodrig uez & Tucker, 2015	Rodrig uez, et al., 2018	Rodrig uez & Wittig, 2019	Strassb erg & Trebou x, 2000	Sturge- apple et al., 2014
Good justification for analytical method selected	0	0	0	1	0	0	0	2	1	1	2	1	1
Evidence of service user involvement	0	0	0	0	2	0	0	0	0	0	0	0	0
Strengths and limitations critically discussed	3	3	3	3	2	3	3	3	3	2	3	3	3
Quality score	45.2%	69%	71.4%	66.6%	61.9%	64.2%	61.9%	64.2%	66.6%	61.9%	66.6%	83.3%	83.3%

Summary of Measures

Measures of child-responsible attributions

Details of the measures used in each study are presented in Table 3. Almost all of the included studies used self-report measures of parental attributions by asking parents to read various parent-child scenarios, imagining the child as their own, and then rating the child's intent in engaging in negative behaviours using a Likert scale. The various methods used to measure child-responsible attributions will now be discussed in detail.

Videotapes/ real-life scenarios. Two studies used videotaped interactions to assess attributions; Dadds et al., (2003) asked parents to rate children's intent after watching videotaped interactions with their own child and videotapes of unknown children and Graham et al., (2001) also showed parents videotaped scenarios using other, unknown children. Ateah and Durrant (2004) asked parents to think of real-life scenarios when attributing intent (using a likert scale) and asked parents to think back to two child transgressions that resulted in a disciplinary response that occurred in the previous two weeks.

Vignettes. Four of the included studies that used vignettes used the Plotkin Child Vignettes (PCV: Plotkin, 1983) which contain 18 scenarios depicting hypothetical aversive child behaviour. Parents are asked to imagine the child is their own and rate on a 9-point scale how much they think the child did the behaviour to annoy them. Prior work using the PCV has found that abusive mothers score significantly higher than comparison mothers (Plotkin, 1983; Azar, et al., 2012; Milner, 2003) and PCV scores have also been associated with implicit measures of parent attributions (Rodriguez, et al., 2012). Three out of the four studies using the PCV reported good internal consistency for the measure within their samples (Rodrigues & Wittig, 2019; Rodriguez & Tucker, 2015; Azar et al., 2016).

Of the remaining studies that used similar methods to elicit parental attributions, two used vignettes that had previously been validated by Chilamkurti and Milner (1993) and three

referenced the moral judgement literature (e.g. Nucci;1984, Smetana, 1981; Turiel, 1979) for guiding the creation of brief stories depicting children engaging in moral, conventional or personal transgressions. Of these studies, two carried out a pilot study to validate the content of their stories; one asked mothers to classify the stories into descriptions of moral, conventional and personal transgressions (those correctly classified by more than 75% of mothers were kept) and the second reported that they made modifications to their vignettes based on parents' responses. Cooper et al., (2018) used the Parent's Attributions of Child's Behaviour Measure (PACBM; Pidgeon & Sanders, 2002) which demonstrated excellent reliability ($\alpha = .93$; Cooper et al., 2018) and two others (Crandall, et al, 2018; Mammen, et al., 2003) used the Parenting Possibilities Questionnaire (PPQ; Nix et al., 1999; an extension on previous work by Petit et al., 1988) which demonstrated poor reliability for all subscales ($\alpha = .14, .40$ and $.64$; Nix et al., 1999).

Butcher & Niec (2017) used parent-child scenarios to tap into parent's general attributional styles before splitting them into two groups (child-referent and environment-referent), experimentally manipulating their situational attributions and filming their interactions with their children. Following the filmed interactions, Butcher & Niec (2017) used the Parental Attributions Coding System (PACS) developed by Slep (1997) to record and measure parents attributions after they watched 15-second video segments of themselves with their children. Child-referent and parent-referent attributions were then grouped and rated on dimensions of causality (i.e. trait, globality and stability) and responsibility (i.e. control, intent and valence of intent) by trained raters. Inter-rater reliability was excellent ($r = .82-.96$).

Park et al., (2018) and Milner et al., (2019) combined and adapted previous work to create their own measures. Park et al., (2018) created their attribution rating scale by using previously used parent-child scenarios (e.g. Johnston et al., 2009; Williamson & Johnston,

2015). Parents rated the reason for the child's negative and positive behaviours on a 6-point scale that reflected dimensions of causal locus, stability, globality, intentionality, blame and responsibility. Cronbach's alpha for the attributions for negative behaviour composite scores was good: $\alpha = .83$ for mothers and $\alpha = .84$ for fathers. Milner et al., (2018) created their Understanding Children's behaviour Scale (UCB) by taking three ambiguous upper body child photographs (Farc et al., 2008), and combining these with six ambiguous child behaviours (Crouch et al., 2010). Previous research has indicated that parents at risk of physically abusing their children make more hostile attributions within ambiguous social situations (Wilkowski & Robinson, 2010).

Questionnaires. Three studies also used questionnaire methods to elicit responses from parents regarding their attributions. The Parent Cognition Scale (PCS; Snarr, et al., 2009), used by two studies, is a 30-item self-report measure designed to assess the degree to which parents endorse dysfunctional child-responsible and parent-causal attributions for child misbehaviour. Internal consistency for the PCS was high in both studies. Butcher & Niec (2017) supplemented their vignette measures with The Parental Locus Of Control (PLOC; Campis et al., 1986), a 46-item questionnaire that asks parents to respond to statements such as "No matter how hard a parent tries, some children will never learn *to mind*" to measure parents' general attributional styles.

Laboratory measures. To try and reduce the bias from relying solely on self-report methods, Rodriguez et al., (2012) used an eye-tracking analog measure alongside other self-report measures to measure parents' attributions. Participants' eye movements were tracked as they read a number of vignettes depicting parent-child scenarios where children were seen to be culpable of certain negative behaviours (e.g. dropping plate on the floor) or where they were not culpable or to blame. According to previous research, readers experience comprehension difficulty when they encounter passages inconsistent with their beliefs. The

eye tracker assessed the extent of difficulty that the parent experienced reading vignettes that inappropriately characterised a child as culpable for behaviour.

Beckerman et al., 2017 and 2018, developed a computerised task called the Parental Attributions of Child Behaviour Task (PACT) that also consisted of ambiguous pictures to elicit parental attributions. This analog type measure presents an ambiguous picture of a child engaging in positive and negative behaviours for 4000 ms, and parents are asked a series of questions to tap into their attributions regarding the behaviours. They are given 3500 ms to respond. Cronbach's alpha for the negative child attributions in their 2018 study was excellent (0.95 for mothers and 0.94 for fathers).

Measures of harsh discipline use

The majority of the included studies assessed parent's disciplinary responses by either asking them what they would do in response to a vignette (whilst imagining the child was their own) or having them complete a questionnaire by asking them to rate the frequency with which they engaged in different physical and non-physical methods of discipline. A small number of studies supplemented self-report measures with observational methods using videotaped interactions. Ateah and Durrant (2005) asked parents to think back to two child transgressions that had occurred in the previous 2 weeks that elicited the strongest reactions and then asked an open-ended question about which discipline response(s) were implemented. Rodriguez and Tucker (2015) were the only authors who asked children about the methods of discipline used on them by their parents. Using the Parent Perception Inventory (PPI; et al., 1983), children were presented with nine positive parenting behaviours (e.g. positive reinforcement, non-verbal affection) and nine negative parenting behaviours (e.g. nagging, spanking). They subsequently selected the frequency with which their parents exhibited these behaviours, using a 4-point likert scale. The full scale was found to have good internal consistency: $\alpha = .76$.

Vignettes. To assess parents' responses and discipline choices, several studies asked parents open-ended questions about their hypothetical response to the child behaviour in the vignettes that measured their attributions. Three of the studies that used this method then sorted the parent's responses into eight or ten categories (Hoffman, 1970) that covered techniques such as induction (simple requests/ statements, reasoning/explanation), permissiveness, love withdrawal, and power assertion (verbal and physical force). Categorizations were rated by two independently trained raters blind to each of the three studies; one reported 97.8% interrater agreement, the other two both reported kappa coefficients above .60 (considered adequate for the analyses of open-ended data; Fleiss, et al., 1981). The Plotkin Child Vignettes (PCV) also provided a measure for assessing how likely a parent would be to punish the child presented in their vignettes; this measure showed good internal consistency ($\alpha = .82$; Rodriguez & Tucker, 2015). Sturge-Apple et al., (2014) used vignettes from the Parenting Dimensions Inventory (PDI; Power, 1991) to measure the likelihood that parents would use corporal punishment (internal consistency for this scale was high: $\alpha = .92$).

Questionnaires. Almost half of all studies used a self-report questionnaire to assess parents' responses to child behaviour. The most popularly used questionnaires were The Parenting Scale (PS; Arnold et al., 1993) and the Conflict Tactics Scale (CTS; Straus, 1979). The PS is a 30-item instrument that asks parents to respond on a likert scale to indicate whether they had used various strategies with their own child within the past two months. The PS categorises responses into what they consider to be 'discipline mistakes' (e.g. when my child misbehaves, I raise my voice or yell") and effective discipline strategies (e.g. when my child misbehaves, I speak to my child calmly". The PS includes three factors – laxness, verbosity, and over-reactivity. We only report on the over-reactivity subscale, since this was of interest to the present review. This subscale measures harsh or coercive discipline use and

showed good internal consistency ($\alpha = .82$) and adequate test-retest reliability ($\alpha = .82$; Leung & Slep, 2006). The CTS contains minor (e.g. threw something at the other, slapped or spanked the other one) and major (e.g. kicked, bit or hit with a fist, threatened at knife or gun point) physical aggression subscales that were used by several studies to evaluate parent-child aggression and can be filled in by both parent and child. Cronbach's alpha for CTS subscales were good ($\alpha = .74-.87$).

Several other studies reported using the 'Conflict Tactics Scale Parent-Child' (CTSPC; Straus et al., 1998), a revised version of its predecessor specifically designed with child maltreatment in mind. Beckerman et al., (2017 & 2018) combined the over-reactivity scale from the PS and the minor physical assault and psychological aggression subscales from the CTSPC to create one score for harsh and abusive discipline use (as none of the parents reported using severe physical assault, the authors removed this scale). These subscales appeared to be significantly correlated in both studies (ranging from $r = 0.39-0.57$) and demonstrated good internal consistencies ($\alpha = 0.74$ and 0.80 respectively).

Other questionnaires used were the shame and verbal discipline subscales from the Discipline Questionnaire (DQ; Lansford et al., 2010) and the power assertion subscale from the Parent-Child relationship Questionnaire (PCRQ; Furman & Giberson, 1995). Both scales ask the parent to rate how frequently they use physical punishment or verbal aggression strategies, on a likert scale. In Crandall et al., (2018)'s study, the DQ subscales demonstrated adequate reliability ($\alpha = .77$).

Observational methods. Four of the included studies used observational measures of parent-child interactions to assess discipline use. Dadds et al., (2003) videotaped parents playing with their children (five minutes with instructions, five minutes free play) and then coded the videos afterwards using a modified version of the Family Observation Schedule

(FOS: Sanders et al., 1989). Correlations between observers' ratings demonstrated excellent inter-rater reliability ($r = .94$).

After Butcher & Niec (2017) videotaped their primed child-referent and environment-referent groups of parents interacting with their children, trained raters scored their use of overly reactive and lax/permissive parenting using a 7-point likert scale (Slep and O'Leary, 1998; interrater reliability $r = .92$).

Beckerman et al., (2018) and Sturge-Apple et al., (2014) instructed their parents to carry out specific tasks (e.g. the 'don't touch task'; Joosen et al., 2012 or a 'clean-up' interaction). They scored their interactions for use of harsh and coercive discipline using scales from the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001) and adapted versions of the discipline rating scales (Joosen et al., 2012) and the Erickson scale for parental supportive presence (Egeland et al., 1990). Inter-reliability between raters in both studies were adequate ($r = .70-.74$).

Measures of physical abuse risk

To measure participant's risk of perpetrating child physical abuse, nine studies used the Child Abuse Potential Inventory (CAPI; Milner, 1986), which is often used to distinguish those parents at risk from those not at risk in the community. The CAPI is a widely used measure consisting of 160 statements to which the respondent indicates agree/disagree. The CAPI assesses physical abuse risk by tapping into constructs such as rigidity and interpersonal and intrapersonal qualities that have been identified in physically abusive parents; higher scores indicate greater potential for physical abuse. The CAPI has strong internal consistency for abusive and non-abusive populations (Milner, 1986). Four of the included studies investigated the association between child-responsible attributions and harsh discipline use in populations of parents who already had a history of physical child abuse and had been, for example, prosecuted by the Crown Prosecution Service (CPS).

Rodriguez and colleagues (in their 2012, 2015 and 2018 papers) also used the Adult Adolescent Parenting Inventory- 2 (AAPI; Bavolek & Keene, 2001) to measure child abuse risk. The AAPI-2 contains 40 items presented on a 5-point likert scale and taps into beliefs and behaviours regarding child rearing that characterises abusive parenting. The AAPI-2 demonstrated good internal consistency ($\alpha = .80-.84$).

Uniquely, Rodriguez et al., (2018) used an analog test to assess physical child abuse risk. The Response Analog to Child Compliance Task (ReACCT; Rodriguez, 2016) presents 12 scenes depicting parents providing an instruction to their child and the child is reported to either comply or not comply with the request. After reading the child's response to the request, the parent is provided with 16 options of responding to the child (some responses receive positive weights e.g. praise and others receive negative weights e.g. physical or psychological aggression). The parent is told that they will receive a game bonus point for the quickest child compliance and are shown a ticking clock to create a sense of urgency; higher scores indicated harsher responses. Using previous samples, ReACCT scores have been moderately related to other measures of child abuse potential (e.g. $r = .42-.49$ with the AAPI-2) and more abusive physical discipline approaches (e.g. $r = .38-.45$; Rodriguez, 2016).

Study outcomes

Details on study outcomes can be found in Table 3. All but two of the twenty-five included studies found a significant and positive relationship between hostile and child-responsible attributions and the use of harsh, coercive discipline and physical punishment.

Bivariate associations for child-responsible attributions and harsh discipline use

Out of the seventeen studies that reported their bivariate correlations between the main outcome measures (for attributions and use of discipline), sixteen found significantly positive associations between child-responsible attributions and either harsh discipline use or

abuse risk; one found only negative associations. The eye-tracking analog task that was used by Rodriguez et al., (2012) to measure attributions also found a negative association between hostile attributions and intent to punish the child ($r = -.50$), despite finding a moderately positive association with their self-report measure of attributions (vignette) and intent to punish ($r = .75$). Thus, majority of the studies in this review, found evidence to suggest that there is an association between child-responsible attributions, harsh discipline, and physically abusive methods.

Five of the seventeen studies that found positive associations found a moderate to strong positive correlation (ranging from $r = .59$ to $.80$), whilst the remaining eleven found only a weak association (ranging from $r = .10$ to $.46$). The strongest correlations were found in studies that used mostly vignettes and self-report Likert scales to measure attribution and harsh discipline use/abuse risk; Graham et al., 2001, however, found a strong association using videotaped interactions of unknown families and was one of the second highest scoring studies on quality assessment (76.1%). The study that reported the strongest correlation ($r = .80$) used ambiguous images of children paired with brief behavioural descriptions to elicit attributions, child-related anger and the likelihood that they would use harsh verbal and physical discipline (Milner et al., 2018). Like many of the other studies, however, child-responsible attributions and harsh discipline use were assessed in response to the same measure and at the same time which risks inflating the association found. The studies that reported weaker, positive correlations also relied heavily on self-report measures, using vignettes to tap into the outcome variables. Studies that use self-report measures or vignettes suffer from shared method variance so correlations may be inflated for studies where parents report both on their attributions and their response to their children.

Six studies using regression models found that child-responsible attributions significantly and statistically predicted the use of harsh discipline use and physical abuse risk.

Milner et al. (2018) found that attributions of hostile intent significantly predicted harsh verbal discipline but found an inverse relationship with harsh physical discipline (that is the more hostile attributions made, the less physical discipline was used). Although child-responsible attributions added to the model explaining physical abuse risk in the Graham et al. (2001) study, parental anger came out as the strongest predictor. These results also lend support to the theory that child-responsible attributions contribute towards the likelihood of a parent using harsh discipline, although this does not establish causation.

Predictors of child-responsible attributions and harsh discipline use

Six of the studies that reported significant, positive correlations, also attempted to measure attributions as a mediator between psychological and environmental factors and harsh discipline use. The relationship between factors such as parenting and partner-related stress, abuse risk, authoritarian beliefs, parental depression, anger, socioeconomic status and ethnicity with harsh discipline use were found to be fully and partially mediated by negative and hostile attributions. A significant relationship between emotion control and harsh verbal parenting was not mediated by hostile attributions. However, all six studies used cross-sectional designs rather than longitudinal studies to test mediation. As cross-sectional studies measure all outcome variables at the same time-point, the researcher's ability to make inferences about whether the variables predict or influence one another over time are limited. Sturge-apple et al., (2014) found that parents' lower working memory capacity acted as a moderator in the association between child-responsible attributions and harsh discipline use and that this was particularly pronounced under conditions of socioeconomic risk.

