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Validating the Clinical Assessment of Prosocial Emotions (CAPE 1.1) with children and adolescents with conduct problems.

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Validating the Clinical Assessment of Prosocial Emotions (CAPE 1.1) with children and adolescents with conduct problems.

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June 2016

A thesis submitted in fulfilment of the requirements for the degree of Master of Science by Research

in the

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ABSTRACT

Many children and adolescents with conduct disorder (CD) also display high levels of callous unemotional (CU) traits. This severe and difficult to treat subgroup of children warrant a new specifier for CD named with limited prosocial emotions (LPE), as designated in the more recent revision of the DSM-5. A valid sample to measure LPE is needed, as conventional measures for CD and CU are not sufficient. The Clinical Assessment of Prosocial Emotions (CAPE 1.1; Frick, 2013) is a multi-source, multi-informant tool administered by a trained clinician aimed to detect the LPE specifier of CD. This study aimed to assess construct, convergent and concurrent validity of the CAPE in a clinically relevant, at-risk sample of 28 children and adolescents aged 6 – 18 years old from a family intervention project (FIP) based in Stockton Council capture areas in the North East of England. The CAPE had good construct validity as it successfully mentioned CU traits. The CAPEs relationship with other child psychopathic traits was convergent but equivocal, highlighting the need for further exploration into LPE and the on terminology often used within these remits. Despite having no diagnostic tool for CD, the CAPE was also concurrently related to conduct problems when the CAPE was used as a continuous measure but not dichotomous. A critical analysis of the CAPE regarding its design and administration process is included.

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children and adolescents with conduct problems.

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LIST OF ABBREVIATIONS

ADHD: Attention-Deficit Hyperactivity Disorder

APSD: Antisocial Process Screening Device

ASD: Autism Spectrum Disorder

CAPE: Clinical Assessment of Prosocial Emotions

CD: Conduct Disorder

CP-only: Conduct problems but without CU traits

CPTI: Child Problematic Traits Inventory

    CPTI-CU: Callous Unemotional dimension of child psychopathy as measured using the CPTI

    CPTI-GD: Grandiose Deceit dimension of child psychopathy as measured using the CPTI

    CPTI-INS: Impulsivity and Need for Stimulation dimension of child psychopathy as measured using the CPTI

CU traits: Callous Unemotional Traits

Dadds' CU: University of New South Wales CU scale

DSM-5: Diagnostic and Statistical Manual of Mental Disorders (5th edition)

FIP: Family Intervention Programme

ICU: Inventory of Callous Unemotional Traits

LPE: with Limited Prosocial Emotions

MTI: Minnesota Temperament Inventory

NIM: Negative Impression Management

ODD: Oppositional Defiant Disorder

PCL-R: Psychopathy Checklist – Revised

PCL-YV: Psychopathy Checklist – Youth Version

PIM: Positive Impression Management

SDQ: Strengths and Difficulties Questionnaire

DECLARATION

The data for this thesis was collected by Dr Luna Centifanti as part of the Family Intervention Programme project. The analysis and write-up of this research is all my own independent work.

AUTHOR'S DECLARATION

I declare that the work contained in this thesis has not been submitted for any other award and that it is all my own work. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this thesis has been approved. Approval has been sought and granted by the department of psychology ethics sub-committee at Durham University.

I declare that the word count of this thesis is 15,623 words.

1.0 Introduction

1.1 A new specifier for conduct disorder (LPE)

The most recent revision of the Diagnostic and Statistical Manual of
Mental Disorders (DSM-5) includes a new specifier for conduct disorder (CD)
referred to as conduct disorder with limited prosocial emotions (LPE; (Frick &
Moffitt, 2010; American Psychiatric Association, 2013). LPE designates a
subgroup of children and adolescents with CD who show severe behavioural
issues and also display high levels of callous and unemotional (CU) traits (Frick &
Moffitt, 2010). Callous and unemotional traits refer to an affective and
impersonal personality style, whereby individuals may show a lack of empathy
or superficial display of emotions (affective) and a callous use of others and
instrumental use of aggression for one's own gain (impersonal) (Frick & Dickens,
2006). The inclusion of the new LPE subtype aims to identify children in need of
individualised treatment or interventions as the subgroup of children with CD
and LPE are particularly difficult to treat using conventional methods of
treatment for serious conduct problems (Salekin, 2002). They likely represent a
significant number of individuals with CD, as it has been estimated that between
20% and 50% of children with serious conduct problems also show high levels of
CU traits (Frick, Ray, Thornton, & Kahn, 2014). A common problem in this area of
research is the use of appropriate yet restrictive language to describe children
who are younger than 18 years old and display these personality styles. The LPE
specifier aims to avoid stigmatising language used to describe children who are
antisocial and difficult to engage in treatments and interventions (Frick &
Moffitt, 2010).

An appropriate measure for LPE within conduct disorder is needed to
enable the monitoring and risk assessment of current and future conduct
problems in both clinical and at-risk samples. The Clinical Assessment of
Prosocial Emotions (CAPE 1.1; Frick, 2013) has recently been developed as a
clinical assessment tool to measure LPE. Although the CAPE is not a diagnostic
tool for CD, its aim is to assess the CU traits aspect of LPE and therefore aid
detection of the more serious subgroup of children and adolescents with LPE.

Having CD with LPE is associated with a range of negative outcomes as also found with CD and CU traits. These include anti-social personality disorder in adulthood and adult psychopathy (López-Romero, Romero, & Luengo, 2012; Hinshaw, Lahey, & Hart, 1993; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007). Correctly identifying these children early with a view to intervening early is critically important. There are issues with regards to measuring LPE and CU traits, linked to issues with measuring psychopathy. From the adult literature it can be seen that CU traits are linked with the affective dimension of psychopathy (Frick & White, 2008). However, how CU traits are linked with psychopathic traits in childhood is much less clear, as literature is currently lacking. To complicate matters, in research on children and adolescents, the term "CU traits" is often used interchangeably with psychopathy to avoid stigma behind a "psychopath" label. CU traits are reported as stable over time (Frick & Marsee, 2006; Waschbusch & Willoughby, 2008; Kimonis, et al., 2008) and the precursor to adult psychopathy (Frick & Dickens, 2006; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007). For the purposes of the current work, the operational definition of CU traits provided by Frick and Dickens (2006) is used, which includes affective and interpersonal dimensions described above.

The aim of this research is to validate a clinical assessment designed to measure LPE - the Clinical Assessment of Prosocial Emotions (CAPE), and here it is validated for use with a clinically relevant community sample of individuals with conduct problems.

1.2 Conduct disorder

Children and adolescents diagnosed with CD present with a variety of behaviours that persistently violate the rights of other people or others' property using aggression, destruction, and deceit or by disobeying age-appropriate societal norms (American Psychiatric Association, 2013; Frick, Ray, Thornton, & Kahn, 2014). The prevalence of CD is reportedly between 2% and 10% of children, and is most commonly diagnosed in boys (American Psychiatric Association, 2013).

It is estimated that as many as 50% of children diagnosed with CD go on to develop anti-social personality disorder or to engage in adult criminality, indicating that CD is a precursor to future negative outcomes (Moffit, 2003; Hinshaw, Lahey, & Hart, 1993; Moffitt & Caspi, 2001). CD can either be adolescent limited or life course persistent (Moffit, 2003) and can be comorbid with attention deficit hyperactivity disorder (ADHD) or oppositional defiant disorder (ODD) as found in a large community sample of boys (Pardini & Fite, 2010). Further understanding is needed about CD in girls (Moffitt, et al., 2008). CD is often associated with behaviour more commonly seen in boys, such as hyperactivity, as opposed to those more commonly seen in girls such as indirect, interpersonal or manipulative behaviours (Archer, 2000 American Psychiatric Association, 2013; Penney & Moretti, 2007).

For a diagnosis of CD, the antisocial behaviours must be present for six months. Before the new LPE specifier was included, diagnostic criteria for CD was subtyped by 'age of onset' (American Psychiatric Association, 2013; Moffitt, et al., 2008). The first of two age of onset diagnostic criterion for CD was "childhood onset", where conduct problems are detected before the age of ten years old. The childhood onset developmental course for CD is linked more with *life course* persistent conduct problems, more serious antisocial behaviours in adulthood and greater levels of comorbidity with ADHD, aggression, violence, and problems within the family (Moffitt 1993; Moffitt, et al., 2008). The second subtype of CD was "adolescent-onset", where conduct problems occur after the age of ten years old in adolescence. This subtype is more prevalent than childhood-onset CD and is characterised by less impairment and less risk of adult psychosocial personality disorder than childhood onset (Moffit, 2003; Moffitt, et al., 2008)

Despite good predictive ability of age of onset for adult prognosis and engagement/ resistance to treatment, the validity of this approach to diagnosis has been debated (Moffitt, et al., 2008). Instead, it is thought that CD may follow different developmental pathways, designating a number of possible subgroups or severities within CD (Moffitt, et al., 2008). It has been suggested that there are a number of different developmental pathways to CD such as psychosocial, biological and familial causes, which may be associated with different adult

outcomes (Frick, Lahey, Loeber, Stouthamer-Loeber, Christ, & Hanson, 1992; Frick, Ray, Thornton, & Kahn, 2014). It may be that the success of treatment options (such as parent counselling, drug action or family therapies) depend on the developmental pathway to CD, (Bonin, Stevens, Beecham, Byford, & Parsonage, 2011; Hawes, Price, & Dadds, 2014).

1.3 Callous unemotional traits

As mentioned previously, CU traits are an interpersonal and affective personality style resulting in a lack of regard for other people (Frick & Dickens, 2006). CU traits are linked with severe and persistent antisocial behaviour (Hare & Neumann, 2008) and are stable over time beyond certain vulnerable developmental periods such as puberty (Dadds, et al., 2014; Szyf & Bick, 2013), and are stable over time regardless of associated conduct problems (Frick & Marsee, 2006; Waschbusch & Willoughby, 2008; Kimonis, et al., 2008).

Children and adolescents with CU traits are not sensitive to punishment, especially once reward-directed behaviour is primed (Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003; Fisher & Blair, 1998; Pardini, Lochman, & Frick, 2003), regardless of comorbidity with CD (O'Brien & Frick, 1996). Not only are children and adolescents with CU traits not sensitive to punishment, making punishments difficult and ineffective (Salekin, 2002), but they also believe that deviant and aggressive behaviour is a positive action, particularly for instrumental gain (Pardini, Lochman, & Frick, 2003; Pardini & Byrd, 2012; Frick, Cornell, Bodin, Dane, Barry, & Loney, 2003).

Assessments of CU traits currently provide indications of either high or low CU traits (Frick, Ray, Thornton, & Kahn, 2014). Children and adolescents high in CU traits have deficits with recognising fear (Blair & Coles, 2000; Dadds, El Masry, Wimalaweera, & Guastella, 2008; Sylvers, Brennan, & Lilienfield, 2011) and often sadness (Blair & Coles, 2000; Schwenck, et al., 2012; Wooodworth & Waschbusch, 2008). As well as deficits with recognising negative emotions in other people, individuals high in CU traits may also have decreased abilities in emotional reactivity (Loney, Frick, Clements, Ellis, & Kerlin, 2003; Kimonis, Frick, Munoz, & Aucoin, 2008).

Individuals who are high on CU traits have impairments in emotion recognition (Dawel, O'Kearney, McKone, & Palermo, 2012), resulting in some similarities with other disorders, such as Autism Spectrum Disorder (ASD) (Leno et al., 2015). Atypicalities with empathy are also similar between CU traits and ASD, but not when conduct problems are present (Leno, et al., 2015). Empathy can be split into two sub dimensions: cognitive and affective (Dadds, et al., 2009; Baron-Cohen & Wheelwright, 2004). Cognitive empathy refers to the ability to understand how another person may feel whereas affective empathy is the ability to feel sympathy or concern for another person (Dadds, et al., 2009; Baron-Cohen & Wheelwright, 2004). Research suggests that individuals high in CU traits have cognitive empathy but deficits in affective empathy (Dadds, et al., 2009), differentiating them from those with ASD (Jones, Happé, Gilbert, Burnett, & Viding, 2010; Schwenck, et al., 2012). This would mean that they know why a person may be upset or hurt, but they do not care. The cognitive empathy sub dimension of empathy improves over the developmental trajectory for those high in CU traits whereas the affective empathy deficit does not (Jones, Happé, Gilbert, Burnett, & Viding, 2010; Schwenck, et al., 2012; Dadds, et al., 2009).

CU traits have also been linked to ADHD. Several studies have reported associations between CU traits and hyperactivity and impulsivity (Dadds et al., 2005; Viding et al., 2009). However, there has been some discussion in the literature as to whether this link is dependent on conduct problems, as ADHD is comorbid with CD and CU traits are also associated with CD (Herpers, Rommelse, Bons, Buitelaar, & Scheepers, 2012). One argument is that there is overlap between ADHD traits and factor 2 psychopathy (impulsivity) and thrill seeking (fearlessness) behaviour. CU traits are also linked with a preference for risky and thrill seeking behaviour (Frick & White, 2008).

To summarise, children and adolescents with CU traits have affective deficits that are distinguished from ASD and ADHD, individuals high in CU traits show understanding in terms of consequences of their actions but also show a lack of caring. This results in severe antisocial behaviour that is difficult to intervene or treat and can be a precursor to adult psychopathy. CU traits are linked with aspects of ADHD; however, it is not entirely clear from the literature whether this is dependent on conduct problems, and/or child psychopathy.

1.3.1 CU traits and overlap with psychopathy

There is a growing interest in investigating CU traits in research on children and adolescents as one way of exploring psychopathy in children under the age of 18 years old (Frick, 2009). The terms CU traits and psychopathy are often used interchangeably in research on children and adolescents, due to the stigma associated with the term 'psychopath'. Using the term 'psychopath' to describe children can have detrimental effects due to negative connotations of the label and the stability of the personality trait over time (Dadds, et al., 2014; Szyf & Bick, 2013; Frick & Marsee, 2006; Waschbusch & Willoughby, 2008; Kimonis, et al., 2008).

CU traits are also associated with the affective dimension of psychopathy (Frick & White, 2008). The differences between CU traits and other psychopathy features are apparent in literature in adult psychopathy but not as clear in child literature. Herpers and colleagues (2012) conducted a review of the different underlying features of juvenile psychopathy such as thrill seeking, callousness and impulsivity and found a three, or possibly four, factor solution of child psychopathy. The three-factor solution of child psychopathy involves an interpersonal dimension, a behavioural dimension as well as an affective/CU dimension found consistently throughout most factor analyses (Dadds, Fraser, Frost, & Hawes, 2005; Fung, Gao, & Raine, 2009; Jones, Cauffman, Miller, & Mulvey, 2006; Kosson, Cyterski, Steuerwald, Neumann, & Walker-Matthews, 2002; Vitacco, Rogers, & Neumann, 2003; Veen, Stevens, Andershed, Raaijmakers, Doreleijers, & Vollebergh, 2011). This factor structure was also replicated in literature using a clinical assessment tool, the PCL-R (Forth, Kosson, & Hare, 2003). Using the PCL-R with a forensic sample, factor analysis found an affective (deficient affective experience), interpersonal (deceitful interpersonal style) and a behavioural facet (Impulsive and irresponsible behavioural style) of psychopathy (Cooke & Michie, 2001). These studies support the idea that CU traits are part of child psychopathy as an umbrella term, where we would expect each dimension (interpersonal, affective and behavioural) to also relate to each other.

However, Frick and Dickens (2006) define CU traits as an affective and interpersonal personality style in children and adolescents and a precursor to adult psychopathy, therefore not to be used interchangeably with psychopathy. CU traits are also argued to be a stand-alone construct in children with no usefulness outside of disruptive behaviour disorders (Herpers, Rommelse, Bons, Buitelaar, & Scheepers, 2012).

The overlap between CU traits and psychopathy presents some issues for the literature on CD and LPE. LPE is currently defined as a subgroup of children and adolescents with conduct disorder who also display serious antisocial behaviour and a lack of remorse or guilt, as specified by also having CU traits. It is not clear from the literature where the boundary between CD with LPE and child psychopathy lies. This is relevant for the current work when validating a measure of LPE.

1.4 LPE

When CU traits are also present with CD, behaviours become more severe due to deficits in affective and interpersonal processes, as defined by Frick and Dickens (2006). CU traits have recently been applied in the remits of CD in terms of a subgroup of children with particularly severe and difficult to treat conduct problems. The subgroup of children with high CU traits as well as high conduct problems can have CD with the specifier of with limited prosocial emotions (LPE). There are many benefits to a further understanding of the LPE subgroup of children and adolescents in terms of understanding developmental trajectories and efficacy of interventions and treatments.

Some differences between children and adolescents with LPE and those with conduct problems but without CU traits (CP-only) have been reported. CP-only children have an increased response to emotional stimuli compared to a reduced response to distress for those with LPE (Sebastian, et al., 2012). Children with LPE have deficits with emotion processing compared with CP-only (Dawel, O'Kearney, McKone, & Palermo, 2012; Schwenck, Gensthaler, Romanos, Freitag, Schneider, & Taurines, 2014), and CU traits can predict aggression in

LPE groups compared to CP-only (Thornton, Frick, Crapanzano, & Terranova, 2013).

Having CD is associated with increased risk of later development of adult anti-social personality disorder and adult criminality (Moffit, 2003; Hinshaw, Lahey, & Hart, 1993; Moffitt & Caspi, 2001). Having LPE increases this risk even further (Moffitt, et al., 2008). The efficacy of treatments for LPE individuals is decreased in comparison to CP-only children (Hawes & Dadds, The treatment of conduct problems in children with callous-unemotional traits, 2005). Similar to what has been found in research on CU traits, children with CD and LPE are resistant to current treatment methods for CD (Newcorn, 2013). This emphasises the need for greater understanding of CD and LPE for picking up on, monitoring and intervention (Salekin, 2002).

Overall, the new specifier to CD named 'with limited prosocial emotions', outline a severe subgroup of children and adolescents with serious conduct problems but also deficits in emotional processing, recognition and caring for the consequences of their actions towards other people. This LPE subgroup is difficult to treat or intervene due to the desensitisation to punishment and belief that their actions are positive for their instrumental gain, regardless of hurting other people. Diagnostic tools for CD would not suffice for the LPE subgroup, and further tools are needed to detect, monitor and predict adult psychosocial or antisocial behaviours.

1.5 Measures for CU traits

Due to important developmental windows, such as before puberty, where CU traits or serious conduct problems may be malleable for change (Dadds, et al., 2014; Szyf & Bick, 2013) measures for LPE are needed to predict whether a person is a risk of serious violent or nonviolent behaviours towards others in the future (Salekin, Rogers, & Sewell, 1996; Salekin, 2002). Measures for psychopathy or CU traits in children therefore need to access the antisocial emotion and the risk of future problem behaviour in community and at-risk samples

Typically, CU traits have been measured by self-report methods in community and at-risk samples. Self-report measures, such as the Inventory of Callous Unemotional traits (ICU; Frick, 2004; Kimonis, et al., 2008) and the Antisocial Process Screening Device (APSD; Frick & Hare, 2001) have been used as quick and easy screening tools for CU traits in non-clinical samples. The APSD is reported to have poor psychometric properties (Frick & Hare, 2001; Poythress, Dembo, Wareham, & Greenbaum, 2006; Roose, Bijttebier, Decoene, Claes, & Frick, 2010), compared to the ICU, which is regarded as a robust screening tool.

The ICU is a self-report method of measuring CU traits as an isolated affective construct in children of both genders, aged 3-21 years old (Kimonis, et al., 2008; Essau, Sasagawa, & Frick, 2006). The ICU is a 24-item screening tool, rated on a 4-point Likert scale from 0 (*not at all true*) to 3 (*definitely true*) aimed to measure 3 factors within CU traits: uncaring, unemotional and callousness (Kimonis, et al., 2008). The ICU is well validated for use with community samples as it can take information from multi-informants: parents, teachers or self (Kimonis, et al., 2008), and so can avoid certain biases by using an informant other than the self or parent (Roose, Bijttebier, Decoene, Claes, & Frick, 2010). Although the ICU has no norm-reference tool, other informants may be better equipped to compare the children with similar children within their demographic, compared to parents who may hold a multitude of biases (Roose, Bijttebier, Decoene, Claes, & Frick, 2010). The ICU has been validated as having good construct validity to measure CU traits but also possibly broader predictors of the affective components of adult psychopathy in at-risk samples (Berg, et al., 2013).