High risk vs low risk parents

Seven studies (six of which are not mentioned above as they did not share bivariate correlations) compared an abusive or 'high risk' group of parents with 'low risk' parents in the community to assess whether there were group differences in child-responsible

attributions and harsh discipline practice. All seven studies found that abusive or high-risk parents made more hostile/ internal and child-responsible attributions than the comparison group. Six out of those seven also found that high-risk parents used more power-assertive methods of discipline and endorsed higher levels of punishment use.

Klevens et al., (2000) used a combination of qualitative and quantitative techniques to compare men prosecuted for physical abuse in Bogotá, Columbia with a neighbourhood comparison group. They found that child-responsible attributions were associated with physical abuse within the qualitative description of the men's stories. Although this study merits mention, there are numerous flaws in its methodology including the lack of an explicit theoretical framework, small sample size and limited method of analysis. Yet, this study tells us that the association between child-responsible attributions and harsh discipline use may reflect a similar pattern in fathers as it does with mothers and that this may also be present across ethnically diverse groups.

Table 3.*Study measures and outcomes*

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Ateah & Durrant, 2004	N/A	Self-report: mothers attributions gained in response to two child transgressions that occurred during the past two weeks.	Self-report: mothers asked to describe use of physical and non-physical disciplinary methods used in response to child transgressions.	Perception of child's intent predicted use of physical punishment (OR = 2.86, CI95: 1.22-6.70, $R^2 = 0.13$, $p < .01$).
Azar et al., 2016	N/A	Self-report: Plotkin vignettes (Plotkin, 1984).	Number of prior incidents of physical abuse taken from Crown Prosecution Service (CPS) records and severity of Physical Abuse (PA) rated using adapted severity scale (Herrenkohl, Herrenkohl & Egolf, 1983).	Hostile attributions positively and weakly associated with PA frequency at a trend level; $r = .243$, $p < .10$ and severity; $r = .275$, $p < .05$. Regression revealed hostile attributions related to PA frequency at trend level (B = .014, SE = .007, $\beta = .295$) and emerged as significant individual predictor of severity (B = .043, SE = .019, $\beta = .342$).
Beckerman et al., 2017	N/A	Laboratory measure: Mothers completed computerised task (Parental Attributions of Child Behaviour Task; PACT).	Self-report: The Parenting Scale (PS; Arnold et al., 1993) - over reactivity scale only and the Conflict Tactics Parent Child Scale (CTPCS; Straus et al., 1998) - minor physical assault and psychological aggression scales.	Negative attributions positively and weakly associated with harsh discipline use; $r = .34$, $p < .05$. Attributions fully mediated path from parenting stress to harsh discipline use; B = 0.36, S.E. = 0.19, 95% BC CI = 0.08, 0.79.

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Beckerman et al., 2018	N/A	Laboratory measure: PACT (mothers and fathers)	Self-report: The PS (Arnold et al., 1993) and the CTS (Straus et al., 1998) Observational: Parent's use of discipline in Don't Touch Task coded using three scales (harsh physical discipline, verbal overreactive discipline and supportive presence)	Negative attributions positively and weakly associated with harsh discipline use; $r = 0.38, p < .01$ in mothers and fathers, $r = .25, p < .01$. Negative attributions partially mediated relationship between parenting stress and discipline (B = 0.40, S.E. = 0.19, 95% BC CI = 0.13, 0.89, $p < .01$) and partner-related stress and discipline (B = 0.63, S.E. = 0.26 95% BC CI = 0.20, 1.29, $p < .34$, and fully mediated abuse risk and discipline in mothers (B = 0.63, S.E. = 0.26, 95% BC CI = 0.20, 1.29). Attributions partially mediated parenting stress and discipline in fathers (B = 0.27, S.E. = 0.17, 95% BC CI = 0.04, 0.72).
Butcher & Niec, 2017	Child-referent and environment-referent	Self-report: PLOC (questionnaire; Campis et al., 1986) and INTX (vignettes; Sobol, Ashbourne, Earn & Cunningham, 1989). Parent attribution coding system (PACS; Slep, 1997)	Observational measure: Parent's overly reactive parenting during parent-child interaction measured using 7-point scale (Slep & O'Leary, 1998).	Mother's in child-referent condition displayed greater amounts of overly reactive parenting during parent-child interaction (Cohen's $d = 1.26$) compared to those in environment-referent condition.

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Cooper et al., 2018	N/A	Self-report: Parent's Attributions of Child's Behaviour Measure (PACBM; vignettes).	Self-report: The PS (Arnold et al., 1993; laxness, over reactivity and hostility scales)	Internal attributions positively and weakly associated with over reactivity ($r = 0.105, p < .05$) and hostility ($r = 0.066$). Blaming/intentional attributions positively and weakly associated with over reactivity ($r = 0.181, p < .01$) and hostility ($0.207, p < .001$).
Crandall et al., 2018	N/A	Self-report : The Parenting Possibilities Questionnaire (vignettes; Nix et al., 1999)	Self-report: shame and verbal discipline scales adapted from the Discipline Questionnaire (Lansford et al., 2010).	Hostile attributions positively and weakly associated with harsh verbal parenting ($r = .15, p < .05$). Attributions did not mediate relationship between emotion control and harsh verbal parenting ($\beta = 0.06, SE = .13, p = .664$).
Crouch et al., 2017	N/A	Self-report: vignettes (Irwin, 2012)	Self-report: vignettes (Irwin, 2012)	Significant direct effect of attributions on harsh parenting ($\beta = 0.33, SE = 0.08, CI95: 0.16-0.50, p = 0.002$) and indirect effect of authoritarian beliefs on harsh parenting via attributions and negative affect ($\beta = 0.29, SE = 0.04, CI95: 0.21-0.38, p = .001$)

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Dadds et al., 2003	Abuse-risk and non-clinic	Self-report: responses to open-ended questions following videotapes with own child and unknown mother-child pair.	Self-report/observational: Mothers asked for disciplinary response to own and unknown child behaviour. Videotaped interactions also rated using the Family Observation Schedule (FOS; Sanders, Dadds, & Bor, 1989).	Abuse-risk mothers made more child-responsible attributions ($F(1,52) = 10.46$, $p < .05$) for unknown child and reported significantly higher levels of aversive discipline ($F(1,52) = 80.19$, $p < .001$) with unknown child and own child ($F(1,56) = 4.85$, $p < .05$).
De Paul et al., 2006	High risk and low risk	Self-report: vignettes (Chilamkurti & Milner, 1993)	Self-report: Physical abuse risk: Child Abuse Potential Inventory (CAPI; Milner, 1986). Discipline choice: vignettes (Chilamkurti & Milner, 1993)	High-risk mothers made more hostile ($F(1, 87) = 8.93$, $p = .004$) and internal ($F(1,87) = 10.34$, $p = .002$) attributions and used more power-assertive methods of discipline ($F(1, 91) = 6.57$, $p < .01$).
Dopke & Milner, 2000	High risk and low risk	Self-report: vignettes (Chilamkurti & Milner, 1993)	Self-report: vignettes (Chilamkurti & Milner, 1993) Physical abuse risk: CAPI (Milner, 1986)	High-risk mothers made more hostile ($F(1,48) = 9.92$, $p = .003$) and internal ($F(1, 48) = 3.58$, $p = .065$) attributions. No significant group differences found for use of verbal or physical power assertion methods.

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Graham et al., 2001	Abusive, at-risk, non-abusive	Self-report: Responses to videotapes of unknown parent-child interactions.	Self-report: endorsement of punishment in response to videotapes of unknown parent-child interactions.	Perceived child-responsibility positively and moderately correlated with endorsement of punishment ($r = .64, p < .05$). Abusive mothers inferred more child responsibility ($F(2, 72) = 3.63, p = .05$) and endorsed more punishment ($F(2, 72) = 2.35, p = .10$). Anger was the strongest predictor of punishment in the regression and mediated the relationship between responsibility and punishment ($\beta = .26, p < .001$).
Klevens et al., 2000	Abusive male 'cases' and non-abusive male 'controls'	Self-report: unstructured interview questions	Self-report: unstructured interview questions	Cases perceived children's negative behaviours as intentional more often than controls and used physical abuse more often (e.g. 62.2% of male cases vs 27.3% of controls, $p < .001$).
Leung & Slep, 2006	N/A	Self-report: The Parenting Cognition Scale (PCS; Snarr, Slep & Grande, 2009).	Self-report: the PS (Arnold et al., 1993; Laxness and over reactivity scales only).	Child-responsible attributions positively and weakly correlated with over reactive parenting in mothers ($r = .41, p < .001$) and fathers ($r = .35, p < .01$) and partially mediated depressive symptoms and over reactivity for mothers ($\beta = .21, p < .01$) and fathers ($\beta = .24, p < .01$).

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Mammen et al., 2003	N/A	Self-report: Parent Practices Questionnaire (vignettes; Nix et al., 1999)	Self-report: the CTS (Straus, 1990) physical aggression subscales) and the PS (over reactivity scale).	Parent's hostile attributions not significantly correlated with either of the physical aggression subscales (minor or severe violence) but was negatively and moderately correlated at T2 with over reactivity ($r = -.46, p < .01$).
Milner et al., 2018	N/A	Self-report: Understanding Children's Behaviour (UCB) scale consisting of 18 picture-behaviour pairs.	Self-report: UCB picture-behaviour pairs.	Hostile attributions positively and strongly correlated with harsh verbal discipline ($r = 0.80, p < .05$) and moderately with harsh physical discipline ($r = 0.63, p < .05$).
Montes et al., 2001	High risk and low risk	Self-report: vignettes (developed for this study)	Self-report: vignettes (developed for this study) Risk: CAPI (Milner, 1986).	Significant main effect of risk status for attributions ($F(23, 14) = 5.22, p < .001$) and discipline use ($F(4,33) = 4.40, p < .006$).
Park et al., 2018	N/A	Self-report: Attribution Rating Scale (ARS; vignettes developed for this study).	Self-report: 10-item Power Assertion subscale of the brief version of the Parent-Child Relationship Questionnaire (PCRQ; Furman & Giberson, 1995).	Child-responsible attributions positively and weakly correlated with harsh parenting in mothers ($r = .27, p < .01$) and fathers ($r = .24, p < .01$). Harsh parenting significantly mediated relationship between attributions and child problems for mothers ($\beta = 0.09, p = .02$) and fathers ($\beta = 0.22, p = .01$).

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Pinderhughes et al., 2000	N/A	Self-report: vignettes (developed for this study)	Self-report: The CTS (Straus, 1990) and vignettes (developed for this study)	Hostile attributions positively and weakly associated with all three discipline measures ($r = .15, .17$ and $.12, p < .01$). Intense cognitive-emotional processes (including hostile attributions) predicted harsher parental discipline and the effect of SES and ethnicity on discipline responses were mediated by these processes.
Rodriguez, et al., 2012	N/A	Laboratory measure: Eye tracking apparatus/ analog measure (developed for this study) Self-report: Plotkin vignettes.	Self-report: Plotkin vignettes (Plotkin, 1983) Risk: CAPI (Milner, 1986).	Eye-tracking analog scores for attribution negatively and moderately correlated with intent to punish ($r = -.50, p \leq .01$) but not significantly related to child abuse potential ($r = .00$). Self-report attributions correlated positively and moderately with abuse risk ($r = .59, p \leq .001$) and intent to punish ($r = .75, p \leq .001$).
Rodriguez & Tucker, 2015	N/A	Self-report: Plotkin vignettes (Plotkin, 1983).	Self-report: Plotkin vignettes (Plotkin, 1983) Risk: CAPI (Milner, 1986).	Intent to annoy attributions positively and weakly correlated with abuse risk ($r = .42, p < .001$). Greater negative child attributions accounted for significant additional variance in greater abuse risk ($\beta = .25, t = 3.93, p \leq .01$)

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Rodriguez et al., 2018	High risk and low risk	Self-report: Plotkin vignettes (Plotkin,1983)	Self-report: CAPI (Milner, 1986) Adult Adolescent Parenting Inventory 2 (AAPI-2; Bavolek & Keene, 2001). Laboratory measure: Response Analog Child Compliance Task (ReACCT; Rodriguez, 2016)	For mother's ($\beta = .403$ [.79, .512], $p = .000$) and fathers ($\beta = .498$ [.322, .704], $p = .000$) parent-child aggression was significantly predicted by increases in negative child behaviour attributions (regardless of risk status).
Rodriguez & Wittig, 2019	N/A	Self-report: Plotkin vignettes (Plotkin, 1983)	Self-report: The CTS (Straus, 1993)	Time 2 negative attributions positively and weakly associated with parent child aggression use in mothers at Time 3 ($r = .21$, $p < .01$). Time 2 negative attributions significantly predicted time 3 parent child aggression use in mothers ($\beta = .23$, $p = .015$) but not in fathers ($\beta = .02$, $p = .805$)
Strassberg & Treboux, 2000	N/A	Self-report: vignettes (developed for this study)	Self-report measure: The CTS (Straus, 1993)	Attributions of defiance positively and moderately correlated with coercive parenting ($r = .57$, $p < .01$). Attributions of defiance predicted maternal coercion beyond mother-rated and day care worker-rated levels of child difficulty adding 11% ($\beta = .38$, $p < .01$) and 22% ($\beta = .49$, $p < .01$) to the hierarchical regression models, respectively.

Author, year	Groups	Measure of attributions	Measure of harsh discipline/ use abuse risk	Outcome
Sturge-Apple et al., 2014	N/A	Self-report: The PCS (Snarr, Slep & Grande, 2009)	Self-report: Parenting Dimensions Inventory (PDI; Power, 1991). Observational: maternal caregiving behaviours coded following 'clean-up task' coded using harsh and coercive discipline scales.	Correlations between child-responsible attributions and observational measures of harsh and coercive discipline scales were nonsignificant. Child-responsible attributions and self-report measure of harsh discipline weakly and positively correlated ($r = .20$, $p < .01$). Working memory capacity significantly moderated relationship between child-responsible attributions and harsh discipline.

Discussion

This review examined the association between child-responsible attributions and harsh discipline use or physical abuse risk across twenty-five studies. Child-responsible attributions were positively correlated with harsh discipline use in almost all studies and were shown to explain levels of harsh discipline use and physical abuse risk in community samples. Parents who had physically abused their children, or were at higher risk of doing so, used more child-responsible attributions than low-risk samples; they also used harsher and more power-assertive methods of discipline with their children than non-abusive parents. Thus, based on the present review of the last 20 years of research, child-responsible attributions may be a risk factor for harsh discipline and may even lead to abuse. Yet, since the studies reviewed were mainly correlational, the direction of causation remains unknown.

The findings from this review suggest that child-responsible and hostile attributions are linked with harsh discipline use. Furthermore, the findings from our review suggesting that child-responsible attributions are linked with physical abuse risk is in line with a previous review by Black et al., (2001). Greater child-responsible attributions also distinguished high-risk from low-risk parents or the presence (or not) of previous prosecutions for child abuse. Parents who explain their children's negative behaviours as being related to internal causes within the child, without taking environmental factors into account, use more power-assertive methods of discipline. They may resort to methods such as yelling and spanking, and they are more likely to endorse the use of punishment in response to vignettes depicting parent-child scenarios.

These findings lend support to social information processing theories on child physical abuse (Milner, 1993, 2003). The Social Information Processing (SIP) model (Milner, 1993, 2003) argues that several parental cognitive activities mediate the use of verbal or physical aggression against children, one of these being the attribution of internal/ hostile and

blaming causes to the child for their negative behaviours. The SIP model also argues that parents at risk for child abuse differ in their judgments concerning child behaviours from those without risk and may associate children's 'naughty' or 'clumsy' behaviours more often with internal and stable characteristics and hostile intentions. It is argued that these attributions lead to parents using methods of discipline that are harsh and punitive in the hope that this changes the child's behaviour (Milner, 1993, 2003; Azar et al., 1984; Azar & Rohrbeck, 1986, Stern & Azar, 1998). The results of this review would appear to confirm that child-responsible attributions are indeed related to the use of harsh discipline and that those parents at risk of physically abusing their children make more hostile attributions than those without such risk.

Although most studies found a positive association between the outcome measures, a majority of these effect sizes were weak. This suggests there are other factors that warrant investigation. Child-responsible attributions were examined as a mediator between other risk factors and harsh discipline use in a handful of cross-sectional studies. Parents who were depressed, had more parenting stress, lived under conditions of socio-economic risk and held authoritarian beliefs were found to use more child-responsible attributions and harsher discipline use. These findings support previous research that has examined the influence of wider contextual factors on parenting (Conger et al., 2010; Margolin & Gordis, 2000; Martinez & Richters, 1993, Koenig, et al., 2010; Jaffee et al., Pereira et al., 2015). Parental anger towards the child was found to be a stronger predictor of harsh discipline than child-responsible attributions in one study (Graham et al., (2000). Also, low working memory capacity appeared to be a risk factor for increased hostile attributions and harsh discipline use, possibly explaining the link between these two constructs (Sturge-Apple et al., (2014). Clearly, there are additional factors that warrant consideration when examining parent's use of child-responsible attributions.