1.5.1   Issues with self-report for measuring CU and LPE

Self-report measures for CU traits, such as the ICU and APSD have previously been used to measure LPE (Sebastian, et al., 2012; Dawel, O'Kearney, McKone, & Palermo, 2012; Thornton, Frick, Crapanzano, & Terranova, 2013). The ICU, on which the CAPE is modelled, focuses on the affective component of

CU traits (Frick & White, 2008) and might not pick up on all relevant aspects of CU traits such as an impersonal personality style.

Due to characteristics of deceitfulness, fabrication and lack of insight into societal norms associated with CU traits, there are issues around the use of self-report measures to detect CU traits with clinically relevant samples. Those with CU traits may answer questions on self-report measures with informant biases, inaccuracies and over exaggeration, which are associated with a personality style to do so regardless of any motivation (Rogers & Cruise, 2000; Ekman, 1993).

Taking examples from literature on adult psychopathy, informants employ positive impression management ((Paulhus, 1984)) strategies on self-report measures to 'fake good' portrayals of themselves (Paulhus, 1984). PIM is the attempt to control a person's own influence to their audience (Goffman, 2005) and is correlated with social desirability (Ray, Rivera-Hudson, Poythress, Lilienfield, & Morano, 2013). Those high in psychopathic traits have been reported to engage in more PIM than low psychopathic traits (Book, Holden, Starzyk, Wasylkiw, & Edwards, 2006), yet less is known about the role of psychopathy and Negative Impression Management (NIM) or malingering (Rogers, 2008; Paulhus, 1984) which is to feign or portray illness ('fake bad') for a secondary motive. It may be that individuals high on CU traits engage in similar impression management strategies.

By looking at the literature on psychopathy, it is also possible to see that the methodologies to measure psychopathic traits in offending or clinical samples are more vigorous than screening tools currently available for use on to measure CU traits as they use a host of informants, sources and informed clinical judgements. The PCL-R (Hare & Vertommen, 1991; Hare, 2003) is a widely used and validated psychopathy scale designed for use with offending samples, and comes in a youth version form for ages 12 to 18 years old (PCL-YV; Forth, Kosson, & Hare, 2003). The PCL-R and PCL-YV are considered robust as they combine a lengthy semi-structured interview and additional case file information from multiple sources, conducted by a trained clinician. Clinical measures used in offending samples, such as the PCL-YV (Forth, Kosson, & Hare, 2003) can provide an accurate case study of an incarcerated person, but they are long and costly.

In research using non-clinical or non-offending samples, self-report measures such as questionnaires and screening tools are used to measure CU traits. There is a need for a more robust method of measuring LPE, which involves a semi-structured interview administered by a trained clinician, similar to what has been developed for measuring psychopathy.

1.6 Clinical Assessment of Prosocial Emotions (CAPE 1.1)

The Clinical Assessment of Prosocial Emotions (CAPE 1.1; Frick, 2013) was designed to reliably measure the LPE specifier of CD. The CAPE has been explicitly modelled from the ICU, which is reported to measure the affective component of CU traits in children of both genders aged between 3 and 21. The CAPE is therefore designed to measure LPE, and is currently under development.

The CAPE comprises a multi-method (self-report, observation and clinical judgement), multi-informant (client's self-report, their parent/teacher report) clinical assessment designed for use by a trained clinician. The CAPE 1.1 includes semi-structured interviews to tap into four different symptom dimensions of LPE: lack of remorse or guilt, callous lack of empathy, unconcerned about performance and shallow or deficient affect. The interviewer uses their clinical judgement to obtain rich information from the questions for each informant then codes the information they receive in terms of how well the four symptom ratings describe the client. Two or more symptom ratings rated "highly descriptive" would mean that the client meets criteria for a diagnosis of '*with limited prosocial emotions*'. The coding form on the CAPE 1.1 also includes a control for distorted response styles and PIM: *"How accurate and honest did the informant seems to be?"* and a control for other informants' biases: "*how well did the informant seem to know the client?".*

The CAPE has potential to add to clinical practice in terms of highlighting children and adolescents with CD who may reach diagnostic criteria threshold for LPE, but it also has potential to add to the literature and to further understanding of both CD and CU traits. Therefore validation of this measure is very important. In terms of clinical practice it offers a rigorous multi-informant and multi-source method of diagnosing those that fall above cut-off for LPE,

when a diagnostic tool for CD is also used. The data from the CAPE can also be used for research purposes in terms of identifying groups of children that meet criteria for LPE, but also by using the data in a continuous manner to look at more subtle presentations of LPE.

The current study is a validation of the CAPE with a clinically relevant sample of children and adolescents with previous histories of problematic behaviour, offending and violence may be more likely to show symptoms of LPE than community samples. It was considered important to validate the CAPE in terms of its construct, convergent and concurrent validity. CU trait measures were used when assessing construct validity, as LPE is defined as CD with high CU traits and the CAPE is modelled from the ICU. We expected that scores from the CAPE would correlate with CU traits measures, such as the Dadds' CU measure (Dadds, Fraser, Frost, & Hawes, 2005) and the CU dimension of the Child Problematic Traits Inventory (CPTI; Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014). In terms of convergent validity, correlations between the CAPE and scores on the child psychopathy measure (CPTI) were explored, we expected to find further associations between LPE and other psychopathic traits as each dimension of psychopathy relates to each other.

In terms of concurrent validity, problematic behaviour, such as conduct problems, hyperactivity and prosocial behaviour measures (reversed) were used to determine the CAPE's association with related outcomes. As LPE is CU traits within CD, we expected high scores on the CAPE to correlate with high conduct problems and lower prosocial behaviour, whereas the association with hyperactivity scores could be uncertain. As we used a clinically relevant at-risk sample of children and adolescents, it was important to focus on how scores from the CAPE could predict definite conduct problems as described by scoring above cut off for conduct problems (scores of 4 or more) on the Strengths and Difficulties Questionnaire (SDQ ± 4; Goodman & Goodman, 2009).

2.0 Method

2.1 Participants

2.1.1   Family Intervention Programme

Participants were recruited through the Family Intervention Programme
(FIP) at Stockton Council in the Teesside area of the North East of England. The
FIP is a scheme aimed at intervening with families who are known to the local
authority due to unemployment, antisocial behaviour, truancy, or involvement in
crime. Families involved in the project had been referred or identified by the
local authority.

The FIP collaborates with trained agencies and targets families who are at
high-risk of future violence and offending. The overarching aim of the FIP is to
change the pattern of antisocial, deviant or criminal behaviour that tends to
occur through generations of high-risk families. A key strategy underpinning this
is to change attitudes towards criminal behaviour, police, and to promote
positive future aspirations. The FIP therefore aims to promote a prosocial way of
life to benefit society.

The FIP provided a means to access a clinically relevant sample of families
with which to conduct the current research project. The aim of this study was
not to evaluate the FIP, but to validate the Clinical Assessment of Prosocial
Emotions (CAPE; Frick, 2013) with families recruited through the FIP.
Participants were recruited using opportunity sampling via the FIP by
caseworkers on the local community safety team at Stockton Council. The data
collected for this research was facilitated by caseworkers on the FIP. All testing
was completed during a home visit while the researcher was accompanied by the
assigned caseworker; one family participated in the study at the caseworkers'
offices.

2.1.2 Families

It was possible to collect data from 34 families taking part in the FIP during December 2013 and June 2015; the children of the families were the focus for this study.

2.1.2.1 Children

From the 34 families recruited through the FIP, there was a total of 86 children aged 3 – 22 years (M = 12.42, SD = 4.47). The number of children in each family ranged from 1 to 5. From the 86 children, eight children had a pre-existing diagnosis of a developmental or mental health condition. Three children had a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD; 3.5%), three had Autism Spectrum Disorder (ASD; 3.5%), one child had a diagnosis of depression (1.2%) and one further child had a reported diagnosis but their case file did not specify it. 21.3% of cases had a history of being in care.

Five children in the sample (two of which were target children) were over the age of 18 years old and therefore were not included in analysis.

Target Children

One child from each family was identified as the 'target child' (N = 34) with which to administer the CAPE. Target children were identified by family and caseworkers as displaying the most problematic behaviour and were often the focus of the FIP. The target children were aged 6-18 years (M = 13.79, SD = 3.05), and generally older than the siblings from the 34 families (M = 11.5 years, SD = 5.06). Twenty-three of the target children were male and eleven were female.

Of the eight children in the whole sample with previous diagnoses, half of them (N = 4) were target children. Two out of the 34 target children had diagnosed ASD, one had a diagnosis of ADHD and one child was reported to have a disorder but there was no report of what it was. Therefore, these four target children were removed from the analyses on the validity of the CAPE, as any

problematic behaviour could be due to their pre-existing disorders. In addition to the four children with previous diagnoses, two target children were over 18 and removed from analyses. This leaves a final target child sample of N = 28, consisting of 18 males and 10 females aged 6 – 18 years old (M = 13.7 years, SD = 3.13)

Data relating to siblings of the target children was also used in this study for comparison purposes. Data from 45 siblings (24 males, 21 females) were used to compare scores on the Strengths and Difficulties Questionnaire (SDQ ± 4; Goodman & Goodman, 2009) to target children.

2.1.2.2   Parents

All families had a mother or mother figure, aged 24-56 (M = 38.16, SD = 7.74). Six families were reported to have fathers or father figures; two were present and willing to participate at the time of home visits to complete father-reports. However, in the current study mothers were the informants for parent-report data as many fathers were not present or did not have a role in the family.

2.1.3   Caseworkers

Caseworkers working with Stockton Council and with the FIP completed caseworker reports about each family and provide case file information for the study. Caseworkers were assigned to families and had worked with them for a period of time. This provided an objective view and added to a multi-informant method of measuring LPE.

2.1.4 Sample selection illustration
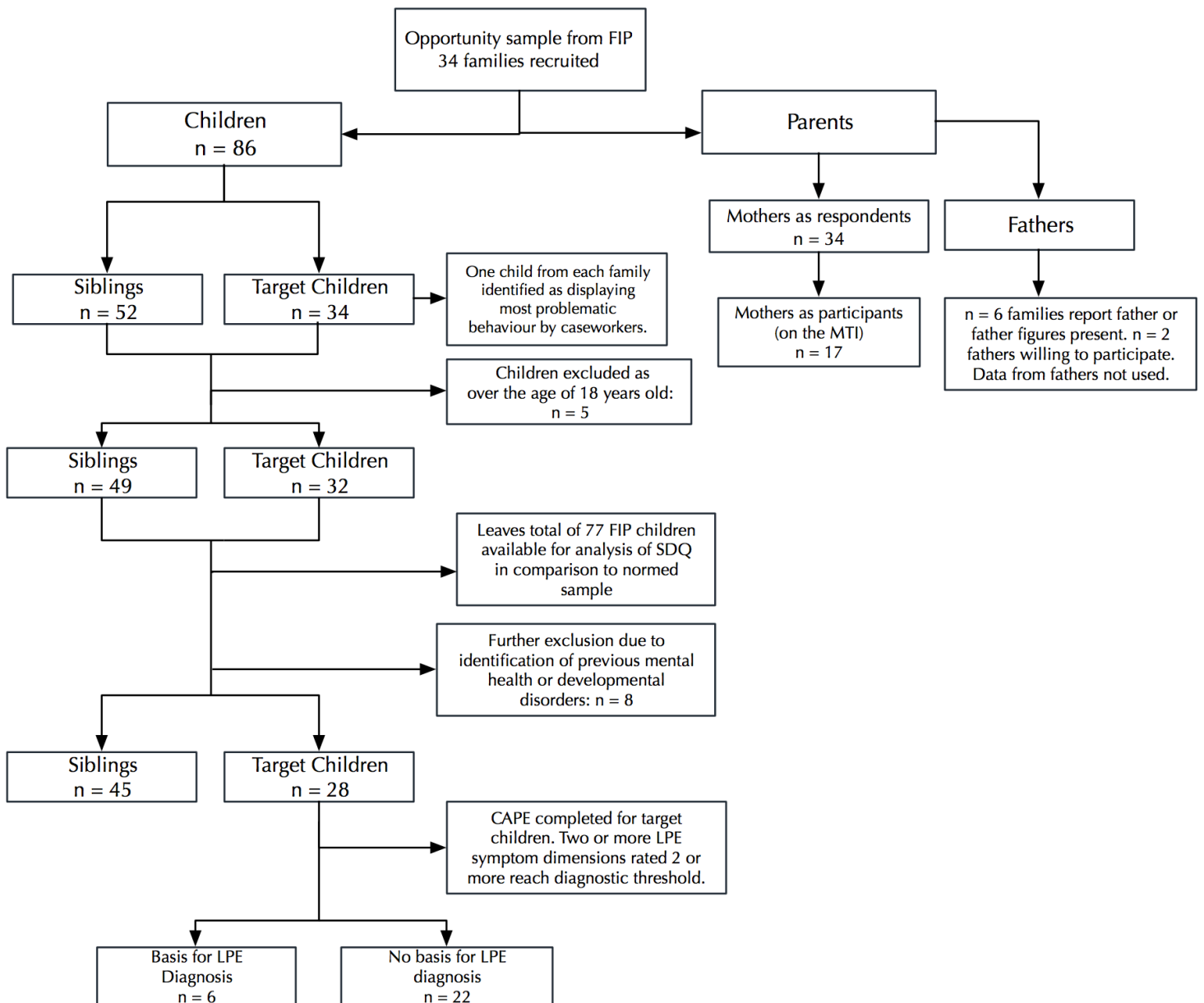
Figure 1: A flow chart to illustrate sample selection for FIP children (target children and siblings) and parents.

2.2 Ethics

This study received full ethical approval from the Department of Psychology Ethics Subcommittee at Durham University.

2.3 Measures

2.3.1 *Limited prosocial emotions*: Clinical Assessment of Prosocial Emotions (CAPE 1.1)

In the DSM-5 a specifier for Limited Prosocial Emotions (LPE) was added to the criteria of conduct disorder (CD). The specifier represents a subgroup of antisocial children with CD who also display high levels of Callous Unemotional (CU) traits. The Clinical Assessment of Prosocial Emotions CAPE; Frick, 2013) is a tool currently under development, which has been designed to measure the LPE specifier of CD.

The development of the CAPE is based on the operational definition of the CU traits construct from the Inventory of Callous Unemotional Traits (ICU; Kimonis, et al., 2008), which is most compatible with the DSM-5 specifier of LPE. The ICU was designed to capture children with higher-order uncaring, callous and unemotional traits and deficits in processing emotional stimuli and desensitisation to punishment.

The ICU is a 24-item, rating scale using a multi-informant method, with teacher and self-report versions. The ICU has been validated for use in the assessment of CU traits in children of both genders aged 3 – 21 years old (Kimonis, et al., 2008; Essau, Sasagawa, & Frick, 2006). As the CAPE is modelled on the ICU the CAPE is also be valid for use with children aged 3 – 21 years and both genders.

The CAPE is a two-part semi structured interview, with one interview for a child-informant and the other interview for a parent-informant. The interviews involve nine stem questions with requests for examples of behaviour, and three or four follow up questions. The interviewer, a trained clinician, is required to probe each informant until sufficient information is available to make a clinical judgement about the target child's typical way of relating to other people, each interview takes around an hour per informant to administer.

The information is rated according to four core symptom dimensions of LPE by the trained clinician on a coding sheet. The core symptom dimensions are: 1) lack of remorse or guilt; 2) callous lack of empathy; 3) unconcerned about

performance; and 4) shallow or deficient affect. Each symptom is rated on the coding sheet on a scale of "0" '*not or mildly descriptive*', "1" '*moderately descriptive*' or "2" '*highly descriptive*'. For a child to reach the diagnostic threshold indicative of LPE, they must have two or more symptom dimensions rated "2" '*highly descriptive*'. The clinician is also asked to provide their clinical judgment of how well the mother seems to know the target child (on the informant interview only) and how accurate and honest did the informant seems to be (on both interviews), both rated on a scale of "0" '*not at all*' to "3" '*very*'. The interviewer is also invited to gather multiple sources of information to answer the symptom dimensions objectively, such as case file information, to draw on the final overall judgement. The CAPE is not a diagnostic tool to assess CD, which should be diagnosed using other tools to determine CD with LPE.

2.3.2 *Problematic behaviour in children:* Strengths and Difficulties Questionnaire (SDQ ± 4)

The Strengths and Difficulties Questionnaire (SDQ ± 4; Goodman, 1997) is a 25-item scale assessing a child's behaviour in five areas of functioning: hyperactivity-inattention (*Does not think things out before acting*), conduct problems (*Often lies or cheats*), emotional problems (*Many worries, often seems worried*), peer problems (*Not generally liked by other children*) and prosocial behaviour (*Inconsiderate of other people's feelings* R).

The SDQ has previously been validated with children aged 4-17 years and has been widely successful in measuring conduct problems in community samples of children in Britain and the United States (Goodman, Ford, Simmons, Gatward, & Meltzer, 2000; Pastor, Reuben, & Duran, 2012). The SDQ is suitable for teacher, parent and child/self (if aged over 11 years old) reports.

In this study, parents completed the SDQ for all of the children in the families (83 of the 86 children in the sample) and 42 children completed self-reports. For the target children, all parent reports (100%), 24 impact scales (71%) and 23 target child self-reports (68%) were completed. Internal consistency for parent reports of the whole FIP sample for each of the subscales were low to moderate: conduct problems (α = .77), hyperactivity-inattention (α

= - .45), emotional problems (α = .72), peer problems (α = .49), and prosocial (α = .78) as well as total difficulties for parent report (α = .53) and self report (α = .68).

Higher scores on the SDQ indicate more behavioural problems. The maximum score on the SDQ is 40, with a score of 17 or more classed as high total difficulties. Cut off scores differ for each subscale, but four indicative categories are available for each: close to average, slightly raised, high and very high, with the latter two labelled 'abnormal' categories. 5% of a large British normal sample fell into each abnormal category (Goodman, Ford, Simmons, Gatward, & Meltzer, 2000). For conduct problems, scores of 4 - 5 are classed as 'high' and over 6 as 'very high'; hyperactivity scores of 8 are classed as 'high' and 9 or more as 'very high'; emotional problems scores of 5-6 are labelled 'high' and 7 or more as 'very high'; scores of 4 for peer problems are 'high' and 5 or more as 'very high'. The prosocial scale is reverse marked, meaning scores of 6 are 'high antisocial' and 5 or less is 'very high'.

2.3.3   *Callous unemotional traits*: University of New South Wales CU scale ("Dadds' CU")

The University of New South Wales CU scale (referred to as "Dadds' CU" herein) is a measure of callous unemotional traits (Dadds, Fraser, Frost, & Hawes, 2005). It comprises a combination of three items from the Antisocial Process Screening Device (*unconcerned regarding other people's feelings, lack of guilt, breaks promises* (APSD; Frick & Hare, 2001) and six items from the SDQ (Goodman, 1997). The 9-item Dadds' CU is the product of five reversed prosocial items, one conduct problems item ("*disobedient to adults")* from the SDQ as well as three CU items from the APSD. Each item is scored on a range of '0' *Not true* to '2' *Certainly true*; the range of possible scores on the Dadds' CU subscale is therefore 0-18, with higher scores reflecting higher CU traits.

Dadds' CU is formulated to measure CU traits as a sole construct and can provide a prediction of antisocial behaviour over the trajectory of child development (Dadds, Fraser, Frost, & Hawes, 2005).

As the SDQ is valid for use with children aged 4 - 17 (Pastor, Reuben, & Duran, 2012) and the APSD is a measure to detect the early signs of psychopathy traits in children and thus validated for use in a prekindergarten sample; (Dadds, Fraser, Frost, & Hawes, 2005), the Dadds' CU measure is valid for use with children in middle to late childhood (Dadds, Fraser, Frost, & Hawes, 2005).

The Dadds' CU can be employed as a multi-informant tool and be administered with both parents and children as it is modelled on the SDQ and APSD (Frick & Hare, 2001; Dadds, Fraser, Frost, & Hawes, 2005).

83 parents (97%) provided answers to the nine questions to create the Dadds' CU scale for data analysis (α = .87), 44 children (51%) provided answers for the child report (α = .79). For the target children, all parent reports for Dadds' CU were received and 24 target child reports (71%).

2.3.4 *Child psychopathy*: Child Problematic Traits Inventory (CPTI).