Strengths and Limitations

Most studies included in the present review used self-report methods such as questionnaires and vignettes to assess parent attributions and harsh discipline use/physical abuse risk. Using the same method to collect data for more than one variable at the same timepoint and with the same person can result in shared-method bias. This means that variance could be attributable to the shared measurement method (e.g., self-report) rather than the constructs the measures represent (Brannick et al., 2010). Thus, generalisability of many of these results is limited. Parent-report methods are a common form of measurement throughout studies given that observational methods are often time-consuming and expensive to use on large samples.

The studies that used alternative methods to self-reports produced mixed results. Computerised tasks (Beckerman et al., 2017 and 2018), eye-tracking analog measures (Rodriguez et al., (2012) and observational methods (Beckerman et al., 2018; Sturge-apple et al., 2014) that were used to measure child-responsible attributions and harsh discipline produced weakly significant results. When parents were shown videotaped interactions of unknown parents and their children (Graham et al., 2000; Dadds et al., 2003) this resulted in a stronger association between child-responsible attributions and endorsement of punishment/harsh discipline choices and distinguished between high-risk and low-risk parents. One explanation for this is that parents may find it less difficult to endorse punishment when looking at unknown parent-child pairs rather than reveal that they may have harmed their own children. In studies where vignettes have been used, parents have been asked to imagine the child is their own, before indicating how they would respond to various child behaviours. Whether or not researchers are capturing accurate accounts of child abuse from parents and carers has long been the subject of ongoing discussion (Guttman et al., 2019). Asking parents to respond to unknown parent-child scenarios may be one way of more accurately capturing

data on harsh discipline practice, but more research using these methods is needed to draw further conclusions.

Twenty-three out of the twenty-five studies were cross-sectional, meaning that all outcome variables were measured at the same timepoint. Cross-sectional studies prevent researchers from determining whether certain variables predict or influence others over time. Longitudinal studies can provide the researcher with a more representative picture of the target population over time and suggest causal factors; however, they are often more costly and time-consuming for researchers to carry out (Schmidt & Teti, 2005).

Most studies (particularly those carried out in the USA) drew their participants from several different ethnic samples including smaller ethnic groups such as native American and Alaskan populations, however samples were predominantly White. Study findings suggest that the influence of child-responsible attributions on discipline practice is shared across ethnic groups. Pinderhughes et al., (2000) found a small effect of ethnicity on discipline for African American parents and further investigation highlighted that African American parents were also reporting more stress. Previous research has noted the double impact of stressors that African Americans experience being a minority group and having low socioeconomic status (McLoyd, 1990). It is highly likely that these stressors predispose African American parents to more intense cognitive-emotional processes which has implications for parenting practices (Pinderhughes et al., 2000). Cooper et al., (2018)'s findings suggest that Hispanic, African American and White parents differed in the types of attributions that predicted harsh discipline use and suggest that different attributional targets may be needed for caregivers from different racial/ethnic groups. Further research in this area is needed to examine which cognitive-emotional processes are most salient for racial and ethnic minority groups.

Less than half of the included studies recruited fathers as well as mothers. One of these studies found that child-responsible attributions were only associated with parent-child aggression in mothers (Rodriguez & Wittig, 2019) and another found that attributions mediated the relationship between a greater number of stressors and harsh discipline use in mothers (Beckerman, 2018) than in fathers. Further research including fathers could provide a clearer picture of the role these mechanisms play.

Despite these limitations, this review, spanning twenty years of research in this area, has demonstrated there is consistent evidence for a relationship between increased use of child-responsible and hostile attributions, harsher discipline use and physical abuse risk. Some researchers have attempted to overcome shared-method bias by using computerised tasks and observational methods using parent's own and unknown children. The results of the current review also demonstrate that the relationship between child-responsible attributions, harsh discipline use and physical abuse risk is evident in a wide range of ethnic groups and in both fathers as well as mothers. Child-responsible and hostile attributions therefore warrant further attention in parenting interventions.

Clinical Implications

Social information processing theory (Milner, 1993, 2003) could be used to inform parenting courses delivered to parents at a preventative level in community services such as children's centres. In addition to parenting advice that is offered with regards to managing difficult child behaviours, parents could be supported to understand how the types of attributions they make about their children's behaviours can influence the way they discipline them. Social information processing theory also asserts that parents who make more child-responsible attributions are less likely to be able to come up with alternative explanations for their child's behaviour and are unlikely to incorporate information about the child's

developmental abilities. Information about developmental expectations and typical child behaviour could be delivered alongside information about attributions and discipline.

The use of threats and ‘inappropriate’ methods of discipline are a known risk factor for child abuse and neglect (National Institute for Health and Care Excellence [NICE] 2017). So, intervening early with parents who already use harsh methods of discipline could prevent more abusive interactions in the future. Such families may be receiving support from statutory health or social care services. Promising research has already shown that addressing child-responsible attributions in parenting interventions for families of children with conduct problems can reduce child behaviour problems (Sawrikar & Dadds, 2018). Clinical studies have demonstrated that these interventions have also shown improvements in parental cognitive and emotional functioning and a decrease in ongoing parent-child difficulties, suggesting a possible indirect pathway to improved child outcomes (Sanders & McFarland, 2001; Sanders et al., 2004).

Following referral to child and adolescent mental health services or non-statutory parenting support agencies, assessments of parents’ attributional styles could be undertaken prior to parenting interventions. Parents’ who make more child-responsible attributions for their child’s negative (or less desirable) behaviours could be offered additional help and support. Information about their child’s developmental stage could be provided and parents could be supported to understand their child’s own perspectives and experiences.

Understanding a broader range of factors that might be influencing a child to behave in a particular way might decrease the tendency for child-responsible attributions and positively influence the parent’s decisions about discipline use. This coupled with sharing alternative methods of managing challenging behaviours within intervention programs could increase the likelihood that parents feel enabled to select alternative less-harsh management approaches. Interventions that aim to improve reflective capability in parents have also been shown to

significantly improve maternal caregiving and the parent-child relationship (Camoirano, 2017).

Recommendations for Future Research

Further research in this area should attempt to measure child-responsible attributions, harsh discipline use and physical abuse risk over time using longitudinal designs in order to establish evidence for causal relationships over time. Studies should also use alternative sampling methods (e.g. random digit dialling) to recruit from a wider section of the population. Increased use of alternatives methods to measure attributions and discipline use (such computerised tasks or observed parent-child interactions) will also help provide a clearer picture on the efficacy of these methods in accurately capturing parenting behaviours.

Further research is needed on the association between child-responsible and hostile attributions and the use of harsh parenting in the context of clinical subgroups of children who are known to have higher levels of aggression e.g. children who show a lack of empathy and prosocial behaviour (referred to in the literature as callous and unemotional traits; Frick & White, 2008). This could prove useful for informing more precise targeting of components of parenting interventions within child and adolescent mental health services.

Conclusion

Child-responsible and hostile attributions can lead to an increase in harsh verbal and physical methods of discipline being used on children. This relationship has been found in fathers as well as mothers and in multiple ethnic groups. Further research that does not solely rely on self-report measures and looks at these associations over time will shed further light on this relationship. Parent's attributional styles warrant further attention in parenting interventions to protect children and reduce risk.

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Chapter Two: Empirical Paper

Do child-responsible attributions play a role in the development of callous and unemotional (CU) behaviours in young children?

Prepared in accordance with guidelines for submission to the Journal of Child Psychology and Psychiatry (Appendix E).

Abstract

Background Parents who think their children's problematic behaviours are intentional, and thus have greater child-responsible attributions, may see those negative behaviours occur more often over time. Similarly, parents who hold child-responsible attributions for positive behaviours may see children's prosocial behaviours increase. The present study investigated the association between child-responsible attributions and callous-unemotional (CU) behaviours in a longitudinal study of children and their parents, since we know that CU behaviours are related to low prosocial behaviour and higher levels of conduct problems. We hypothesised that high levels of child-responsible attributions for negative child behaviours at age 2 would be associated with higher levels of CU behaviours over time, while controlling for other maternal, and parenting measures. **Method** Participants (N=192) were drawn from a stratified intensive subsample of 316 first time pregnant women aged 18 years and above, taking part in the Wirral Child Health and Development Study and had complete follow-up data available on parenting and child outcomes up to age 7. **Results** A Latent Growth Curve Model (LGCM) revealed that higher levels of child-responsible attributions in toddlerhood were significantly associated with higher levels of CU behaviour at age 7 years but these were unrelated to the slope of CU across four time-points (27 months, 3.5 years, 4.75 years and 7 years). **Conclusions** These findings suggest that child-responsible attributions are a worthy target for parenting interventions for children with CU behaviours. Future research would benefit from using alternative assessment measures to self-report methods and examining this association in fathers.

Keywords: child-responsible attributions, callous unemotional behaviours, oppositional child behaviour, conduct problems

Introduction

Callous and unemotional (CU) behaviours are defined as a set of behaviours in young children characterised by a lack of guilt, a reduced response to the distress of others (limited empathy) and a shallow display of emotion (Frick, et al., 2014). Children with CU behaviours typically demonstrate higher levels of conduct problems than children with conduct problems who do not display such behaviours (Waller et al., 2020; Frick et al., 2014; Viding & McCrory, 2012). Whilst twin and adoption research may lend support to the theory that children who show CU behaviours have a genetic predisposition (Viding et al., 2005; Larsson et al., 2008), a significant body of research now demonstrates that the quality of early parenting can change the development of CU behaviours in young children (Waller et al., 2013). One area of parenting that has been implicated in the development of child conduct problems but has had little investigation in the context of CU behaviours, is whether parents perceive their child's behaviours as being intentionally challenging. This is termed child responsible attributions.

Child-Responsible Attributions

A growing body of literature has demonstrated the powerful impact that parental explanations for child behaviour can have on the way that a parent interacts with their child and on the child's mental health and wellbeing (Nix et al., 1999; Leung & Slep, 2006; Rodriguez & Wittig, 2019). These explanations, referred to in the literature as 'parental attributions' (Hastings et al., 2007) are generally positive, allowing parents to continue with the task of parenting as an optimistic and effective caregiver (Goodnow, 1988). These attributions are also typically in line with what other parents or teachers would say about their children's behaviour (Dix, 1993). That is, when attributions are going well, they are a realistic representation of a child's intentionality that others would agree with. This parental optimism may wane, however, when parents perceive their children to be problematic and

their problematic behaviours as blame worthy. This attributional style relieves parents of their sense of responsibility for having to improve the child's behaviour (Gretarsson and Gelfand, 1988). Angry, anxious, or depressed parents with little or no social support have also been shown to make more negative and internal attributions about their children's negative behaviours and less positive attributions about their positive behaviours (Dix et al., 1990). Social information processing theories (Milner 1993, 2003) suggest that child-responsible attributions are a risk factor for child physical abuse. Indeed, parents at risk of using physical punishment and harsher methods of discipline on their children use more hostile and blame-oriented attributions for their children's behaviour (Slep & O' Leary, 1998; Milner et al., 2019). Thus, one can see that negative attributions that blame the child could relate to negative interactions and thus relate to poorer child wellbeing.

Child-responsible attributions have been linked with increased internalising and externalising behaviour problems in children (Park et al., 2018; Rodriguez & Wittig, 2019). In a pivotal longitudinal study by Nix et al., (1999) using a community sample of children aged 4-6 years old, mothers' more hostile and negative attributions for child misbehaviour significantly predicted children's future externalising behaviour over a 4-year period. This relation was mediated by mothers' harsh discipline use. Park et al., (2018) found a similar relationship between child-responsible attributions, harsh discipline use and child behaviour problems in a community sample of children aged 9-12 years old. Thus, child-responsible attributions are associated with negative outcomes across childhood and may lead to the development of such outcomes over time.

Child-responsible attributions also play an important role in the development of positive child behaviours. Evidence suggests that when parents make child-responsible attributions for positive behaviours, they respond with more positive parenting reactions (Johnston & Leung, 2001). A longitudinal study demonstrated that mother's positive attributions for their preschool-

age children's prosocial behaviour (e.g. their child's prosocial behaviour was dispositional, stable, intentional and typical of their child) predicted more prosocial actions by their children in the future (Hastings et al., 2007). Hoffman's (1970, 2000) model of empathic reasoning and prosocial development also emphasizes the importance of parental reasoning and induction, indicating that parents who discuss kind, helpful or sociable acts with their children might promote these patterns of prosocial behaviour.

Thus, prior research shows that if parental child-responsible attributions for child positive behaviours can lead to prosocial behaviour, child-responsible attributions for child negative behaviour may result in reduced prosocial behaviours. Thus, it may also be possible that child-responsible attributions for negative child behaviours are associated with CU behaviours where limited prosocial behaviour is a key indicator (Waller & Hyde, 2018). If such an association were evident, addressing child-responsible attributions in parenting interventions for families of children with callous-unemotional behaviours would be justified.

Parenting Interventions

Over the years, much effort has gone into developing effective parenting interventions to reduce conduct problems in children. Parenting programmes for school-aged children are typically based on behavioural principles as applied in social learning theory (Webster-Stratton & Reid, 2010). These programmes have demonstrated positive reductions in child conduct problems and improvements in parent-child relationships across multiple settings (McGilloway et al., 2012; Webster-Stratton & Reid, 2010; Menting et al., 2013).

However, standard behavioural parent training programmes are less effective for families of children with CU behaviours (Hawes & Dadds, 2005; Pasalich et al., 2011). Many have postulated that this is because children with high levels of CU behaviours display an insensitivity to punishment and experience low levels of arousal/fear in response to discipline. These children are therefore typically less responsive to the use of consequences

such as the ‘time-out’ component of most parenting programmes (Frick & Morris, 2004; Hawes & Dadds, 2005). There is promising evidence, however, that suggests that CU behaviours can be amenable to psychosocial interventions (Hawes et al., 2014). Longitudinal research has long provided evidence that low levels of parental warmth (Hawes et al., 2011; Waller et al., 2014; Waller et al., 2013) predicts increases in CU behaviours over time. Research has also shown that harsh parenting appears to be implicated in increased CU behaviours in children (Waller et al., 2012; Pardini et al., 2007); however, low levels of parental warmth appears to be a much stronger and more salient factor (Pasalich et al., 2011 and 2014). Indeed, family-based interventions that have focused on increasing parental involvement, warmth and parent-child communication have demonstrated effectiveness in reducing CU behaviours (Pasalich et al., 2016; White et al., 2013).

Despite decades of research evidencing the link between child-responsible attributions, harsh parenting, and child conduct problems, many of the evidence-based parent training programmes have yet to incorporate components that explicitly focus on changing parental attributions (Sawrikar & Dadds, 2018). Prior research that has studied the unique effects of addressing parental attributions in behavioural parenting programmes have produced encouraging but modest results (Griest et al., 1982; Katzmann et al., 2017; Sanders and McFarland 2001; Sanders et al. 2004). This has led some to question whether addressing parent attributions is perhaps only useful for some parents. One such group of parents that have had very little research in the context of parental attributions, are parents of children with CU behaviours (Sawrikar & Dadds, 2018).

To date, little is known about whether child-responsible attributions are associated with CU behaviours in children. In 2015, a cross-sectional study examined whether parents’ hostile attributions predicted CU behaviours in a sample of toddlers referred to a parenting service for conduct problems; this was reported in a master’s thesis (Longman, 2015). Hostile

attributions did not significantly predict CU behaviours. However, the hostile attributions made concerning CU behaviours were significantly associated with harsher parenting in response to these behaviours. Thus, attributions may play an important role in shaping parenting responses directed towards children with CU behaviours. However, it is important to note that the cross-sectional design of this study captured only a snapshot of these associations at one time-point which prevents us from being able to determine any cause and effect relationships. Secondly, the measure used to assess parental attributions was not validated by psychometric or normative data.

In sum, child-responsible attributions for children's positive behaviours can result in increased prosocial behaviours. Further, negative child-responsible attributions for negative child behaviours are associated with conduct problems. Considering this evidence, an investigation into the prospective association between child-responsible attributions and CU behaviours is warranted. In addition, we need to know how these attributions relate to CU behaviours over time while also accounting for other aspects of the quality of the parent-child interaction already known to be important for children with CU behaviours.

Aims and Hypotheses of the Present Study

The present study used a longitudinal design to test if child-responsible attributions for undesirable behaviours are associated with the development of CU behaviours in young children. These findings will inform future research on the utility of addressing parent attributional styles in interventions for reducing CU behaviours in children.

We hypothesised that higher levels of child-responsible attributions for undesirable behaviours in toddlerhood would be significantly associated with higher levels of CU behaviour at age 7 years and the growth of CU behaviour over time, from 27 months to 7 years. Parent factors that have been found to influence either the development of CU behaviours and/or parenting styles were controlled for in the analysis. A measure of psychosocial risk based on

inter-partner psychological abuse was included because of the wealth of research proving a link between such factors and adverse outcomes on child development (e.g. Felitti et al., 1998; Dong et al., 2004). Previous research has demonstrated that boys are more likely to be identified as having conduct problems and higher levels of CU behaviour (Miller et al., 1997; Essau et al., 2006). Older mothers are more likely to demonstrate supportive parenting and report fewer behavioural problems in their children (Wakschlag et al., 2000). Child gender and maternal age were therefore included in the analysis. As increased maternal positive affect has regularly been shown to have an association with decreased levels of CU behaviour (Waller et al., 2013) this too was included as a covariate. Psychopathy has previously been linked to a hostile attributional style in adult male offenders (Vitale et al., 2005; Serin & Kuriychuk, 1994). There has also been some suggestion of a heritable pathway between features of psychopathy in parents and CU behaviours in children (Viding et al., 2005). A measure of maternal psychopathy was therefore also included. Finally, as a last step, the contribution of pre-existing child oppositional behaviours, established at the time when child-responsible attributions were first assessed, were examined to determine their contribution to the model. Child-responsible attributions for undesirable child behaviour has also been associated with increased conduct problems in children (Snyder, et al., 2005; Wilson et al., 2006).