The Child Problematic Traits Inventory (CPTI; Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014) is a 28-item measure for child psychopathic traits. The parent is asked to report on the child's behaviour within the previous six months, and is expected to be able to indicate how the child typically behaves. For the 28 items, each item was on a scale of 0 "*does not apply at all*" to 3 "*applies very well*". Scores are calculated using the mean of the items in each dimension as well as total CPTI score, the scores can therefore range between 1 and 4.

The CPTI consists of three dimensions each of which is reported to have high internal consistency (Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014): Callous Unemotional (CU, α = .95), defined as a lack of empathy or remorse; Grandiose Deceit (GD, α = .91), people with grandiosity, lying and manipulation; and those with Impulsivity and Need for Stimulation (INS, α = .92). Internal consistency as also high for the FIP sample of 79 available reports for CPTI (α = .93), CU (α = .91), GD (α = .90) and INS (α = .86).

28 parent reports of the CPTI were completed for the target children and 45 out of 52 CPTIs were completed for the rest of the siblings in the family. Scores for all three child psychopathy dimensions: CU, GD and INS as well as total psychopathy (CPTI total) were considered in this study.

2.3.5 *Parent psychopathy*: Minnesota Temperament Inventory (MTI)

The Minnesota Temperament Inventory (MTI), is a measure of adult psychopathy traits (Loney, Taylor, Butler, & Iacono, 2002; Loney, Taylor, Butler, & Iacono, 2007) based on a self-report version of Cleckley's 16-item clinical profile of psychopathy (Cleckley, 1976). Three items were removed from the 16-item measure for use in research, including "*absence of delusions and other irrational thinking*" and two items that would have formed an intellectual functioning factor: "*very charming, tends to make a good impression*" and "*I give the impression of being intelligent*". The MTI is therefore a 13-item measure with two primary dimensions: behavioural-antisocial (7 items) and affective detachment (6 items) (Loney, Taylor, Butler, & Iacono, 2007). All items on the MTI will be scored to measure parent psychopathy as a whole construct, as well as the two sub factors, antisocial and detachment in this study.

Caseworkers were asked to complete the MTI for both mothers' and fathers' behaviour in the current study by rating the items on the MTI according to the accuracy of the statement in reflection to each parent. Scores range from 1 "*this is not at all true of her/him*" and 4 "*this is very true of him/her*", the possible range of scores for the MTI for each parent was 13-52. 17 MTIs about the mothers and 3 MTIs about fathers were completed by the caseworkers and sent to the researchers by post.

2.3.6 *Previous life* events: Case file information

The family case files for the FIP consisted of caseworker's files and risk assessments. From case file information, researchers were able to score previous history relevant to offending, violence, police contact, youth offending

service/YOS contact, history of care and domestic violence. A binary score of 1 "*previous history*" or 0 "*no previous history*" was marked for each historical event as a case of whether the event had happened to the children or family, or not.

Case file information was used to add to the multi method of measuring LPE along with the CAPE and was available to the trained researcher administering the CAPE to help inform their decision. This information was also attained for data analysis to assess whether the previous history could add to the usefulness of the CAPE statistically to predict conduct problems.

3.0 Data Analysis

3.1 Profiling the sample: d*escription of FIP families.*

Before analyses to validate the CAPE were conducted, the sample was described in terms of their case file information for the family histories and the mothers' profile of scores as reported on the MTI (para. 4.1.1). Following this, the parent-report profile of scores on the SDQ for the whole sample of all children below the age of 18 years old (N = 83, aged 3-17 years old, M = 15.59, SD = 5.43) was compared to parent report data (M = 8.4, SD = 5.8) from a British standardisation sample (N = 10,438; 5-15 years; www.sdqinfo.org) for total difficulties (para. 4.1.2.1), conduct problems (para. 4.1.2.2) and hyperactivity-inattention (para. 4.1.2.3) scores. Three siblings and two target children were removed from profiling SDQ scores due to being over the age of 18 years old. It was expected that the distribution of scores from current sample across the four indicative categories (close to average; slightly raised; high and very high) would be different from the normal British sample.

    3.1.1   Comparing scores between target children and their siblings to validate the use of the target child sample.

After looking at the typical profile of behaviours from all children together, four more target children were removed due to previous diagnosed mental disorders that could overlap with LPE (namely, ASD and ADHD), leaving

28 target children under the age of 18 years old. The remaining target children were then compared to the rest of the siblings in the FIP sample for SDQ total difficulties (para. 4.1.3.1), conduct problems (para. 4.1.3.2) and hyperactivity-inattention (para. 4.1.3.3) to confirm that the target children did indeed have conduct problems. Target children were also compared to the rest of the siblings for CU traits scores as measured using the CPTI-CU dimension and the Dadds' CU measure (para. 4.1.3.4). Target-child only data was used for analysis after this point.

3.1.2 Gender analysis plan

Independent samples t-test were used to explore gender differences for target children with regards to SDQ total difficulties, conduct problems and hyperactivity (para. 4.1.4).

3.1.3 CU traits with the target child sample using pre-existing measures.

It was important to establish whether CU traits correlate with problem behaviour with this sample, as would be expected from the literature. CU trait scores on the Dadds' CU and CPTI were correlated with problem behaviour from the SDQ (conduct problems, hyperactivity and prosocial behaviour) reporting one-tailed Spearman's rho (r_s) correlations (para. 4.1.5.1). We also expected CU traits to be related to one another, as well as other dimensions of child psychopathy, such as grandiose deceit as measured using the CPTI (para. 0) using one-tailed Spearman's rho (r_s) analyses.

3.2 Profile of target children's scores on the CAPE.

The profile of scores on the CAPE for target children was described for the final sample of 28 target children in terms of how many reach diagnostic threshold as a sample and between genders. A breakdown of how many target children were categorised into each symptom dimension scores (0 - 4) was also

included for analysis using CAPE symptom count as a continuous scale (para. 4.1.6).

3.2.1 Description of honesty and accuracy scores

The honesty and accuracy scores from the CAPE coding sheets, as reported by the trained clinician who conducted the interviews were explored using means and standard deviations (para. 4.1.6). Lower scores (0) resulting in '*not at all*' to higher scores (3) meaning '*very much*', explained how well the mother informant seemed to know the target child and how accurate/honest each informant seemed to be.

3.3 Assessing the validity of the CAPE to measure limited prosocial emotions.

3.3.1 Data analytic plan

The main aim of this study is to validate the CAPE to measure limited prosocial emotions in a clinically relevant community sample. From the CAPE data, it was possible to look at scores in two different ways: dichotomously and as a continuous measure. The CAPE manual advises that data should be handled in a dichotomous way, in terms of whether participants have reached diagnostic criteria threshold or not (Frick, 2013). This is attained when participants have scored 2 (*highly descriptive)* in two or more symptom dimensions. However, the data could also be considered in terms of a range from 0 "*no symptoms rated 2*" to 4 *"all symptom dimensions rated 2"* to detect more subtle manifestations of LPE in non-clinical samples. This study explored the data in both ways. The dichotomous data used the CAPE as a clinical assessment as designed, however analysing scores as a continuous measure using correlations in non-clinical samples can explore relevant sub-clinical behaviour.

When analysing data on the CAPE for clinical assessment in a dichotomous way, one-tailed independent samples t-tests were used to assess mean differences between those who fell above and below threshold for LPE in

terms of associated personality traits and behaviours. Effect sizes were calculated for *t*-tests using Cohen's d with the guidelines *d* = 0.2 considered "*small*", *d* = 0.5 "*moderate*" and *d* = 0.8 "*large*" (Cohen, 1977). One-tailed Spearman's rho, r_s, correlations were used as the non-parametric test to assess the CAPE as a continuous measure ranging from 0 to 4, a summary of all correlations run with the target children (N = 34) with a Bonferroni corrected α = .0013 (*p* = .05/36) can be found in Appendix 1. The strength of each relationship were followed using the guidelines from Cohen (1992) of *r* = 0.1 "*small*", *r* = 0.3 "*medium*" and *r* = 0.5 "*large*" effect sizes. Bonferroni corrections were also included in the analyses to reduce the risk of a type I error (rejecting H_o when H_o is true), yet are often deemed too conservative (Perneger, 1998).

Bonferroni analyses were used up to the validity analyses involving CAPE scores, as sample size included small, unequal groups (n = 22 vs n = 6). With small, unequal groups in a study that is exploratory in nature, Bonferroni could dramatically increase the risk of a type II error (not rejecting H_o when H_o is false). Following guidance from Nakagawa (2004), confidence intervals were reported in addition to effect sizes rather than adjusting the critical *p* value when analysing the CAPE scores to reduce the risk of losing any truly important differences.

3.3.2   Construct validity analyses

The CAPE was first assessed for construct validity. Construct validity refers to the degree to which the CAPE measures LPE as designed (Cronbach & Meehl, 1955). Therefore, for the CAPE to measure limited prosocial emotions linked to CD, it must measure CU traits. This was analysed using pre-existing, validated personality trait measures of CU traits: CPTI-CU and parent and child reports of the Dadds' CU (para. 4.2.1-4.2.1.2).

3.3.3   Convergent validity analysis

To determine whether the CAPE has good convergent validity, an offshoot of construct validity, scores that we expect are related with LPE, such as child

psychopathy are in fact related but are equivocal (Campbell & Fiske, 1959). To assess convergent validity, scores on the CAPE were correlated with scores from the domains of child psychopathy which did not measure CU traits from the CPTI, i.e. grandiose deceit, impulsivity and need for stimulation (para. 4.2.2).

3.3.4   Concurrent validity analyses

Concurrent validity refers to the measure for CU related to expected related outcomes that have previously been validated that are administered at the same time. To determine concurrent validity, the CAPE was assessed in terms of problem behaviours known to be an associated outcome of CU traits in children from previous literature. Behavioural measures used were conduct problems, hyperactivity, antisocial behaviour (prosocial reversed) and total difficulties from the SDQ (para. 4.2.3-4.2.3.2).

The final aim was to explore the concurrent predictive power of scores from the CAPE could predict definite conduct problems. As there was no diagnostic method used for CD, we used the cut off of ≥ 4 on the conduct problems subscale on the SDQ, defined as *definite conduct problems* (Goodman, Ford, Simmons, Gatward, & Meltzer, 2000). LPE diagnosis was used as a predictor in a logistic multiple regression (ENTER) to predict definite conduct problems (para. 4.2.4). A linear regression was also conducted to assess whether the CAPE as a continuous measure can predict conduct problems with no cut offs (para. 4.2.5).