We examined these hypotheses in a subsample of first-time mothers, stratified by psychosocial risk, who were taking part in a longitudinal study, called the Wirral Child Health and Development Study. A validated measure of child responsible attributions was used in toddlerhood alongside indices of CU behaviours at age 27 months, 3.5 years, 5 years, and age 7 years. Observational measures of maternal positive affect and dyadic reciprocity (i.e. eye contact and shared positive affect) with the child were generated from a 15 minute play-based interaction at age 3.5 years and used as a measure of maternal warmth and positivity (Deater-Deckard et al., 2016). We used a latent growth curve analysis to examine prediction to CU behaviours at age 7

and to examine how CU behaviours change over time based on these early parent and child factors.

Method

Participants

Participants were members of the Wirral Child Health and Development Study (WCHADS). First time pregnant women ($n = 2158$) aged 18 years and above were recruited into the study at their 20-week scan appointment in the antenatal clinic at Arrow Park Hospital, Wirral, Merseyside, between March 2007 and December 2008 (see appendices E-H for ethical approval). Just under 70% of the eligible families agreed to take part in the study and their progress has been followed over time. The study used a two stage stratified design in which a consecutive general population sample (the 'extensive' sample) was used to generate a smaller 'intensive' sample stratified by psychosocial risk with more detailed measurement over time and both were followed in tandem. This study focuses on data from the intensive sample ($n = 316$). The sampling stratifier used to select participants who were asked to take part in the Intensive subsample was an index of psychosocial risk derived from a measure of intimate partner psychological abuse (Moffitt et al., 1997) assessed at recruitment. All those scoring higher than an a priori threshold for psychological abuse reported by mothers were asked to take part in the Intensive study together with a random sample of mothers scoring below threshold. The Intensive sample comprised 51% high risk and 49% low risk participants. This study focuses on 192 of those 316 that completed measures relevant for this study at five different timepoints from 20 weeks gestational period to 7 years.

The mean maternal age in the intensive sample ($n = 316$) was 27.48 ($SD = 6.157$) and 95.9% were White (2.2% other, 0.6% Black, 0.6% Chinese, 0.3% Greek, 0.3% Pakistani). Over a third of mothers (38.9%) in the intensive sample were living in conditions equivalent to the lowest quintile of the UK at recruitment whilst 8.9% were living in the most affluent.

The mean age at which the mothers in the intensive sample finished full-time education was 19.04 (SD = 2.986) and 50.6% of the infants in the sample are male.

Measures

Data was collected from both mother and child at distinct points in time called ‘phases’ when the child was a particular age. Some measures were repeated at each phase. This study focuses on some of the data collected at phases 1, 3, 9, 10, 11 and 13.

Phase 1: Demographic variables and sample stratifier at 20 weeks gestational period

Maternal age and information for the sample stratifier were recorded at recruitment at 20 weeks gestational.

The sample stratifier was an index of inter-partner psychological abuse based on mother’s scores on the Dunedin Relationship Scale (Moffitt et al., 1997). At recruitment, mothers rated whether specific psychologically abusive behaviours were absent or present in the last year towards their partner or from their partner. In previous research, this measure has yielded high reliability when individuals report their own behaviour (Cronbach’s Alpha = .76) and their partners (Cronbach’s Alpha = .82; Moffitt et al., 1997). The stratification procedure at 20 weeks gestation recorded the threshold mothers reached either for high (score of >2) or low (score of <2) risk. The stratifying variable was then entered into the analysis to control for the WCHADS sampling strategy (0= low risk, 1 = high risk). Inter-partner psychological abuse reported by the women was chosen as the sample stratifying variable for its known association with a variety of risk factors for early childhood development (Moffitt et al., 1997).

Phase 3: Birth

Child gender was recorded at birth.

Phase 9: Maternal reports at child age 27 months

The Parent Cognition Scale (PCS; Snarr et al., 2009; see appendix M) is a 30-item self-report measure designed to assess the degree to which parents endorse dysfunctional child-

responsible and parent-causal attributions for child misbehavior. The scale has demonstrated adequate internal consistency ($\alpha = .81-.90$), test-retest reliability ($r = .55-.76$), and convergent and discriminant validity (Snarr et al., 2009).

The Pre-school Child Behavior Checklist (Pre-CBCL; Achenbach & Rescorla, 2000) is a caregiver report form used to identify problem behaviours in children aged one and a half to five years old. Test-retest reliability ($r = 0.85$) and inter-parent agreement ($r = 0.61$) is strong across all scales on the pre-CBCL. The pre-CBCL has also demonstrated good discriminant and construct validity (Achenbach & Rescorla, 2000). The pre-CBCL can be split into three broad outcome scales: internalizing, externalizing and total problem scales. However, there are also DSM subscales which are more specific, one of which relates to Oppositional Defiant Disorder (ODD) which is the most developmentally appropriate indicator of general behaviour problems in this study (see appendix O).

CU behaviours were measured using six items from the Antisocial Process Screening Device (APSD; Frick & Hare, 2001), six items from the Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2001) and one item from the Brief Infant Toddler Social and Emotional Assessment (BITSEA; Briggs-Gowan et al., 2002). Previous research has shown that the APSD has low internal reliability (Dadds et al., 2005). To create a more reliable measure of CU traits, Bedford et al., (2015) carried out an exploratory factor analysis (see appendix L for a list of the items used). The internal reliability of this combination of items yielded a much higher Cronbach alpha value ($\alpha = .69$) than the APSD items alone ($\alpha = .53$). There was no item overlap between the six items from the CBCL that are used to derive this measure of CU traits and the ODD subscale of the pre-CBCL that was used.

Phase 10: Observational measures of parenting quality and maternal report of CU behaviours at child age 3.5 years

Mothers were filmed for 15 minutes playing with their children and the videotaped

interactions were coded by gold-standard trained raters within the WCHADS team (including KJ). The PARCHISY (Parent-Child Interaction System; Deater-Deckard et al., 1997) is a coding system designed to measure various aspects of observed parent-child interaction. The PARCHISY has been used with children aged 3-8 years and has been shown to achieve high levels of interrater reliability ($\alpha = 0.80$). For this study, mothers' positive affect shown towards the child (coded as instances of smiling and laughing with the child; $M = 4.25$, $SD = 1.34$) and dyadic reciprocity (i.e. eye contact and shared positive affect; $M = 4.65$; $SD = 1.09$) were used as an indicator of maternal warmth (Deater-Deckard et al., 2016; see appendix N for the scoring for these two scales). These two factors shared a moderate correlation ($r = .60$, $p < .001$). Internal consistency for the positive affect scale was excellent ($\alpha = .91$) and inter-rater reliability was also good ($\alpha = .81$).

CU behaviours were measured at this timepoint by deriving a factor score from items on the CBCL and APSD similar to that described at Phase 9. At phase 10, the factor structure was comprised of slightly different items for optimal factor structure following Wright et al., (2018). Here, five items from the APSD and four items from the CBCL were used (see appendix L for list of questionnaire items used).

Phase 11: Maternal reports at child age 4.75 years

The Self-Report Psychopathy Scale (SRPS; Levenson, et al., 1995) is a self-report measure of psychopathy designed for use by adults and consists of 26 items (see appendix K). Cronbach's alpha demonstrated good-acceptable reliability for the total scale (0.85) and it was also found to correlate significantly with the Psychopathy Checklist Revised (PCL-R; Hare, 1991) demonstrating construct validity.

CU behaviours were measured again at this timepoint by deriving a factor score from items on the CBCL, APSD and SDQ. At phase 11, the factor structure was based on previous publications investigating CU behaviours in WCHADS (Wright et al., 2018). Here, four items

from the APSD, four items from the CBCL, and five items from the SDQ were used (see appendix L for questionnaire item contributions).

Phase 13: Maternal reports at child age 7 years

CU behaviours were measured with the Inventory of Callous-Unemotional Traits (ICU; Frick, 2004; see appendix J). The ICU is a 24 item self-report questionnaire designed to measure the affective features of psychopathy in children. The ICU scale has been found to have good internal consistency ($\alpha = .74 - .85$; Kimonis et al., 2008) and moderate-good test-retest reliability for the total scale ($r = .72, p < .001$).

Procedure

Ethical approval for the MRC funded Wirral Child Health and Development Study (WCHADS) was gained from the NHS LREC (Cheshire Local Research Ethics Committee) by HS (trainee supervisor). Permissions gained from participants included provision for analyses conducted by researchers approved by the investigator. KJ's involvement in data analysis was an approved collaboration. As part of this collaboration, KJ coded 264 of the 316 videos from the intensive sample at age 3.5 years after being trained to use the PARCHISY coding system (Deater-Deckard et al., 1997). Inter-rater reliability between KJ and one of the trained raters at WCHADS for the maternal warmth scales was excellent ($r = .89 - .97$).

At each timepoint in the longitudinal study, mothers and their children were visited either in their homes by a member of the WCHADS team or were invited to visit the study base to carry out a battery of questionnaires and assessments. At each time point, all participants gave written-informed consent prior to taking part. They read the participant information sheet and were given an opportunity to answer questions by the research team member before consenting to their participation. At age 3.5, the home visit included a 15-minute filmed play interaction. Videotapes of families were stored pseudo-anonymously

using case numbers on a secure server at the University of Liverpool that were coded by researchers who were blind to questionnaire ratings made by the parent about themselves or the child.

Attrition and missing data

Covariance coverage for the measures used in this study ranged from 94 to 100% indicating that participant retention was good. Data missingness was considered missing at random and missing data was handled through Full Information Maximum Likelihood.

Data analysis

Normality of the data was tested using z-scores obtained by dividing the skew values or excess kurtosis by their standard errors (Kim, 2013). To account for the nonnormal distributions of the maternal psychopathy, maternal depression and child oppositional behaviour scores, a root square transformation was performed. Since the measure of CU was different at time 4, we transformed CU into z-scores prior to conducting the latent growth curve analysis in Mplus.

Zero-order correlations were examined first using Pearson's and Spearman's Rho for categorical variables. Then a latent growth curve model was conducted to track the trajectory of CU behaviours over four timepoints (27 months, 3.5 years, 4.75 years, and 7 years). The intercept and growth parameters of CU behaviours were regressed on the seven child and parent variables (age, sex, oppositional behaviour, child responsible attributions, positive affect and psychopathy). The intercept represents the mean level of CU behaviours at time 4 (child age 7 years), because the covariates were taken in infancy up to age 4.75 years. The slope represents the linear change (i.e., increasing, decreasing) in CU behaviours over the four timepoints that we had assessed CU behaviour. The model is represented in Figure 1.

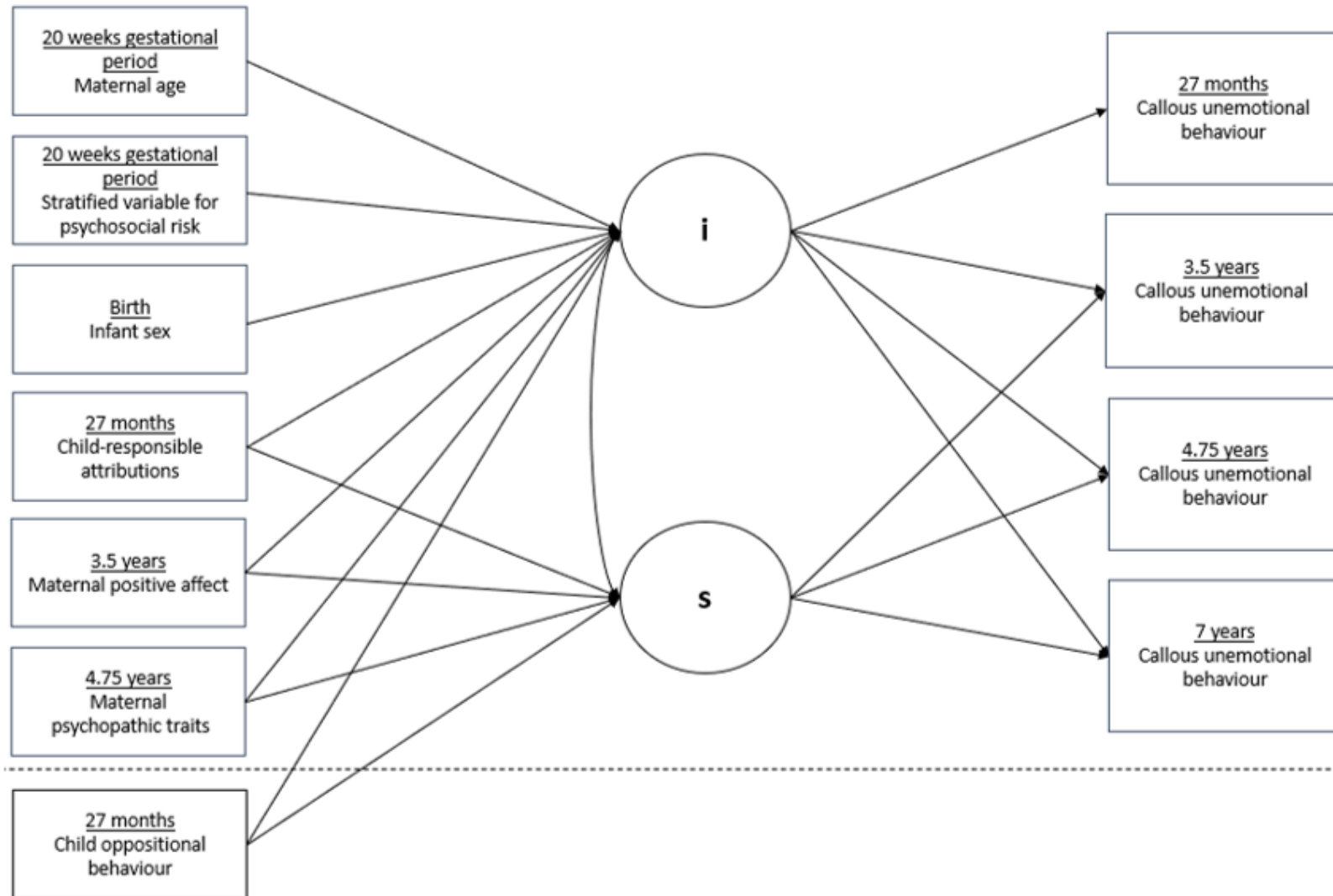
The model chi-square, the comparative fit index (CFI, critical value $\geq .90$; Bentler and Bonett, 1980), and the root mean squared estimate of approximation (RMSEA, critical value $\leq .08$; Browne and Cudeck, 1993) were used to determine model fit.

Ethical considerations

After choosing to examine associations between the selected parent and child variables, it was important to the trainee (KJ) that consideration was given to the implications that reporting on these associations could have on public perception. For example, thought was given to the language used e.g. choosing to use the term callous unemotional ‘behaviours’ as opposed to ‘traits’. This decision was influenced by research indicating the malleability of CU behaviours over time (see Waller et al., 2013) and a desire not to attribute such behaviours to some internal characteristic of the child (see appendix I for a more in-depth discussion about this). It was also important to the trainee to be cautious about describing associations in a way that might come across as particularly blaming or condemning of parents. A person’s parenting capabilities are influenced by a wide range of social and environmental factors such as housing, financial hardship, and parental mental health. The trainee wanted to highlight and reflect on some of these factors in both the introduction and discussion sections. The trainee has also included a variable in the analysis that measured mother’s psychosocial risk based on reports of inter-partner psychological abuse (Moffitt et al., 1997); a factor known to adversely affect childhood development.

Figure 1.

Latent growth curve model showing parent and child variables predicting the intercept and growth parameters of CU behaviours



Note. Dotted line represents the hierarchical nature of the analysis, adding oppositional behaviour last.

Results

The raw means, standard deviations, skewness, and kurtosis values for each of the three CU behaviours and the other variables from 20 weeks gestational through to 7 years for the intensive sample ($n = 316$) are shown in Table 1 along with the zero-order correlations.

Means and standard deviations for each of the variables (except for the CU scores which had been transformed into z scores) across the 192 observations in the latent growth curve model analysis are also provided in Table 2. Violin plots showing some of the variance in the CU scores at each of the four timepoints is provided in appendix P. The distributions in the violin plots are based on standardized scores so the spread is most relevant to discuss. This shows a central tendency in the centre of the boxplot with a few outliers with a longer distribution toward the right. This reflects that most CU scores were on the lower end of each of the measures and only a small number of the children were scoring higher. The variance in scores appears to show a normal distribution in scores at each timepoint. Means across time are not useful to explore with standardized scores since they take a between-groups perspective rather than noting change in a child's individual score over time. Thus, growth models are most appropriate for examining slope factors.

Zero-Order Correlations

The four CU measures correlated significantly with one another at each timepoint ($r = .28-.57$). The two least associated measures were at 27 months ($r = .28$) and 7 years ($r = .57$), indicating that there may be less stability in the measures used or in CU behaviours over time (and once five years have passed) either in the measures or in CU behaviours when allowing for five years to pass. Child-responsible attributions for undesirable behaviours shared a significant and weak association with CU behaviours at all four timepoints ($r = .21, .23, .29$ and $.21$ respectively) and a negative association with maternal positive affect ($r = -.13$). In addition, child-responsible attributions shared a significant but weak and positive association

with maternal psychopathy ($r = .08$), such that parents with greater psychopathic traits viewed their child as more responsible for their negative behaviours. There was a positive and significant cross-sectional association between child-responsible attributions and child oppositional behaviour ($r = .48$) at mean age 27 months, as has been found in prior research. Observed maternal positive affect at 3.5 years also showed a significantly negative but weak association with CU behaviours at all timepoints ($r = -.23, -.17, -.10$ and $-.10$ respectively) as well as child oppositional behaviour ($r = -.17$). Thus, mothers who showed less positive affect scored their children higher for CU and child oppositional behaviour. Maternal age showed a significant but weak positive association with maternal positive affect ($r = .18$), with older mothers showing more positive affect towards their children.

Maternal psychopathy showed a positive association with CU behaviours at all four timepoints ($r = .12, .22, .21$ and $.24$ respectively) as well as child oppositional behaviour ($r = .10$). The association between maternal psychopathy and CU behaviour could indicate that mothers who show psychopathic traits may perceive their children as higher in callousness. Alternatively, it could suggest a potential shared personality trait between mother and child. Maternal age was significantly and negatively correlated with child oppositional behaviour ($r = -.10$) and CU behaviours at all four timepoints ($r = -.18, -.20, -.10$ and $-.10$ respectively). Younger mothers scored their children higher for CU and oppositional behaviours. Although these associations were weak, we controlled for maternal age in the analyses.

As expected, child oppositional behaviours were significantly associated with CU behaviours at all four timepoints ($r = .44, .41, .30$ and $.20$ respectively). Infant sex was significantly and negatively associated with CU behaviours at all timepoints ($r = -.12, -.10, -.10$ and $-.10$ respectively), such that boys scored higher for CU behaviours.

The stratification of psychosocial risk variable was significantly associated with every variable. This indicates that increased psychosocial risk was associated with increased CU

behaviours ($r = .10, .20, .11$ and $.10$ respectively), child oppositional behaviour ($r = .18$), child-responsible attributions ($r = .13$), maternal positive affect ($r = .17$) and maternal psychopathy ($r = .12$). Younger mothers had increased psychosocial risk ($r = -0.15$).

Table 1

Summary statistics and bivariate correlations for main study variables

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Maternal age (20 wks gest)	—										
2. Child-responsible attributions (27 months)	-0.021	—									
3. Maternal positive affect (3.5 years)	0.179 ***	-0.123 **	—								
4. Maternal psychopathy (4.75 years)	-0.125 ***	0.081 *	-0.067	—							
5. Child oppositional behaviour (27 months)	-0.095 **	0.481 ***	-0.167 ***	0.096 *	—						
6. CU behaviour (27 months)	-0.18 ***	0.205 ***	-0.231 ***	0.119 **	0.437 ***	—					
7. CU behaviour (3.5 years)	-0.195 ***	0.226 ***	-0.174 ***	0.216 ***	0.406 ***	0.565 ***	—				
8. CU behaviour (4.75 years)	-0.097 **	0.289 ***	-0.098 **	0.211 ***	0.295 ***	0.479 ***	0.573 ***	—			
9. CU behaviour (7 years)	-0.095 **	0.208 ***	-0.099 **	0.243 ***	0.2 ***	0.281 ***	0.47 ***	0.511 ***	—		
10. Stratification of risk (20 wks gest)	-0.148 **	0.129 **	-0.108 **	0.119 **	0.181 **	0.097 **	0.203 ***	0.106 **	0.104 **	—	
11. Infant sex (birth)	-0.041	-0.003	-0.028	-0.067	-0.053	-0.119 **	-0.103 **	-0.099 **	-0.096 **	0.006	—
M	27.5	27.5	0	26.4	3.13	0.02	0.051	0.0316	16.1		
SD	6.16	7.34	0.999	5.38	2.15	0.473	0.476	0.3396	6.91		
Skewness	0.505 (0.137)	0.454 (0.168)	0.253 (0.0875)	0.773 (0.154)	0.426 (0.153)	0.301 (0.153)	0.313 (0.149)	0.398 (0.150)	0.588 (0.153)		
Kurtosis	-0.141 (0.273)	0.333 (0.334)	-0.679 (0.175)	0.885 (0.306)	0.119 (0.305)	0.614 (0.298)	0.614 (0.298)	0.048 (0.298)	0.0245 (0.306)		

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; stratification (0 = low risk, 1 = high risk) and infant sex (0 male, 1 female) correlations reported using Spearman's Rho; Mean, SD, skewness and kurtosis are based on non-transformed measures; 50.6% of infants were male and 48.4% of the sample were low risk; "20 wks gest": 20 weeks gestational period.

Table 2

Summary statistics for the 192 observations included in the latent growth curve model analysis

Variables	M	SD
Maternal age (20 weeks gestational)	28.083	6.184
Child-responsible attributions (27 months)	27.562	7.350
Maternal positive affect (3.5 years)	0.036	0.973
Maternal psychopathy (4.75 years)	5.091	0.486

Latent Growth Curve Model

Step One

The latent growth curve model was a good fit for the data, when including all of the predictors before the dotted line as shown in Figure 1 (χ^2 (df = 17, N = 192) = 16.633, p = .48, CFI = 1.0, RMSEA = .00).

The estimated means of the intercept ($M = -0.006$, $p = .947$) and slope growth factors ($M = 0.001$, $p = .956$) before being regressed on to the covariates, were non-significant, suggesting that the rate of change in CU behaviours over time were not significantly different from 0 or flat slope line. The estimated covariance between the intercept and slope was also non-significant ($r = .043$, $p = .203$).

The R squared for the intercept was significant ($R^2 = 0.263$, $p = .004$) suggesting that 26% of the variance in the mean levels of CU behaviours at the final time-point (child age 7 years) were explained by the predictors in the model. The R squared for the slope was also significant ($R^2 = 0.220$, $p = .045$) which indicates that 22% of the variance in the rate of change in CU behaviours over time was also explained by the predictors.

Examination of the regression weights (see Table 4) suggests that a significant effect of maternal psychopathy and child-responsible attributions was found on the intercept of CU behaviour. This suggests that higher levels of maternal psychopathy at 4.75 years ($B = 0.571$, $SE B = 0.130$, $\beta = 0.378$) and higher child-responsible attributions at 27 months ($B = 0.0278$, $SE B = 0.009$, $\beta = 0.280$) were associated with higher levels of CU behaviour at the final timepoint at 7 years.

Maternal psychopathy ($B = 0.181$, $SE B = 0.055$, $\beta = 0.367$) showed a significant and positive association with the slope. Thus, increasing levels of CU behaviour were significantly related to higher levels of maternal psychopathy, although it is recognised that maternal psychopathy was measured at age 4.75 years and the slope begins earlier to this time

point. Finally, maternal positive affect ($B = 0.054$, $SE\ B = 0.027$, $\beta = 0.219$) was also significantly associated ($p = .049$) with the slope of CU behaviours. The negative relationship of this association suggests that higher levels of maternal positive affect at 3.5 years were associated with decreasing levels of CU behaviour over time.

Step Two.

Next, child oppositional behaviour was added into the model. This was also a good fit for the data (χ^2 (df = 19, N = 192) = 17.875, $p = .53$, CFI = 1.0, RMSEA = .00). Maternal psychopathy ($B = 0.587$, $SE\ B = 0.130$, $\beta = 0.390$) and child-responsible attributions ($B = -0.021$, $SE\ B = 0.010$, $\beta = 0.209$) remained significant on the intercept of CU behaviours. Maternal psychopathy also retained its significant association with the slope of CU behaviours ($B = 0.164$, $SE\ B = 0.054$, $\beta = 0.342$). Finally, child oppositional behaviours had a significantly negative association with the slope of CU behaviours, indicating that higher levels of child oppositional behaviours at 27 months were associated with decreasing levels of CU behaviours over time ($B = -0.181$, $SE\ B = 0.053$, $\beta = -0.438$). A possible explanation for some of the decrease seen in CU behaviours over time could be because many of the children with the highest levels of CU behaviours (and thus higher oppositional behaviours given the zero-order correlations) at timepoint 1 (27 months) regressed downwards towards the mean over the four timepoints (see Figure 2).

Table 3

Latent growth curve model results for study variables regressed onto CU behaviours at 27 months, 3.5 years, 4.75 years, and 7 years

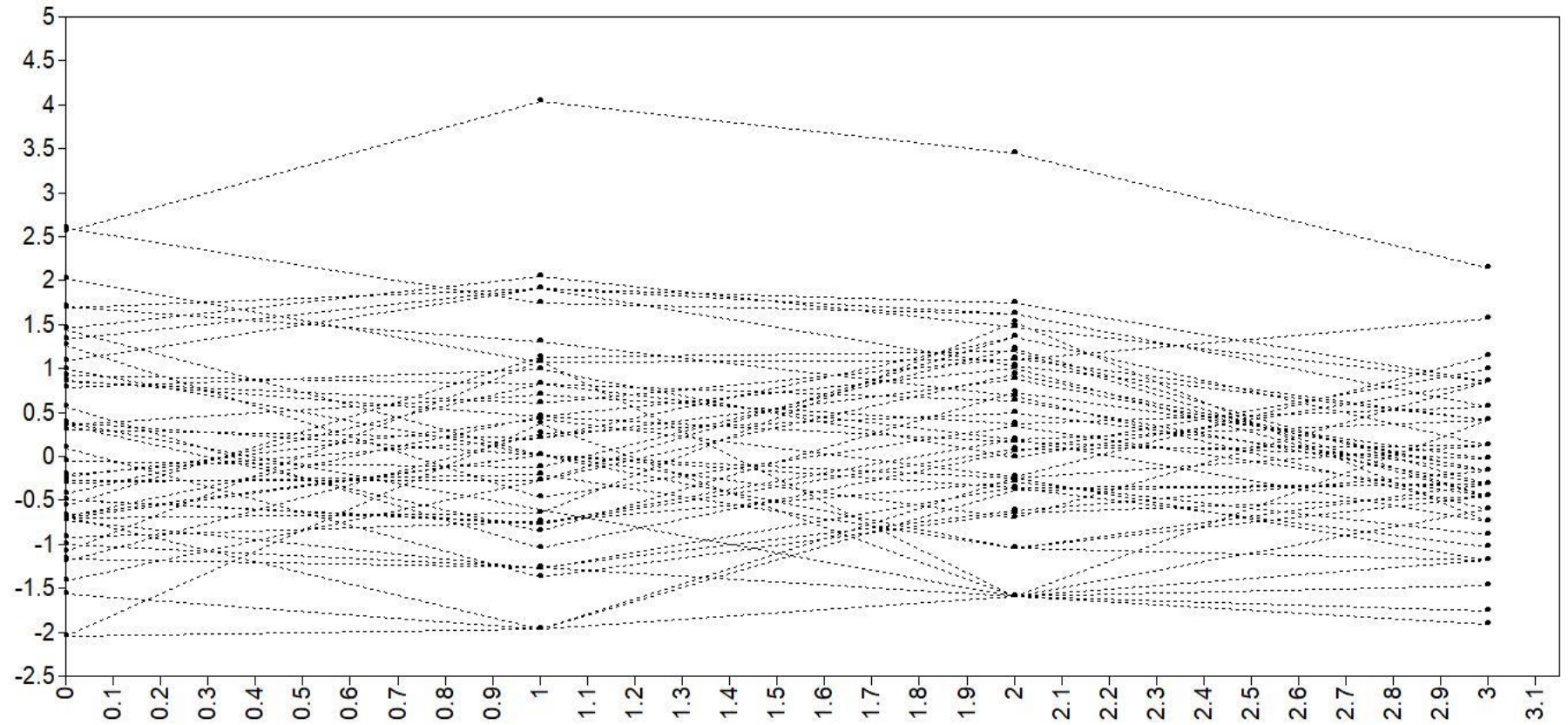
Variables	Intercept			Slope		
	<i>B</i>	SE <i>B</i>	β	<i>B</i>	SE <i>B</i>	β
Step One						
Stratification of psychosocial risk (20 weeks gestational period)	-0.037	0.129	-0.025	-0.045	0.054	-0.095
Maternal age (20 weeks gestational period)	0.000	0.010	-0.003	0.008	0.004	0.198
Maternal psychopathy (4.75 years)	0.571***	0.130	0.378	0.181**	0.055	0.367
Maternal positive affect (3.5 years)	-0.043	0.065	-0.057	0.054*	0.027	0.219
Child-responsible attributions (27 months)	0.028**	0.009	0.280	0.000	0.004	0.010
Infant sex (birth)	-0.166	0.125	-0.113	0.054	0.053	0.112

Step Two						
Stratification of psychosocial risk (20 weeks gestational period)	-0.057	0.129	-0.039	-0.027	0.053	-0.058
Maternal age (20 weeks gestational period)	0.000	0.010	-0.001	0.007	0.004	0.295
Maternal psychopathy (4.75 years)	0.587***	0.130	0.390	0.164**	0.054	0.342
Maternal positive affect (3.5 years)	-0.025	0.065	-0.033	0.038	0.027	0.158
Child- responsible attributions (27 months)	0.021*	0.010	0.209	0.007	0.004	0.214
Child oppositional behaviours (27 months)	0.204	0.128	0.158	-0.181**	0.053	-0.438
Infant sex (birth)	-0.161	0.125	-0.110	0.049	0.051	0.105

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

Figure 2

Fifty random observations of child CU behaviours across the four timepoints shown on the X-axis as 0 (27 months), 1 (3.5 years), 2 (4.75 years), 3 (7 years)



Discussion

Our findings show that when mothers make more child-responsible attributions regarding their toddler's negative behaviours, they report their child as having more callous-unemotional behaviours at age 7 years. The study also showed that greater maternal self-reported psychopathy and higher observed maternal positive affect during the playful interactions with their child were associated with increasing CU behaviours over time. The inclusion of baseline levels of child oppositional behaviours into the model did not change the associations with child-responsible attributions and maternal psychopathy. The effect of child-responsible attributions on CU is therefore robust to the negative child behaviours associated with oppositional behaviour.

To our knowledge, this is the first study to demonstrate a relationship between parental child-responsible attributions and later child CU behaviours using a longitudinal design. A previous study had examined child-responsible attributions and CU behaviours using a cross-sectional design and found no significant association (Longman, 2015), although this was a master's thesis which had not been subject to peer review. Prior research has shown that children who show conduct problems typically have parents who use more child-responsible attributions (Park et al., 2018; Rodriguez & Wittig, 2019). These findings lend support to the theory that internal causal and hostile attributions made about a child's behaviour may also affect the development of empathy and prosocial behaviour in children.

Children develop their 'moral self' through a process of socialisation and internalising of their parent's values (Kochanska, 1993). Theories on conscience and moral development postulate that a mutually positive, responsible and cooperative relationship between parent and child is necessary for children to eagerly commit to accepting and internalising their parent's values and rules for socialisation (Maccoby, 1983; Kochanska, 1993; Hoffman, 1983). It is possible that consistently directing the child to believe that they are responsible

for their own transgressions interferes with mutually positive relationship and the socialisation process for some children. Indeed, child-responsible attributions for negative behaviours can lead to internalising problems in children such as depression and anxiety as well as externalising problems. These difficulties could have a negative impact on the parent-child relationship and the child's motivation to internalise their parent's moral value. This impact on the parent-child relationship could lead to a failure in developing empathy and conscience on the part of the child. Further research is needed that includes the examination of such mechanisms in the development of empathy. Kochanska (1993) hypothesised that an infant's ability to suppress an antisocial or destructive impulse was as important as the parent's efforts to socialise a child in the development of empathy. She suggested that infant fearlessness (identified as a precursor to later CU behaviours; Blair, 2013) can interfere with the internalisation of moral rules as small amounts of anxiety (in response to a parent's disapproval) are necessary for socialisation (Fowles et al., 2000; Posner & Rothbart, 2000).

Shared fearlessness between parent and child has previously been demonstrated in heritability research on CU behaviours (e.g. Waller et al., 2016). This shared personality trait could account for the fact that greater maternal psychopathy was significantly associated with mean CU behaviours at the final timepoint in this study and the contribution towards increasing CU behaviours over time. However, the association between maternal psychopathy and child CU behaviour could also be explained by a lack of social modelling and opportunities for learning. Parents who struggle to show empathy and remorse themselves, may then struggle to provide their children with the appropriate social and moral guidance. It could also be that a parent who lacks empathy may struggle to form a close, warm, affective bond with their child (a requisite for parental socialisation of the child to occur, Kochanska, 1993). A lack of parental warmth has previously been shown to be a

predictor of future CU behaviour in young children (Hawes et al., 2011; Waller et al., 2014; Waller et al., 2013).