4.0 Results

4.1 Profiling the sample

4.1.1 Description of the families from the FIP sample: Case file information and profile of scores from the MTI.

Data from mothers' case files showed that they had a history of depression (26.7%), some with depression and alcoholism (3.5%) and some with anxiety (3.5%). Scores from the MTI showed that mothers were rated an average of 12.88 out of 14 (SD = 4.14) on the antisocial sub factor of parent psychopathy, and 10.65 out of 12 (SD = 3.50) on the affective detachment sub factor.

Previous history from case files indicated the occurrence of negative life events within the families: offending (27.5%); violence (17.5%); police contact (27.5%); youth offending service contact (16.3%); and history of domestic violence (45%).

Mothers were respondents for all parent reported measures and it is worth noting that parent-reported conduct problems for children within FIP families was not significantly related to mothers' psychopathy (r_s(15) = .45, p = .018), nor child psychopathy (r_s(15) = .42, p = .046) but on the borderline for parent-reported Dadds' CU (r_s(15) = .52, p = .017) after Bonferroni corrections adjusted the p value to .166 (α = .05/3)[1].

4.1.2 Description of children from FIP sample: Profile of scores from the SDQ compared to British norms.

The distribution of scores on the SDQ for all children in the current sample for total difficulties, conduct problems and hyperactivity is reported in the following sections (including those children with diagnoses of developmental/mental health conditions). The profile of scores were norm

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[1] A correlation matrix for all correlations conducted can be found in the Appendix on page 77.

referenced against a norm sample of typically developing British children and adolescents.

<div align="center">4.1.2.1   Total difficulties</div>

Figure 1 shows the data from the 77 available reports from current sample on the SDQ compared to the data from the British norm sample. For total difficulties, almost half of the males for the current sample (49%) were categorised into either high or very high compared to 12% of males in the normal population. Twenty two per cent of the females in the FIP sample also demonstrated abnormalities compared to 7.9% of the normal population (Fig. 2).

Bonferroni corrected t-tests with adjusted alpha levels of .025 (.05/2) showed that males from the FIP sample (M = 16.44, SD = 5.47) scored significantly higher than males from the British norm sample (M = 9.1, SD = 6.0), $t(44) = 9.01$, $p < .001$, $d = 1.22$. Females from the FIP sample (M = 14.67, SD = 5.48) also scored significantly higher than females in the British norm sample (M = 7.8, SD = 5.5), $t(32) = 7.20$, $p < .001$, $d = 1.25$).
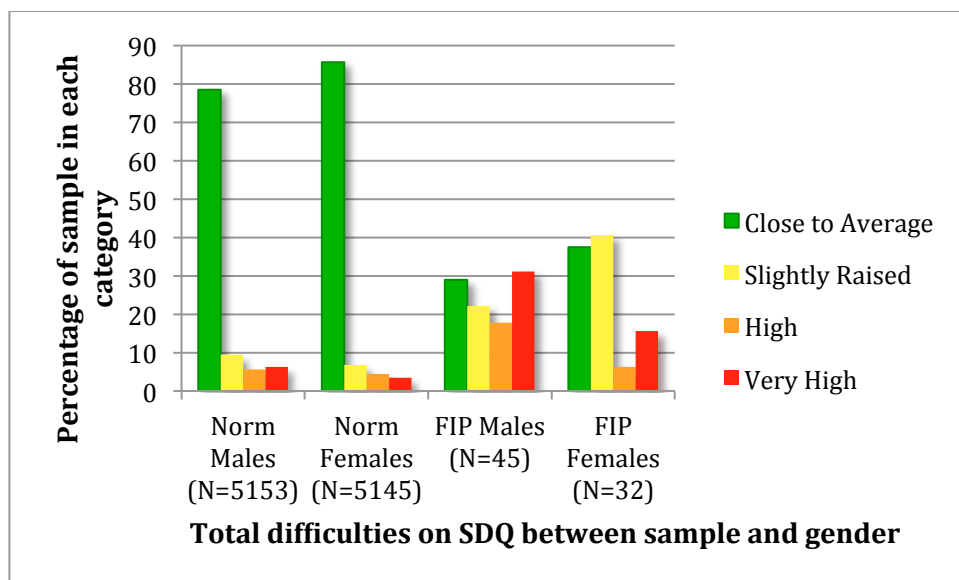
Figure 2: Total Difficulties scores for the current sample (N=77) and British norm sample (N=10,438), split between gender.

Overall, there were considerable behavioural difficulties for the current sample compared to typically developing children and adolescents from a British

norm sample, emphasising the relevance of this sample for exploring LPE and conduct problems.

4.1.2.2   Conduct problems

The distribution of scores for conduct problems is very different to the British norm sample (Fig. 3). More than half of the males (58%, M = 4.09) scored above the cut-off point of '4' for definite conduct problems (high/very high categories) and a smaller proportion (38%, M = 2.66) of females scored above the cut off.
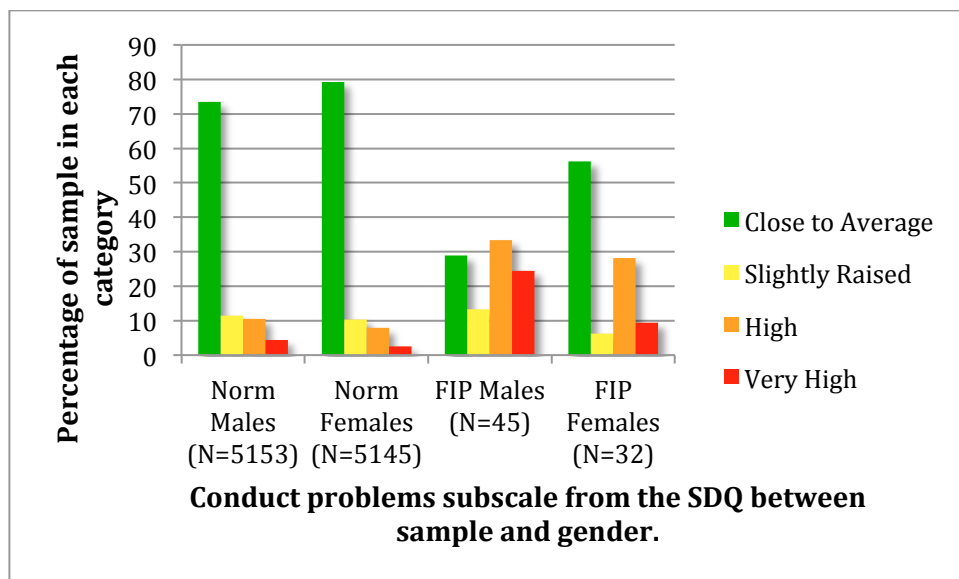
Figure 3: Conduct problems scores for the current sample (N=77) and British norm sample (N=10,438), split between gender.

There is a notable difference between scores for conduct problems between the British norm standardisation sample and the FIP sample. Bonferroni corrected *t*-tests with adjusted α = .025 (.05/2) showed that males in the FIP sample (M = 4.09, SD = 2.83) scored significantly higher than males from the British norm sample (M = 1.7, SD = 1.8), $t(44) = 5.67$, $p < .001$, $d = 1.32$. Females in the FIP sample (M = 2.64, SD = 2.33) scored significantly higher than the females from the norm sample (M = 1.5, SD = 1.6), $t(32) = 2.80$, $p < .01$, $d = 0.71$. The majority of children in the FIP sample were in the abnormal behaviour

categories and had definite conduct problems. Males may have more severe conduct problems reported than females.

4.1.2.3 Hyperactivity-inattention

For hyperactivity, a score of 8 or more would indicate an abnormality (high/very high). Seven per cent of males and 6% of females achieved abnormal scores in the hyperactivity-inattention subscale of the SDQ (Fig. 4).
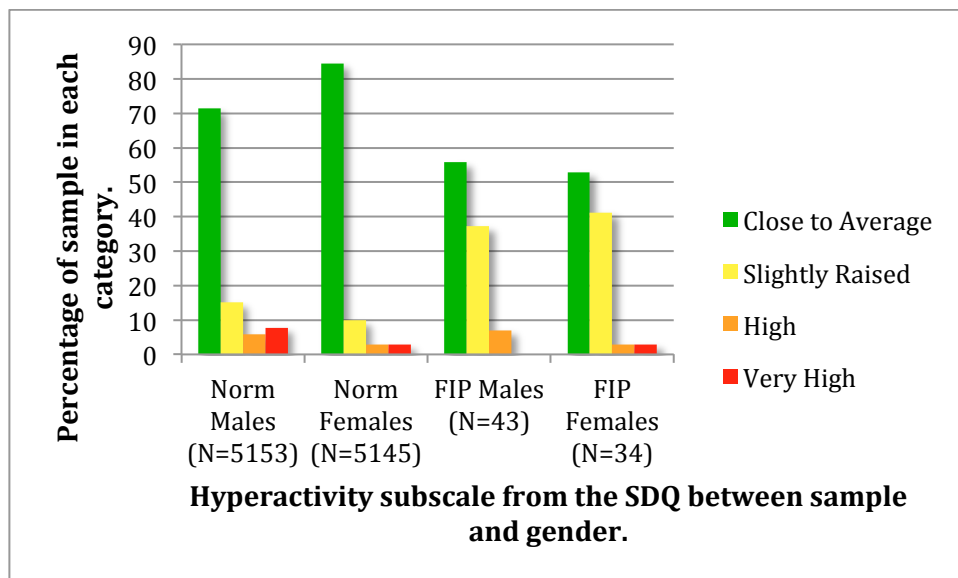
Figure 4: Hyperactivity scores for the current sample (N = 77) and British norm sample (N=10,438), split between gender.

The sample was distributed mostly across the close to average (56% males, 53% females) and slightly raised (37% males, 41% females) categorisations compared to the majority of the British sample close to average and 5% males and 10% females in the slightly raised categories.

The means and standard deviations for hyperactivity showed that males in the FIP sample (M = 4.99, SD = 1.55) scored significantly higher than the males in the norm sample (M = 4.0, SD = 2.7), $t(44) = 4.25$, $p < .001$, $d = 0.37$, using a Bonferroni corrected $\alpha = .025$ (.05/2). Hyperactivity scores for the female FIP sample (M = 4.8, SD = 1.88) were also significantly different to scores for the female norm sample (M = 2.9, SD = 2.4), $t(32) = 5.87$, $p < .001$, $d = 0.79$.