However, contrary to this evidence, greater maternal positive affect did not show a significant association with mean levels of CU behaviour at the final timepoint. Maternal positive affect did appear to affect the growth in CU behaviours over time, however this was also contrary to the evidence and suggested that higher maternal positive affect at 3.5 years was related to a decrease in CU behaviour between 35 years and 7 years. However, this association was weakly significant and therefore little conclusion can be made from this. It is possible that child-responsible attributions exert a stronger influence on CU behaviour than low parental positive affect, although the investigation into these associations is in its infancy and further investigation is needed to test this possibility. It may also be possible that low levels of maternal positive affect and child-responsible attributions share part of the same influence on CU behaviours. Decades of research has demonstrated that parents' attributions can shape parental responses, and that child-responsible attributions can influence a harsher, more punitive interaction (Nix et al., 1999; Leung & Slep, 2006). In this study, however, the correlation between maternal positive affect and child-responsible attributions was weak ($r = -.12$).

Also contrary to our expectations, child oppositional behaviours at 27 months did not share a significant association in the final model with CU behaviours at age 7 years. The zero-order correlations showed that the association between oppositional behaviour and CU behaviour was stronger when measured concurrently, which is similar to prior research (Muñoz et al., 2007). However, there was a significant association on the rate of change in CU behaviours over time. Unexpectedly, this effect of oppositional behaviour on the slope of CU was negative, which seems to reflect regression toward the mean over time.

The wider context

Previous research has demonstrated associations between societal and psychological factors and the presence of child-responsible attributions for undesirable behaviours. Child-responsible attributions have been linked to factors such as parenting stress, parental depression, anger, and low socioeconomic status (Beckerman et al., 2017; 2018, Leung & Slep, 2006; Graham et al., 2001; Pinderhughes et al., 2000). Parenting programmes aimed at decreasing parents' use of hostile child-responsible attributions will need to consider the wider systems around the family in order to successfully implement positive change. Joint working with public sector services such as adult mental health and/or social services may be required so ensure the best possible outcomes for families. The importance of early parent-child relationships on parenting and child development has also been demonstrated in previous research (Kochanska et al., 2019) with particular focus on the period from conception to age two, also referred to as the 1001 critical days (Leach, 2017). Bonding and attachment difficulties can negatively affect the parent-child relationship and lead to adverse outcomes for children (Leach, 2017). Thus, identifying families that require additional support as early as possible will give them the best possible start and lead to better parenting outcomes.

Strengths and Limitations

These findings need to be interpreted in light of the study's limitations. Aside from CU behaviour, all of the other factors were measured at single timepoints. Thus, this prevented the exploration of other mechanisms that might have been occurring between some of these variables. For example, if child responsible attributions had been measured at several timepoints, it may have been possible to investigate whether this relationship was bidirectional. We know from the parenting literature that both oppositional behaviour and negative parenting can work to reinforce each other in a coercive negative parenting cycle

(Patterson, 1976). Callous-unemotional behaviours have also previously been shown to drive change in parenting practices over time (Hawes et al., 2011). However, in Johnson et al. (2009)'s study, they did not find that oppositional behaviour influenced parent's child-responsible attributions. Thus, further highlighting the strong effect that maternal attributions can have on child behaviour.

As previously discussed, a strong influence of child-responsible attributions for desirable child behaviours has also been evidenced and has been shown to increase prosocial behaviours in children (Hastings et al., 2007) as well as increasing more positive parenting reactions (Johnstone & Leung, 2001). Future research would also benefit from looking at whether increased child-responsible attributions for desirable behaviours might influence the presence or development of CU behaviours in young children.

Despite the inclusion of an observational measure of maternal positive affect, there remained a heavy reliance on self-report measures. In addition, the self-report measures were not supplemented with alternative sources of information (e.g. from teachers or other family members), which leaves the interpretation of maternal self-report measures open to bias. Future research would benefit from using multi-informant reports for child CU and oppositional behaviours as well as exploring alternative ways of capturing these factors. For example, attempts have been made to use laboratory measures to assess child-responsible attributions whereby parents are required to respond to scenarios with an attribution within a time limit (Beckerman et al., 2017, 2018). The investigation of these associations in fathers and in a wider, more ethnically diverse population would provide greater insight into how these associations work across different contexts and families.

The present study also had a number of strengths, chief of these was a longitudinal design to examine child-responsible attributions and CU behaviours over time and starting early in childhood. The present study also used a well-established measure of child-

attributions (The PCS; Snarr et al., 2009) and an observational measure of maternal positive affect to eliminate shared method variance in some of the measures that relied on self-report. The mothers recruited into this study were diverse in age, ranging from 18 to 51 and the number of male and female infants in the subsample were roughly equal. The stratification of the sample by psychosocial risk also ensured sufficient representation of psychological and social risk factors in the sample including the parent and child factors assessed in this analysis, but this method of sampling was also accounted for in the analysis.

Clinical Implications

Our results lend support to the explicit targeting of parent's attributional styles in parenting interventions designed for families of children with CU behaviour. Research focusing on parenting interventions for children with CU behaviours would benefit from exploring whether reducing child-responsible attributions contributes to a reduction in CU behaviours. Exploring the mechanisms through which this happens (e.g. increased parental warmth, improved parent-child communication, less harsh discipline methods) would also provide clinically relevant information. Mothers who score highly for psychopathy may also benefit from focused support with regards to supporting their children's development of empathy. Thus, early identification of mothers who struggle to show empathy and remorse is important for ensuring that children have the best possible outcomes. Early identification of the wider societal and psychological factors that affect parenting will also be necessary for the successful implementation of any parenting programme. As described earlier, factors such as parenting stress, parental depression, and low socioeconomic status are all implicated in the presence of child-responsible and hostile attributions for children's undesirable behaviours. If consideration is not given to supporting parents in these areas, e.g. by accessing social services or adult mental health services, this may present potential barriers to successful change in parent's attributional styles.

Conclusion

In summary, we show that mothers who make more child-responsible attributions about their children's negative behaviours in toddlerhood have children with greater CU behaviours at age 7 regardless of the presence of oppositional behaviour. Targeting and reducing parent's child-responsible attributions could help to reduce CU behaviours in young children. However, we need research to examine whether child-responsible attributions can be manipulated and whether this kind of intervention would affect CU over time. Interpreting a child's negative behaviour as being intentionally negative and purposive is associated with greater CU behaviours in that child, and this is not a result of the child's opposition to being managed by parents.

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Appendices

Appendix A: Author guidelines for Clinical Psychology Review

Essential information is provided here. Please see author guidelines for full details. Available at: https://www.elsevier.com/wps/find/journaldescription.cws_home/652?generatepdf=true

Article structure

Manuscripts should be prepared according to the guidelines set forth in the Publication Manual of the American Psychological Association (6th ed., 2009). Of note, section headings should not be numbered.

Manuscripts should ordinarily not exceed 50 pages, including references and tabular material. Exceptions may be made with prior approval of the Editor in Chief. Manuscript length can often be managed through the judicious use of appendices. In general, the References section should be limited to citations discussed in the text. References to articles solely included in meta-analyses should be included in an appendix, which will appear in the online version of the paper but not in the print copy. Similarly, extensive Tables describing study characteristics, containing material published elsewhere, or presenting formulas and other technical material should also be included in an appendix. Authors can direct readers to the appendices in appropriate places in the text.

It is authors' responsibility to ensure their reviews are comprehensive and as up to date as possible (at least to 3 months within date of submission) so the data are still current at the time of publication. Authors are referred to the PRISMA Guidelines (<http://www.prisma-statement.org/>) for guidance in conducting reviews and preparing manuscripts. Adherence to the Guidelines is not required but is recommended to enhance quality of submissions and impact of published papers on the field.

Appendices

If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly, for tables and figures: Table A.1; Fig. A.1, etc. Essential title page information

Title

Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible. Note: The title page should be the first page of the manuscript document indicating the author's names and affiliations and the corresponding author's complete contact information.

Abstract

A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should briefly state the purpose of the research, the principal results, and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

Keywords

Immediately after the abstract, provide a maximum of 6 keywords, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

Abbreviations

Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

Acknowledgements

Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise.

List here those individuals who provided help during the research (e.g., providing language help, writing assistance, or proofreading the article, etc.). Formatting of funding sources List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding. If no funding has been provided for the research, please include the following sentence: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Footnotes

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors can build footnotes into the text, and this feature may be used. Otherwise, please indicate the position of footnotes in the text and list the footnotes themselves separately at the end of the article. Do not include footnotes in the Reference list.

Citations in the text

Citations in text should follow the referencing style used by the American Psychological Association. Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list but may be mentioned in the text. If these references are included in the reference list, they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Web references

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired or can be included in the reference list.

Reference style

References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication. References should be formatted with a hanging indent (i.e., the first line of each reference is flush left while the subsequent lines are indented).

Appendix B: Search strategy used for each electronic database

Search No.	Search Term	Limiters	Results
CINAHL (search conducted on the 27 th of February 2020)			
#1	(Harsh OR coercive OR abuse* OR discipline)		70,107
#2	(Parent* OR mother* OR father*)		178,850
#3	((Hostile OR negative OR causal) AND attribution*)		1,257
#4	#1 AND #2 AND #3	Publication date from 2000-2019; English Language	28

Search No.	Search Term	Limiters	Results
PsycINFO (search conducted on the 27 th of February 2020)			
#1	(Harsh OR coercive OR abuse* OR discipline)		157, 853
#2	(Parent* OR mother* OR father*)		346, 486
#3	((Hostile OR negative OR causal) AND attribution*)		8, 992
#4	#1 AND #2 AND #3	Publication date from 2000-2019; English Language	116

Search No.	Search Term	Limiters	Results
EMBASE (search conducted on the 27 th of February 2020)			
#1	(Harsh OR coercive OR abuse* OR discipline)		204, 427
#2	(Parent* OR mother* OR father*)		737, 944
#3	((Hostile OR negative OR causal) AND attribution*)		4, 043
#4	#1 AND #2 AND #3	Publication date from 2000-2019; English Language	68

Search No.	Search Term	Limiters	Results
Scopus (search conducted on the 27 th of February 2020)			
#1	(Harsh OR coercive OR abuse* OR discipline)		661, 203
#2	(Parent* OR mother* OR father*)		1,162,637
#3	(Hostile OR negative OR causal AND attribution*)		26, 819
#4	#1 AND #2 AND #3	Publication date from 2000-2019; English Language	152

Appendix C: Example of email sent to included authors requesting further data

Hi,

My name is Katy Jones and I am a Trainee Clinical Psychologist at Liverpool University. I am currently writing up a systematic review looking at the associations between child-responsible attributions and the use of harsh discipline.

I am contacting you about the following paper:

Maternal use of physical punishment in response to child misbehavior: implications for child abuse prevention (Ateah & Durrant, 2004)

I was wondering if you had carried out some bivariate correlations on your variables, specifically the data you collected on physical punishment use and the attributions of intent made by the parents,

Many thanks in advance,

Katy Jones

Trainee Clinical Psychologist

Appendix D: Quality assessment tool

R. Sirriyeh *et al.*

Reviewing studies with diverse designs

Table 1 Quality assessment tool and scoring guidance notes

Criteria	0 = Not at all	1 = Very slightly	2 = Moderately	3 = Complete
Explicit theoretical framework	No mention at all.	Reference to broad theoretical basis.	Reference to a specific theoretical basis.	Explicit statement of theoretical framework and/or constructs applied to the research.
Statement of aims/objectives in main body of report	No mention at all.	General reference to aim/objective at some point in the report including abstract.	Reference to broad aims/objectives in main body of report.	Explicit statement of aims/objectives in main body of report.
Clear description of research setting	No mention at all.	General description of research area and background, e.g. 'in primary care'.	General description of research problem in the target population, e.g. 'among GPs in primary care'.	Specific description of the research problem and target population in the context of the study, e.g. nurses and doctors from GP practices in the east midlands.
Evidence of sample size considered in terms of analysis	No mention at all.	Basic explanation for choice of sample size. Evidence that size of the sample has been considered in study design.	Evidence of consideration of sample size in terms of saturation/information redundancy or to fit generic analytical requirements.	Explicit statement of data being gathered until information redundancy/saturation was reached or to fit exact calculations for analytical requirements.
Representative sample of target group of a reasonable size	No statement of target group.	Sample is limited but represents some of the target group or representative but very small.	Sample is somewhat diverse but not entirely representative, e.g. inclusive of all age groups, experience but only one workplace. Requires discussion of target population to determine what sample is required to be representative.	Sample includes individuals to represent a cross section of the target population, considering factors such as experience, age and workplace.
Description of procedure for data collection	No mention at all.	Very basic and brief outline of data collection procedure, e.g. 'using a questionnaire distributed to staff'.	States each stage of data collection procedure but with limited detail, or states some stages in details but omits others.	Detailed description of each stage of the data collection procedure, including when, where and how data were gathered.
Rationale for choice of data collection tool(s)	No mention at all.	Very limited explanation for choice of data collection tool(s).	Basic explanation of rationale for choice of data collection tool(s), e.g. based on use in a prior similar study.	Detailed explanation of rationale for choice of data collection tool(s), e.g. relevance to the study aims and assessments of tool quality either statistically, e.g. for reliability & validity, or relevant qualitative assessment.
Detailed recruitment data	No mention at all.	Minimal recruitment data, e.g. no. of questionnaire sent and no. returned.	Some recruitment information but not complete account of the recruitment process, e.g. recruitment figures but no information on strategy used.	Complete data regarding no. approached, no. recruited, attrition data where relevant, method of recruitment.
Statistical assessment of reliability and validity of measurement tool(s)	No mention at all.	Reliability and validity of measurement tool(s) discussed, but not statistically assessed.	Some attempt to assess reliability and validity of measurement tool(s) but insufficient, e.g. attempt to establish 'test-retest' reliability is unsuccessful but no action is taken.	Suitable and thorough statistical assessment of reliability and validity of measurement tool(s) with reference to the quality of evidence as a result of the measures used.
Fit between stated research question and method of data collection (Qualitative)	No research question stated.	Method of data collection can only address some aspects of the research question.	Method of data collection can address the research question but there is a more suitable alternative that could have been used or used in addition.	Method of data collection selected is the most suitable approach to attempt answer the research question.
Fit between stated research question and format and content of data collection tool e.g. interview schedule (Qualitative)	No research question stated.	Structure and/or content only suitable to address the research question in some aspects or superficially.	Structure & content allows for data to be gathered broadly addressing the stated research question(s) but could benefit from greater detail.	Structure & content allows for detailed data to be gathered around all relevant issues required to address the stated research question(s).
Fit between research question and method of analysis	No mention at all.	Method of analysis can only address the research question basically or broadly.	Method of analysis can address the research question but there is a more suitable alternative that could have been used or used in addition to offer greater detail.	Method of analysis selected is the most suitable approach to attempt answer the research question in detail, e.g. for qualitative IPA, preferable for experiences vs. content analysis to elicit frequency of occurrence of events etc.
Good justification for analytical method selected	No mention at all.	Basic explanation for choice of analytical method	Fairly detailed explanation of choice of analytical method.	Detailed explanation for choice of analytical method based on nature of research question(s).
Assessment of reliability of analytical process (Qualitative only)	No mention at all.	More than one researcher involved in the analytical process but no further reliability assessment.	Limited attempt to assess reliability, e.g. reliance on one method.	Use of a range of methods to assess reliability, e.g. triangulation, multiple researchers, varying research backgrounds.
Evidence of user involvement in design	No mention at all.	Use of pilot study but no involvement in planning stages of study design.	Pilot study with feedback from users informing changes to the design.	Explicit consultation with steering group or statement of formal consultation with users in planning of study design.
Strengths and limitations critically discussed	No mention at all.	Very limited mention of strengths and limitations with omissions of many key issues.	Discussion of some of the key strengths and weaknesses of the study but not complete.	Discussion of strengths and limitations of all aspects of study including design, measures, procedure, sample & analysis.

Appendix E: Author Guidelines for the Journal of Child Psychology and Psychiatry

Essential information is provided here. Please see author guidelines for full details. Available at: <https://acamh.onlinelibrary.wiley.com/hub/journal/14697610/forauthors.html>

Original articles

These should make an original contribution to empirical knowledge, to the theoretical understanding of the subject, or to the development of clinical research and practice. Adult data are not usually accepted for publication unless they bear directly on developmental issues in childhood and adolescence or the transition from adolescence to adulthood. Original articles should not exceed 6000 words, including title page, abstract, references, tables, and figures; the total word count should be given on the title page of the manuscript. Limit tables and figures to 5 or fewer double-spaced manuscript pages. It is possible to submit additional tables or figures as an Appendix for an online-only version. We strongly encourage you to keep the length of the manuscript within the word limit.

Manuscript preparation and submission

1. The manuscript should be double spaced throughout, including references and tables. Pages should be numbered consecutively. The preferred file formats are MS Word or WordPerfect and should be PC compatible. If using other packages, the file should be saved as Rich Text Format or Text only.
2. Papers should be concise and written in English in a readily understandable style. Care should be taken to avoid racist or sexist language, and statistical presentation should be clear and unambiguous. The Journal follows the style recommendations given in the *Publication manual of the American Psychological Association* (5th ed., 2001).

Layout

Title: The first page of the manuscript should give the title, name(s) and short address(es) of author(s), and an abbreviated title (for use as a running head) of up to 60 characters.

Abstract

The abstract should not exceed 300 words and should be structured in the following way with bold marked headings: Background; Methods; Results; Conclusions; Keywords;

Abbreviations. The abbreviations will apply where authors are using acronyms for tests or abbreviations not in common usage.

Key points and relevance

All papers should include a text box at the end of the manuscript outlining the four or five key (bullet) points of the paper. These should briefly (80-120 words) outline what's known, what's new, and what's relevant. Under the 'what's relevant' section we ask authors to describe the relevance of their work in one or more of the following domains - policy, clinical practice, educational practice, service development/delivery or recommendations for further science.

Headings

Articles and research reports should be set out in the conventional format: Methods, Results, Discussion and Conclusion. Descriptions of techniques and methods should only be given in detail when they are unfamiliar. There should be no more than three (clearly marked) levels of subheadings used in the text.

Acknowledgements

These should appear at the end of the main text before the References.

Correspondence to

Full name, address, phone, fax and email details of the corresponding author should appear at the end of the main text, before the References.

References

The *JCPP* follows the text referencing style and reference list style detailed in the *Publication manual of the American Psychological Association* (5th ed.)

Tables and Figures

All Tables and Figures should appear at the end of main text and references, but have their intended position clearly indicated in the manuscript. They should be constructed so as to be intelligible without reference to the text.

Nomenclature and symbols

Each paper should be consistent within itself as to nomenclature, symbols, and units. When referring to drugs, give generic names, not trade names. Greek characters should be clearly indicated.

Appendix F: Ethical approval for WCHADS: pregnancy to age 1

Cheshire North & West Research Ethics Committee

Cheshire West I
1829 Buik
Countess of Chester Health F
Liverpool R
Che
CH2

Telephone: 01244 650
Facsimile: 01244 650

27 June 2006

Professor Jonathan Hill
Professor of Child and Developmental Psychiatry
University of Liverpool, Alder Hey Hospital
Mulberry House, Alder Hey Hospital
Eaton Road
L12 2AP

Dear Professor Hill

Full title of study: The Wirral Child Health and Development Study
REC reference number: 05/Q1506/107

Thank you for your letter of 19 May 2006, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice-Chairman.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application		09 January 2006
Investigator CV		
Protocol	1	09 January 2006
Covering Letter		09 January 2006
Summary/Synopsis	1	09 January 2006
Response to Request for Further Information		19 May 2006
Father Information Sheet, Study 1500 - Phases 1, 3, 5 & 7	2	01 May 2006
Study 300 Parent Information Sheet, one year - Phase 8	2	01 May 2006
Study 300 Parent Information Sheet, 6 months - Phase 6	2	01 May 2006

Study 300 Parent Information Sheet, Antenatal Phases 2 & 4	2	01 May 2006
Mother Information Sheet, Study 1500 - Phases 1, 3, 5, & 7	2	01 May 2006
Letter confirming funding - MRC		09 March 2005
Supporting letter from Mr Doyle, Wirral Hospitals NHS Trust		09 December 2005
Supporting letter from Ms Sheila Hillhouse, Birkenhead & Wallasey PCT		09 December 2005
Phase 8: Study 300 12 month mother and baby postnatal assessments	1	09 January 2006
GP Letter Study 1500	1	01 January 2006
GP Letter Study 300		01 January 2006
Parent Consent, Study 1500 - Phases 1, 3, 5 & 7	1	09 January 2006
Consent to contact a relative - Study 1500	1	09 January 2006
Parent Consent, Fathers, - Study 1500 - Phases 1, 3, 5 & 7	1	09 January 2006
Parent Consent - Study 300 Antenatal, perinatal - (Phases 2 & 4)	1	09 January 2006
Study 300 Parent Information Sheet 6 months (Phase 6)	1	09 January 2006
Parent Consent - Study 300, first birthday (Phase 8)	1	09 January 2006
Parent Consent - Study 300, DNA First Birthday (Phase 8)	1	09 January 2006
Phase 1: Study 1500 mother antenatal screen	1	09 January 2006
Phase 1: Study 1500 father antenatal screen	1	09 January 2006
Phase 2: Study 300 mother antenatal interview	1	09 January 2006
Phase 3: Study 1500 pregnancy/obstetric/birth outcomes	1	09 January 2006
Phase 4: Study 300 perinatal baby assessment	1	09 January 2006
Phase 5: Study 1500 6-8 week questionnaire mother	1	09 January 2006
Phase 6: Study 300 6 month postnatal assessments mother and baby	1	09 January 2006
Phase 7: Study 1500 8 month questionnaire and routine health visitor developmental check (mother)	1	09 January 2006
Phase 7: Study 1500 8 month questionnaire (father)	1	09 January 2006

Research governance approval

The study should not commence at any NHS site until the local Principal Investigator has obtained final research governance approval from the R&D Department for the relevant NHS care organisation.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/Q1506/107

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Mr Peter Ward
Vice-Chairman

Email: julia.thomas@cwpcnhs.uk

Enclosures:

Standard approval conditions

Appendix G: Ethical approval for WCHADS age 1-4



National Research Ethics Service

North West 5 Research Ethics Committee - Haydock Park

North West Centre for Research Ethics Committees
3rd Floor - Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 0161 625 7819
Facsimile: 0161 237 9427

07 June 2010

Professor J Hill
Professor of Child & Adolescent Psychiatry
Room 4.321 Jean McFarlane Building
The University of Manchester
Oxford Road
MANCHESTER M13 9PL

Dear Professor Hill

Full title of study: Social, emotional & biological processes in emergent
conduct disorders: The Wirral Child Health and
Development Study 1-4 years
REC reference number: 10/H1010/4

Thank you for your letter of 08 May 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by Professor Caroline Carlisle (Professor of Education, Nursing and Midwifery).

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

The Committee has not yet been notified of the outcome of any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. I will write to you again as soon as one Research Ethics Committee has notified the outcome of a SSA. In the meantime no study procedures should be initiated at non-NHS sites.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

This Research Ethics Committee is an advisory committee to the North West Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>. *Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.*

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering Letter - from Dr Helen Sharp, Chartered Consultant Clinical Psychologist and Lecturer in Clinical Child and Adolescent Psychology, University of Liverpool		22 February 2010
REC application	IRAS Version 2.5	22 February 2010
Protocol	1	22 February 2010
Ethical issues and Safety Protocol	1	22 February 2010
Investigator CV - for Professor Jonathan Hill		22 February 2010
Investigator CV - for Dr Helen Sharp		22 February 2010
Participant Consent Form: Phases 10/12 - Mother	1	February 2010
Participant Consent Form: Phases 10/12 - Partner	1	February 2010
Participant Consent Form: Phases 10/12 - Guardian	1	February 2010
Participant Consent Form: Phase 10 - Mother - DNA analysis	1	February 2010
Participant Consent Form: Phases 9,11,12 - Mother - Intensive	1	February 2010
Participant Consent Form: Phases 9,11,12 - Guardian - Intensive	1	February 2010
Participant Consent Form: Phase 9 - Mother - DNA analysis	1	February 2010
Participant Consent Form: Phases 9,11 - Mother - Infant RNA	1	February 2010
Participant Consent Form: Parent - Study 300 GP tracking (previously approved by Cheshire LREC)	1	May 2007
Participant Consent Form: for future contacts (previously approved by Cheshire LREC)	1	February 2010
Participant Consent Form: to contact a relative - extensive sample	1	
Letter to GP and Health Visitor - Extensive/Intensive Study	1	February 2010
Health Visiting Team contact form	1	22 February 2010
Evidence of insurance or indemnity: Letter from Mohammed Zubair, Faculty Research Practice Co-ordinator, The University of Manchester		22 February 2010
Pan-Manchester R&D Notification Form		22 July 2009

Referees or other scientific critique report: MRC independent referees comments + applicant's response to referees		
Summary/Synopsis: Plan of Assessment - in flowchart form	1	22 February 2010
MRC Board Assessment Template - proof of award		23 July 2009
List of Appendices - Study Measures		
Interview Schedules/Topic Guides: Measures - Adult Interview Schedules (as detailed on List of Appendices)		
Questionnaire: Measures - Non-validated questionnaires (as detailed on List of Appendices)		
Questionnaire: Measures - Validated questionnaires (as detailed on List of Appendices)		
Measures - Observational / Developmental Assessments (as detailed on List of Appendices)		
Response to Request for Further Information: From Dr Helen Sharp Chartered Consultant Clinical Psychologist and Lecturer in Clinical Child and Adolescent Psychology, University of Liverpool		08 May 2010
Participant Information Sheet: Extensive sample - Mother Information Sheet- phases 10 & 12	2	01 May 2010
Participant Information Sheet: Extensive sample - Partner Information Sheet - phases 10 & 12	2	01 May 2010
Participant Information Sheet: Intensive sample - Mother Information sheet - phases 9,11,12	2	01 May 2010

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.


The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email: referencegroup@nres.npsa.nhs.uk.

Yours sincerely


R.P. Dr Donal Manning
Chair

Email: noel.graham@northwest.nhs.uk

Enclosures: 'After ethical review – guidance for researchers'

Copies to: Dr M Zubair
FMHS Research Office
3.53 Simon Building
The University of Manchester
Oxford Road
MANCHESTER
M13 9PL

R&D office for NHS care organisation at lead site: -

Dr W Sopwith
NHS Wirral (Wirral PCT)
St Catherine's Hospital
Church Road
Birkenhead
CH42 0LQ

Appendix H: Ethical approval for WCHADS age 7-9



NRES Committee North West - Haydock

3rd Floor - Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 0161 625 7827
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22 December 2014

Professor Jonathan Hill
Professor of Child & Adolescent Psychiatry
University of Reading
School of Psychology and Clinical Language Sciences
White Knights
Reading
RG6 6AL

Dear Professor Hill

Study title:	The Wirral Child Health and Development Study 7-9 years: Prenatal and infancy origins of biological and social-cognitive processes in disruptive behaviour problems in children.
REC reference:	14/NW/1484
IRAS project ID:	165660

Thank you for your submission of 18 December 2014, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by Alternate Vice-Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this favourable opinion letter. The expectation is that this information will be published for all studies that receive an ethical opinion but should you wish to provide a substitute contact point, wish to make a request to defer, or require further information, please contact the REC Manager, Rachel Katzenellenbogen, nrescommittee.northwest-haydock@nhs.net. Under very limited circumstances (e.g. for student research which has received an unfavourable opinion), it may be possible to grant an exemption to the publication of the study.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the

study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database. This should be before the first participant is recruited but no later than 6 weeks after recruitment of the first participant.

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@nhs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from NRES. Guidance on where to register is provided on the HRA website.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Covering letter on headed paper [F WCHADS 7-9 1 Covering letter to ethics committee]	1	26 November 2014
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [Indemnity Certificate]	1	24 November 2014
GP/consultant information sheets or letters [WCHADS 7-9 letter to	1	28 October 2014

A Research Ethics Committee established by the Health Research Authority

GP to inform them of participation]		
Instructions for use of medical device [RSA and skin conductance measurement]	1	28 October 2014
Instructions for use of medical device [Saliva collection for cortisol analysis procedure]	1	28 October 2014
Instructions for use of medical device [Saliva collection for DNA testing]		28 October 2014
Interview schedules or topic guides for participants [Integrated maternal interview]	1	28 October 2014
Letter from funder [proof of MRC grant funding WCHADS7-9]	1	11 April 2014
Letter from sponsor [Sponsorship letter]	1	24 November 2014
Non-validated questionnaire [WCHADS 7-9 Demographic, Health and lifestyle update 281014]	1	28 October 2014
Other [WCHADS 7-9 3 Ethical issues and safety protocol 281014]	1	28 October 2014
Other [WCHADS 7-9 281014 Age 7 Letter to Headteachers]	1	28 October 2014
Other [WCHADS 7-9 281014 Age 9 Letter to Headteachers]	1	28 October 2014
Other [Edinburgh Handedness Measure]		
Other [Developmental / observational assessment: Child growth measurement]	1	28 October 2014
Other [Mother-child Observational Assessment]	1	28 October 2014
Other [Affective and physiological arousal to picture and sound stimuli]	1	28 October 2014
Other [Social inclusion-exclusion paradigm]	1	28 October 2014
Other [Schultz Test of Emotion Processing]	1	28 October 2014
Other [Empathy and Theory of Mind]	1	28 October 2014
Other [Cognitive and Executive Functioning tasks]	1	28 October 2014
Other [Emotion Recognition with Eye Gaze – emotion matching and labelling]	1	28 October 2014
Other [Covering letter to ethics committee following provisional response on 9th December]	1	16 December 2014
Participant consent form [Extensive sample consent mother phases 13 and 14]	1	28 October 2014
Participant consent form [Intensive sample consent phases 13 and 14]	1	28 October 2014
Participant consent form [Phase 13 DNA consent form]	1	28 October 2014
Participant consent form [Phase 13, 14 Consent for Contacting School]	1	28 October 2014
Participant consent form [Consent form for use of DVD recordings and still images]	1	28 October 2014
Participant consent form [Consent for GP or health care provider tracking in future]	1	28 October 2014
Participant consent form [WCHADS 1-4 Feb 09 Extensive sample Consent form for future contacts mother]		01 February 2009
Participant consent form [WCHADS 1-4 220512 Consent for GP or health care provider tracking in future]		22 May 2012
Participant consent form [Extensive and Intensive Sample consent form - partner version]	2	16 December 2014
Participant information sheet (PIS) [F WCHADS 7-9 281014 V1R Extensive sample Phase13-14 Participant Information Sheet mother]	1	28 October 2014
Participant information sheet (PIS) [F WCHADS 7-9 281014 V1R Phase 13 and 14 Intensive sample participant information sheet]	1	28 October 2014
Participant information sheet (PIS) [Extensive and Intensive sample Phase13-14 Participant Information Sheet partner]	2	16 December 2014
REC Application Form [REC_Form_25112014]		25 November 2014
Referee's report or other scientific critique report [Referee 1]		06 January 2014

comments]		
Referee's report or other scientific critique report [Referee 2 comments]		12 January 2014
Referee's report or other scientific critique report [Referee 3 comments]		20 January 2014
Referee's report or other scientific critique report [Applicants reply to referee comments]	1	
Research protocol or project proposal	1	28 October 2014
Summary CV for Chief Investigator (CI) [CV J Hill]	1	28 October 2014
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Table summarising measures in WCHADS 7-9]	1	28 October 2014
Validated questionnaire [Center for Epidemiologic Studies Depression Scale (CES-D)]		
Validated questionnaire [General Health Questionnaire-12]		
Validated questionnaire [Spielberger State-Trait Anxiety Inventory]		
Validated questionnaire [Kansas Marital Satisfaction Scale]		
Validated questionnaire [Inventory of Callous Unemotional traits]		
Validated questionnaire [The PCLC – my response to stress]		
Validated questionnaire [Dunedin Relationship Scale - Psychological]		
Validated questionnaire [Dunedin Relationship scale -Physical Abuse]		
Validated questionnaire [Child Behaviour Checklist (CBCL, 6 – 18 years)]		
Validated questionnaire [Parent report Baillargeon Peer aggression Scale - parent]		
Validated questionnaire [Baillargeon Peer aggression Scale - child]		
Validated questionnaire [Parental Feelings Questionnaire]		
Validated questionnaire [Reactive-proactive aggression behaviour]		
Validated questionnaire [Dyadic Adjustment Scale]		
Validated questionnaire [Dyadic Adjustment Scale- short form]		
Validated questionnaire [Parental cognitions scale]		
Validated questionnaire [Strengths and Difficulties Questionnaire]		
Validated questionnaire [Alabama Parenting Questionnaire]		
Validated questionnaire [Behavioural Inhibition Scale]		
Validated questionnaire [Irritable withdrawn behaviours]		
Validated questionnaire [Chaos scale – short form]		
Validated questionnaire [Antisocial Process Screening Device - 6 Item subscale assessing callous unemotional traits.]		
Validated questionnaire [Connor's short form]		
Validated questionnaire [Social Communication Questionnaire]		
Validated questionnaire [Griffiths Empathy Scale]		
Validated questionnaire [parent - Observations of Attachment behaviours]		
Validated questionnaire [Autism Quotient]		
Validated questionnaire [Teacher - Observations of Attachment behaviours]		
Validated questionnaire [Teacher Report Form – (CBCL 6-18 years)]		
Validated questionnaire [Teacher APSD And prosocial SDQ items]		
Validated questionnaire [Student-teacher relationship scale]		
Validated questionnaire [Macarthur Health and Behaviour Questionnaire]		

Validated questionnaire [teacher report - Reactive - proactive aggression]		
Validated questionnaire [Peer conflict scale – child report]		
Validated questionnaire [Friendship interview - child]		
Validated questionnaire [Adult-Adolescent Parenting Inventory – empathy scale]	2	16 December 2014

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document “*After ethical review – guidance for researchers*” gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: <http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/>

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at <http://www.hra.nhs.uk/hra-training/>

14/NW/1484

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project.