4.1.3   Comparison of target children to their siblings on the SDQ

It was also important to profile the target children's behaviour compared to their siblings' to support the rationale for these children having been identified to participate in the validation of the CAPE. The four target children with previous diagnosis were removed from any further analysis after profiling the demographics of the FIP families. As well as the two target male children aged over 18, two male target children had diagnosed ASD, one had a diagnosis of ADHD and one female target child was reported to have a disorder but no report of what it was, thus they were removed from further analyses on the validity of the CAPE, as any problematic behaviour could be due to their pre-existing disorders. This leaves a sample of 28 target children (18 males, 10 females) for analysis.

4.1.3.1   Differences in total difficulties for target children and siblings.

Scores for total difficulties for the current sample, split between target children (N = 28) and their siblings (N = 46) and gender, are displayed in Figure 4. The distribution of total difficulties scores shows differences between the target children and the rest of their siblings. 44.5% of the target males and 30% of the target females had scores in the abnormal categories for total differences compared with 44% of their male siblings and 14.3% of their female siblings (Fig. 5).
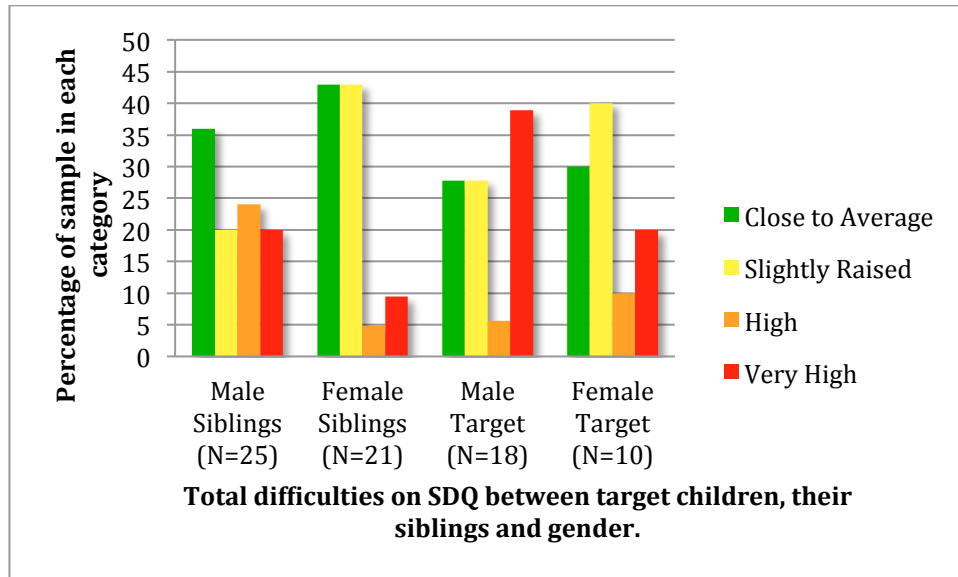
Figure 5: Total difficulties scores between target children (N = 28) and their siblings (N = 46), split by gender.

Target child boys (M = 16.83, SD = 5.49) scored higher than their male siblings (M = 15.28, SD = 5.22) and target child girls (M = 15.20, SD = 5.79) scored higher than their female siblings (M = 13.81, SD = 5.29) for total difficulties. There were no significant differences at the one-tailed level between target children and their siblings for total difficulties scores for either males, $t(41) = .942$, $p = .18$, $d = 0.30$ and females, $t(29) = .664$, $p = .26$, $d = 0.26$.

4.1.3.2   Differences in conduct problems for target children and siblings.

Scores for conduct problems for the target children (N = 18 males, N = 10 females) and for the siblings (N = 25 males, N = 21 females) are presented in Figure 5. As expected, the majority of the target males are categorised into the high/very high range and have basis for definite conduct problems (66.6%). 50% of target females were also placed in the abnormal categories however their distribution remains similar across each category. Eleven male siblings (44%) and six female siblings (29%) were still in the abnormal categories for conduct problems (Fig. 6).
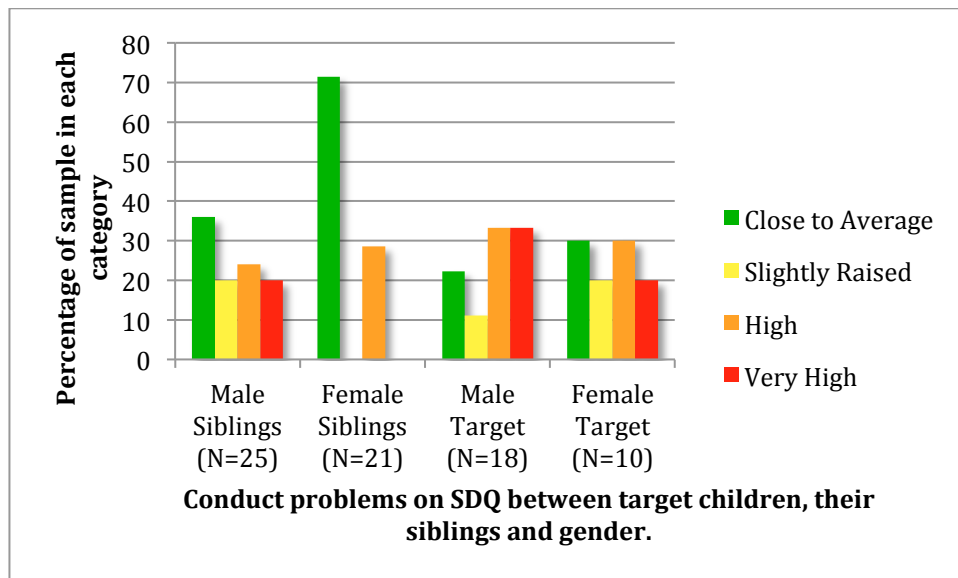
Figure 6: Conduct problem scores between target children (N = 28) and their siblings (N = 46), split by gender.

Target child boys (M = 4.83, SD = 3.16) scored higher than their male siblings (M = 3.28, SD = 2.37) and target child girls (M = 3.60, SD = 2.91) scored higher than their female siblings (M = 2.0, SD = 1.73) for total difficulties. There were no significant differences between target children and their siblings for conduct problems scores for males, $t(41) = 1.84$, $p = .037$, $d = .58$ and females, $t(29) = 1.92$, $p = .032$, $d = 0.76$, after a Bonferroni corrected alpha level of $p = 0.025$ ($\alpha = .05/2$). It is worth noting the moderate to large effect sizes for these comparisons, and possible that this analysis was underpowered. Therefore, target children and their siblings have similar elevated levels of total difficulties and conduct problems in this study when using a small sample size of unequal groups.

4.1.3.3   Hyperactivity scores for target children and their siblings

Hyperactivity scores were represented more by siblings than target children (Fig. 7). None of the target children and five siblings (three male, two female) were in the abnormal categories for hyperactivity.
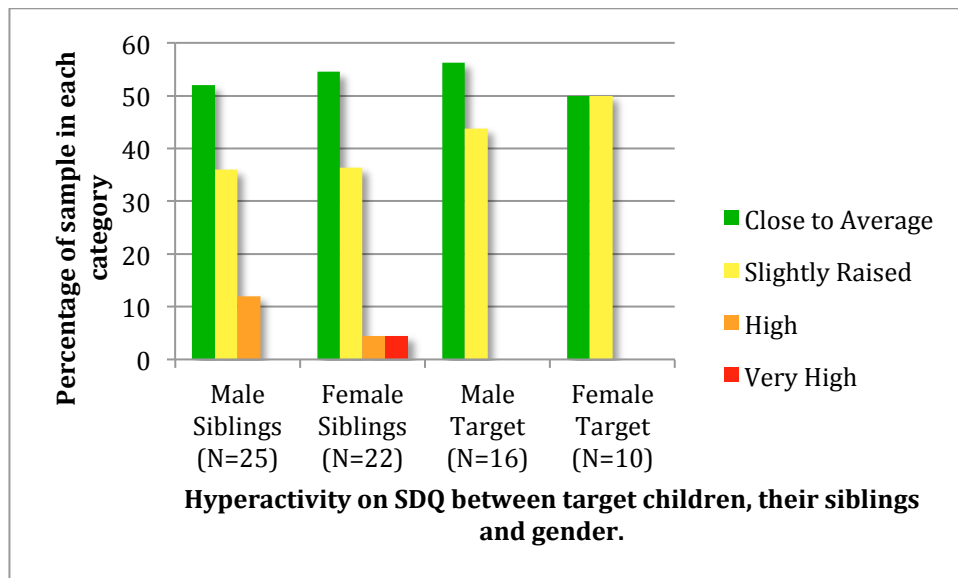
Figure 7: Hyperactivity-inattention scores between target children (N = 26) and
their siblings (N=47), split by gender.

Hyperactivity scores for male target children (M = 4.89, SD = 1.64) and
male siblings (M = 4.96, SD = 1.62) were very similar to each other. Scores for
hyperactivity were also similar between female target children (M = 4.30, SD =
1.89) and female siblings (M = 4.76, SD = 1.67). There were no significant
differences for hyperactivity scores between siblings and target children for both
males, $t(41) = -.141$, $p = .44$, $d = -0.04$ and females, $t(29) = -.690$, $p = .25$, $d = -0.27$.

4.1.3.4 CU traits scores for target children and their siblings

The CPTI and Dadds' CU scale were administered with all children in the
FIP sample, with the four target children with previous diagnoses removed for
target children (N = 28) and siblings (N = 43). The maximum score possible on
the CPTI and its dimensions was 4 as scores are calculated using the mean for
each scale. CPTI-CU scores for both the target children and their siblings ranged
from 1.0 and 3.90 however target children scored higher (M = 1.93, SD = .82)
than their siblings (M = 1.63, SD = .84).

Parent-report scores on the Dadds' CU (N = 28) for target children ranged from 0 to 17 (M = 6.00, SD = 3.96) out of a possible 18, whereas the 21 available target child report scores ranged between 2 and 14 (M = 6.33, SD = 3.35). There are no cut off scores for the Dadds' CU, however, target children scored higher than their siblings on the parent-report (N = 47, M = 3.65, SD = 2.89) and the self-report Dadds' CU (N = 17, M = 4.34, SD = 3.99).