Yours sincerely



On behalf of

A Research Ethics Committee established by the Health Research Authority

Dr Tim S Sprosen
Chair

Email: nrescommittee.northwest-haydock@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Dr Mike Proven, University of Reading
Dr Ewen Sim, Wirral Community NHS Trust

Appendix I: Personal reflections on the terms callous unemotional traits and psychopathy

I have used the term callous unemotional ‘behaviour’ instead of callous unemotional ‘traits’ throughout this paper and will outline below the reasons for this decision. I will also reflect on my own personal feelings towards the terms ‘callous unemotional’ and ‘psychopath’.

In their 2017 paper, Waller & Hyde critically discuss the use of the term ‘traits’ to describe the group of behaviours known as Callous unemotional (CU) traits; characterised as a lack of empathy, guilt and shallow affect sometimes seen in children. This group of behaviours has previously been linked to psychopathy in adulthood.

Firstly, Waller & Hyde discuss how using the word ‘trait’ could have unintended and problematic consequences when applied to young children. The word ‘trait’ in itself, implies the notion that what is being described is stable or perhaps even untreatable. This may lead parents and treatment providers to believe that these children are psychopaths ‘in the making’ and that there is little that can be done to prevent this. Firstly, we know from the attribution literature that locating the cause of a negative behaviour within a child can have a negative impact on the parent-child relationship and on the child’s mental health. Therefore, parents who view their child as having internal, stable characteristics that may be linked to psychopathy could have hugely negative implications for the child. Secondly, the idea that CU behaviours in young children are entirely stable and untreatable is not evidenced in the research literature. There has been much research examining CU behaviour in children that has demonstrated how these behaviours have reduced over time where there has been increased parental warmth and involvement with the child (Waller et al., 2013). Thirdly, empirical evidence suggests that CU behaviours in childhood are only weakly to moderately related to psychopathy in adulthood. For example, in one study, only one in five children in the top 10% of those identified as having psychopathic traits at age 13 were diagnosed with psychopathy at age 24 (Lynam et al., 2007).

As a researcher and as a Trainee Clinical Psychologist, I am interested in why these behaviours develop and how children and families can be supported. I also take a critical standpoint on diagnosis and the use of psychiatric labelling. I personally feel uncomfortable about using the terms ‘callous unemotional’ and ‘psychopath’ to describe people. The use of such labels can lead to discrimination and stigma and can prevent access to services. However, whilst remaining critical of the use of these labels, I also believe that it is of clinical importance that we research these behaviours that do occur in a small percentage of children and young people in society. These behaviours can lead to a trajectory of anti-social behaviours, entry into the criminal justice system and can have negative consequences on the mental health and wellbeing of the individual. Understanding how these behaviours develop will inform treatment providers so that families get the best and most effective support to improve outcomes for their child. As psychologists, I believe we are well placed to research these topics whilst encouraging a conversation about the consequences that these labels can have for people and promoting the search for alternative terminology.

References

- Lynam, D. R., Caspi, A., Moffitt, T. E., Loeber, R., & Stouthamer-Loeber, M. (2007). Longitudinal evidence that psychopathy scores in early adolescence predict adult psychopathy. *Journal of Abnormal Psychology, 116*, 155–165. doi:10.1037/0021-843X.116.1.155
- Waller, R., Gardner, F., & Hyde, L. W. (2013). What are the associations between parenting, callous–unemotional traits, and antisocial behavior in youth? A systematic review of evidence. *Clinical Psychology Review, 33*(4), 593-608.
<https://doi.org/10.1016/j.cpr.2013.03.001>

Waller, R., & Hyde, L. W. (2017). Callous–unemotional behaviors in early childhood: Measurement, meaning, and the influence of parenting. *Child Development Perspectives, 11*(2), 120-126. <https://doi.org/10.1111/cdep.12222>

Appendix J: The parent report version of the Inventory of Callous-Unemotional traits

(ICU; Frick, 2004)

Some more questions about your child..

Please complete the background information above. Then read each statement and decide how well it describes your child. Mark your answer by circling the appropriate number (0-3) for each statement. Do not leave any statement unrated.

	Please circle your response for every question	Not at all true	Somewhat true	Very true	Definitely true
1	Expresses his/her feelings openly	0	1	2	3
2	Does not seem to know "right" from "wrong"	0	1	2	3
3	Is concerned about schoolwork	0	1	2	3
4	Does not care who he/she hurts to get what he/she wants	0	1	2	3
5	Feels bad or guilty when he/she has done something wrong	0	1	2	3
6	Does not show emotions	0	1	2	3
7	Does not care about being on time	0	1	2	3
8	Is concerned about the feelings of others	0	1	2	3
9	Does not care if he/she is in trouble	0	1	2	3
10	Does not let feelings control him/her	0	1	2	3
11	Does not care about doing things well	0	1	2	3
12	Seems very cold and uncaring	0	1	2	3
13	Easily admits to being wrong	0	1	2	3
14	It is easy to tell how he/she is feeling	0	1	2	3
15	Always tries his/her best	0	1	2	3
16	Apologizes ("says he/she is sorry") to persons he/she has hurt	0	1	2	3
17	Tries not to hurt others' feelings	0	1	2	3
18	Shows no remorse when he/she has done something wrong	0	1	2	3
19	Is very expressive and emotional	0	1	2	3
20	Does not like to put the time into doing things well	0	1	2	3
21	The feelings of others are unimportant to him/her	0	1	2	3
22	Hides his/her feelings from others	0	1	2	3
23	Works hard on everything	0	1	2	3
24	Does things to make others feel good	0	1	2	3

Appendix K: Self-Report Psychopathy Scale (Levenson et al., 1995)

	How I see myself as a person
--	-------------------------------------

Please rate the degree to which you agree with the following statements about you. You can be honest because your name will be detached from the answers as soon as they are submitted.

		Disagree strongly	Disagree a little	Neither agree or disagree	Agree a little	Agree strongly
1	I'm more tough-minded than other people	1	2	3	4	5
2	I think I could "beat" a lie detector	1	2	3	4	5
3	Most people are wimps	1	2	3	4	5
4	I purposely flatter people to get them on my side	1	2	3	4	5
5	It tortures me to see an injured animal	1	2	3	4	5
6	I have pretended to be someone else in order to get something	1	2	3	4	5
7	I like to see fist-fights	1	2	3	4	5
8	I'm not tricky or sly	1	2	3	4	5
9	My friends would say that I am a warm person	1	2	3	4	5
10	I would get a kick out of 'scamming' someone	1	2	3	4	5
11	I feel so sorry when I see a homeless person	1	2	3	4	5
12	It's fun to see how far you can push someone before they get upset	1	2	3	4	5
13	I don't bother to keep in touch with my family anymore	1	2	3	4	5
14	I find it difficult to manipulate people	1	2	3	4	5
15	I never cry at movies	1	2	3	4	5
16	You should take advantage of other people before they do it to you	1	2	3	4	5
17	People sometimes say that I'm cold-hearted	1	2	3	4	5
18	People can usually tell if I am lying	1	2	3	4	5
19	I love violent sports and movies	1	2	3	4	5
20	Sometimes you have to pretend you like people to get	1	2	3	4	5

	something out of them					
21	I'm a soft-hearted person	1	2	3	4	5
22	I can talk people into anything	1	2	3	4	5
23	People are too sensitive when I tell them the truth about themselves	1	2	3	4	5
24	Most people tell lies everyday	1	2	3	4	5
25	People cry way too much at funerals	1	2	3	4	5
26	You can get what you want by telling people what they want to hear	1	2	3	4	5
27	I never feel guilty over hurting others	1	2	3	4	5
28	A lot of people are "suckers" and can easily be fooled	1	2	3	4	5
29	I sometimes dump friends that I don't need any more	1	2	3	4	5
30	I would never step on others to get what I want	1	2	3	4	5

Appendix L: Items and their factors loadings during CFA used to create Composite CU factor scores for ages 2.5 years (Bedford et al, 2015) 3.5 years and 5 years (Wright et al., 2018)

Items	Age 2.5	Age 3.5	Age 5
CU traits items			
APSD 1: Concerned about the feelings of others (R)	.48	.42	.41
APSD 2: Seems motivated to do his/her best in structured activities (R)	.61	.37	
APSD 3: Is good at keeping promises (R)	.54	.51	.49
APSD 4: Feels bad or guilty when he/she does something wrong (R)	.48	.46	.61
APSD 5: Keeps the same friends (R)	.36	.16	.49
CBCL 14: Cruel to animals	.93		.59
CBCL 58: Punishment doesn't change his/her behavior	.62	.74	.68
CBCL 67: Seems unresponsive to affection	.77	.69	.81
CBCL 69: Selfish or won't share	.42		
CBCL 70: Shows little affection toward people	.48	.75	.82
CBCL 72: Shows too little fear of getting hurt		.49	
BITSEA 22: Tries to help if someone is hurt (R)	.69		
SDQ 1: Considerate of other people's feelings (R)			.82
SDQ 4: Shares readily with other children (R)			.60
SDQ 9: Helpful if someone is hurt, upset or feelings ill (R)			.75
SDQ 17: Kind to younger children (R)			.70
SDQ 20: Often volunteers to help others (R)			.56

Note: APSD = Antisocial Personality Screening Device, BITSEA = Brief Infant Toddler Social and Emotional Assessment, SDQ = Strengths and Difficulties Questionnaire

Appendix M: Parent Cognition Scale (PCS; Snarr, Slep & Grande, 2009)

Parent Cognition Scale

Instructions: At one time or another, all children misbehave or do things that could be harmful, that are wrong, or that parents don't like. Examples include:
 hitting someone whining not cleaning room not doing homework
 lying refusing to go to bed arguing back taking things that aren't theirs
 having a tantrum cursing coming home late running into the street
 Parents have many different ways of thinking about these types of problems, and may think differently about problems depending on their specific children.

Please rate how much you would agree, in general, that the following reasons for misbehavior are true for the **target child** and his/her behavior for the **past two months**:

	Always True	Frequently True	Sometimes True	Occasionally True	Rarely True	Never True
1. I was not as firm as I usually am.	1	2	3	4	5	6
2. My child won't listen.	1	2	3	4	5	6
3. I'm not structured enough with my child.	1	2	3	4	5	6
4. My child cannot understand the rules.	1	2	3	4	5	6
5. My child thinks that he/she is the boss.	1	2	3	4	5	6
6. I don't know how to handle my child.	1	2	3	4	5	6
7. I don't give my child enough attention.	1	2	3	4	5	6
8. My child is headstrong.	1	2	3	4	5	6
9. It's hard for me to set limits.	1	2	3	4	5	6
10. My child is in a stage.	1	2	3	4	5	6
11. My child wants what he/she wants when he/she wants it.	1	2	3	4	5	6
12. I was tired at the time.	1	2	3	4	5	6
13. I handle my child in a non-confident way.	1	2	3	4	5	6
14. My child purposely tries to get me angry.	1	2	3	4	5	6
15. My child feels like there is no time for him/her.	1	2	3	4	5	6
16. I'm not patient.	1	2	3	4	5	6
17. My child tries to get my goat or push my buttons.	1	2	3	4	5	6
18. My child wants things his/her way.	1	2	3	4	5	6
19. It's difficult for my child to do what I want.	1	2	3	4	5	6
20. I can't control my child.	1	2	3	4	5	6
21. I couldn't respond quickly enough at the time.	1	2	3	4	5	6
22. I'm not able to be clear.	1	2	3	4	5	6
23. My child is very demanding.	1	2	3	4	5	6
24. I handled things in an unusual way.	1	2	3	4	5	6
25. My child likes to see how far he/she can push me.	1	2	3	4	5	6
26. I was busy with something at the time.	1	2	3	4	5	6
27. I don't do the right thing.	1	2	3	4	5	6
28. My child tires easily.	1	2	3	4	5	6
29. I have a hard time really listening to my child.	1	2	3	4	5	6
30. My child refuses to do what I think he/she should do.	1	2	3	4	5	6

Appendix N: Parental positive affect and dyadic reciprocity subscales (Deater-Deckard et al., 1997)

Positive affect (warmth)

- (1) No positive affect displayed
- (2) One or two instances of positive affect
- (3) A few/several instances of positive affect
- (4) Moderate amounts of positive affect – smiling, laughing for about half of interaction
- (5) Positive affect for more than half of interaction
- (6) Substantial amounts of positive affect; only one or two instances of non-positive affect
- (7) Constant positive affect – smiling and laughing throughout task

Dyadic reciprocity

- (1) No evidence of reciprocity
- (2) One or two instances of reciprocity- either shared affect or eye contact
- (3) A few/several instances of reciprocity- either shared affect or eye contact
- (4) Moderate levels of reciprocity; evidence of both shared affect and eye contact; some evidence of “conversation-like” interaction
- (5) Clear evidence of reciprocity; one or two episodes of intense shared positive affect coupled with eye contact that is sustained for several “turns” between mother and child.
- (6) Substantial reciprocity involving numerous episodes of intense shared positive affect coupled with eye contact that is sustained for “several turns”: only one or two instances of non-reciprocity
- (7) Highly integrated and reciprocal- constant shared positive affect and eye contact that never loses “turn-taking” quality.

**Appendix O: Oppositional Defiant Disorder (ODD) subscale of the Preschool
Child Behavior Checklist (Pre-CBCL; Achenbach & Rescorla, 2000).**

Below is a list of items that describe children. For each item, *now or within the past 2 months*, please answer 2 if the item is *very true or often true* of your child. Circle 1 if the item is somewhat or sometimes true of your child. If the item is *not true* of your child, circle 0. Please answer all the items as well as you can, even if some do not seem to apply to your child.

0 = Not true (as far as you know) 1= Somewhat or Sometimes True 2 = Very True or Often True

15. Defiant	0	1	2
20. Disobedient	0	1	2
Angry moods	0	1	2
Stubborn, sullen, or irritable	0	1	2
Temper tantrums or hot temper	0	1	2
Unco -operative	0	1	2

Appendix P: Violin plots for the four CU measures at 27 months, 3.5 years, 4.75 years, and 7 years.

Figure 1. *CU behaviour at 27 months*

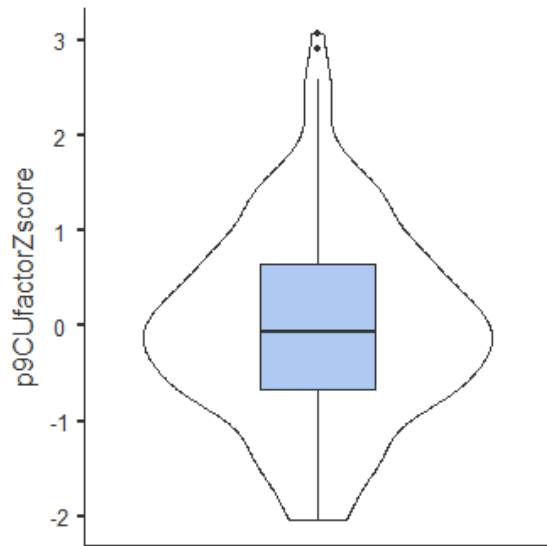


Figure 2. *CU behaviour at 3.5 years*

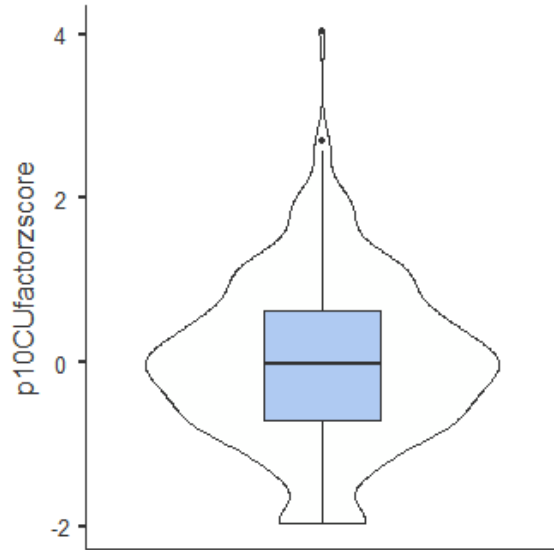


Figure 3. *CU behaviour at age 4.75 years*

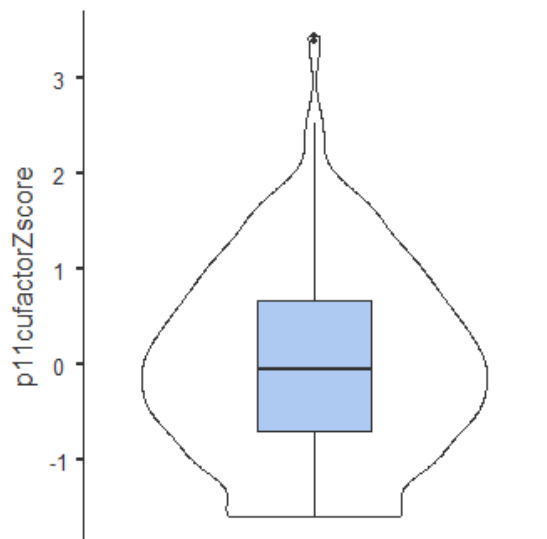


Figure 4. *CU behaviour at age 7 years*