4.1.4   Gender analysis of SDQ behaviours between target children

There were no significant differences between male and female target children for the SDQ domains total difficulties, $t(32) = - .747$, $p = .231$; conduct problems, $t(32) = - .796$, $p = .216$; or hyperactivity, $t(32) = - .662$, $p = .256$. Validating the use of analysing CU traits in target children as a whole sample.

Summary

From comparing scores from the SDQ and CU traits measures, Therefore, the data from the SDQ highlight that the current sample of target children identified through the FIP have higher conduct problems that expected from a normal sample, but also higher conduct problems than their siblings, highlighting the possibility of a basis for LPE. Importantly, level of conduct problems did not differ between male and female target children. This supports the rationale for validating the CAPE with this group of children.

4.1.5   Analysing pre-existing measures using the current sample.

It was necessary to establish that measures of CU traits, child psychopathy and conduct problems were related to each other in the current sample as expected from the literature, before moving on to validate the CAPE.

4.1.5.1   Links between CU scores from the CPTI and Dadds' CU with related problem behaviours from the SDQ.

Tests on the links between measures for CU traits and related problem behaviours were conducted using Bonferroni adjusted α = .004 per test (.05/12).

CU traits as measured using the CPTI (CPTI-CU) was significantly, largely and negatively related to prosocial behaviour ($r_s(26) = - .64, p < .001$) and significantly, largely related to conduct problems ($r_s(26) = .69, p < .001$) and total difficulties ($r_s(26) = .53, p < .001$). There were no associations between hyperactivity and CU traits ($r_s(26) = - .22, p = .131$).

For the Dadds' CU measure, there was a significant large correlation between parent reported CU traits and conduct problems ($r_s(26) = .74, p < .001$)[2], meaning that more conduct problems was associated with more CU traits. A significant, large, negative correlation between parent-reported Dadds' CU and prosocial behaviour was also found ($r_s(26) = - .83, p = < .001$). Dadds' CU was not associated with hyperactivity as expected ($r_s(26) = .002, p = .495$), however was largely related to the behavioural impulsivity and need for stimulation dimension of the CPTI ($r_s(26) = .62, p = .001$). There were no significant correlations between child self-reported Dadds' CU and any related problem behaviours: conduct problems ($r_s(19) = - .02, p = .466$), prosocial behaviour ($r_s(19) = - .24, p = .146$), hyperactivity ($r_s(19) = .15, p = .253$) or impulsivity and need for stimulation ($r_s(19) = - .06, p = .396$). For LPE to measure CU traits, we would expect a similar outcome to the correlations above.

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[2] The "*Disobedient to adults*" item was removed from the conduct problems subscale on the SDQ to prevent overlap when using the Dadds' CU measures for callous unemotional traits.

4.1.5.2   Callous unemotional trait measures related to
one another and with child psychopathy
measures.

Validated measures for CU traits (CPTI-CU, Dadds' CU) and child psychopathy (CPTI) were significantly related to each other. The alpha value for the Spearman's rank correlations were adjusted to α = .01 per test, as per a Bonferroni correction (.05/5). The Dadds' CU parent report was significantly, largely related to CPTI-CU ($r_s(26)$ = .80, p < .001) and child psychopathy ($r_s(26)$ = .82, p < .001). The self-report version of the Dadds' CU was not significantly related to the parent report of the Dadds' CU ($r_s(23)$ = - .08, p = .35), the CPTI-CU ($r_s(23)$ = - .15, p = .25) or the child psychopathy measure ($r_s(23)$ = - .08, p = .36).

Summary

It was possible to see that more child psychopathy was related to more CU traits, and that higher scores of both of these were associated with more conduct problems and less pro-social behaviour. Both parent report measures of CU traits correlated strongly. However, the child report measure of CU traits did not correlate with any parent report measures of behaviour.

4.1.6   Overview of target children's scores on the CAPE.

Six out of the eighteen target boys (33%) met diagnostic criteria for LPE, where none of the ten female target children did (Table 1). Twenty one per cent of the whole target sample had therefore met diagnostic criteria. Table 1 shows the frequencies of how many CAPE symptom dimensions for which target children were rated 'highly descriptive'. No target children had all four symptom dimensions rated 'highly descriptive'.

Table 1: Frequency table to show the sample of target children (N = 28) and their number of symptoms of Limited Prosocial Emotions (LPE) between genders.

Number of Symptoms Rated "Highly Descriptive"	No diagnosis for LPE		Diagnostic criteria for LPE			Total %
	0	1	2	3	4	
Boys	44.4 %	22.2%	22.2 %	11.1%	0%	100% Boys
Girls	66.7 %	33.3%	0%	0%	0%	100% Girls
Target Child Sample	78.5% (N = 22) with no diagnosis for LPE		21.4% of sample (N = 6) with diagnostic criteria for LPE			100% Sample

4.1.6.1   Description of honesty/accuracy scores rated by the trained clinician.

The questions on the CAPE coding forms relating to how well the mother seems to know the target child and how honest/accurate each informant seems to be are on a rating scale from 0 'Not at all to 3 'Very'. Scores of *2 ('moderately')* or below show some range of dishonesty or lack of knowledge, all of the target children and 76.9% of mothers seemed to show some inaccuracy or dishonesty when answering questions asked from the CAPE. Using the same 2 or below cut off, over half (57.7%) of mothers also did not seem to know the target child very well, according to the trained clinician.

The mean score on a scale of how honest/accurate the target child seemed to be to the trained clinician was lower (M = 1.60, SD = .71) than how honest/accurate the mother informants seemed to be (M = 2.08, SD = .63). The mean score for the trained clinician's interpretation of how well the mother seemed to know the target child was 2.27 (SD = .72) and most mothers seemed to know the target child moderately (42%) or very (42%) well.

4.2 Assessing the validity of the CAPE to successfully measure limited prosocial emotions.

4.2.1 Construct validity: The CAPE's ability to measure callous unemotional traits.

Construct validity focuses on the relationship between scores from the CAPE and CU traits. Previous research lead to the hypothesis that limited prosocial emotions designates a subgroup of children high in conduct problems and CU traits. Therefore, it was expected that there would be significant differences between those who met criteria for diagnosis of LPE and those who did not in terms of CU traits (Dadds' CU and CPTI-CU). A significant positive correlation between CAPE symptom count and CU traits was also expected.

4.2.1.1 Dichotomous data for clinical assessment

One-tailed independent samples t-tests were conducted to explore differences in CU traits from the CPTI between those target children who met LPE diagnostic criteria and those who did not. Cohen's d effect sizes and confidence intervals (CI) were used to assess important mean differences more effectively than relying solely on p values for a small, unequal sample. Target children who met diagnostic threshold had significantly higher CU traits than target children falling below the threshold, $t(26) = -2.13$, $p < .05$, $d = 1.01$, 95% CI (0.33 – 1.32). Significant differences for CU traits were also found between the groups for parent reported Dadds' CU, $t(5.66) = -2.07$, $p < .05$[3], $d = 1.46$, 95% CI (-3.02 – 2.60), but not for child self-report, $t(19) = -.433$, $p = .335$, $d – 0.24$, 95% CI (-1.55 – 3.51). (Table 2).

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[3] Equal variances not assumed.

Table 2: Means (and standard deviations) for CU traits between target children with no LPE diagnosis and target children with LPE diagnosis.

Personality Trait	No LPE diagnosis (N = 22)	LPE diagnosis (N= 6)
CPTI Callous unemotional	**1.77 (.75)***	**2.52 (.85)***
Dadds' CU parent report	**4.95 (2.72)***	**9.83 (5.60)***
Dadds' CU child report	6.18 (3.13)	7.00 (4.69)

* Denotes comparison between two groups that was significant at .05 level (one-tailed) or ** significant at .01 level (one-tailed).

4.2.1.2   Continuous data

When analysing the CAPE as a continuous measure, higher CAPE scores significantly and largely correlated with CU traits ($r_s(26) = .54$, $p < .01$) as measured using the CPTI. Continuous CAPE scores were also significantly and moderately correlated with the Dadds' CU parent report ($r_s (26) = .41$, $p < .05$), but not significant with the child report ($r_s (19) = .15$, $p = .26$).

4.2.2   Convergent validity: the degree of which LPE is related to other forms of child psychopathy.

Convergent validity, as a form of construct validity, focuses on the expected related scores from the CAPE with other dimensions of child psychopathy: grandiose deceit, impulsivity and need for stimulation, and child psychopathy as a whole.

Target children who met diagnostic threshold had significantly higher child psychopathy, $t(26) = -1.95$, $p < .05$, $d = 0.94$, 95% CI (-1.25 - -0.41), than those who did not reach LPE threshold. Significant differences were also found with grandiose deceit from the CPTI between those with a diagnosis and those without, $t(26) = -1.98$, $p < .05$, $d = 0.94$, 95% CI (-1.35 - -0.28), but not with impulsivity and need for stimulation, $t(26) = -1.06$, $p = .299$, $d = 0.51$, 95% CI (-0.96 – 0.03). (Table 3).

Table 3: Means (and standard deviations) for other child psychopathic personality traits between target children with no LPE diagnosis and target children with LPE diagnosis.

Personality Trait	No LPE diagnosis (N = 22)	LPE diagnosis (N= 6)
Child psychopathy (total)	**2.06 (.76)***	**2.73 (.66)***
Grandiose deceit	**1.81 (.97)***	**2.67 (.83)***
Impulsivity-need for stimulation	2.56 (.93)	3.00 (.78)

* Denotes comparison between two groups that was significant at .05 level (one-tailed) or ** significant at .01 level (one-tailed).

When analysed as a continuous measure, higher CAPE scores significantly, largely correlated with total child psychopathy ($r_s(26) = .51$, $p < .01$) as measured on the CPTI, and showed a moderate to large correlation with the GD ($r_s(26) = .47$, $p < .01$) personality dimension. CAPE symptom count was also significantly, moderately related to impulsivity and need for stimulation ($r_s(26) = .35$, $p < .05$).

4.2.3 Concurrent validity: The CAPE's ability to measure problematic behaviour often associated with callous unemotional traits.

Concurrent validity concerns whether scores on the CAPE related to expected outcomes. As the CAPE should measure LPE, we expect that scores on the CAPE are related to behaviours that are also outcomes associated with CU traits. Based on the literature, we would expect the CAPE to be related to conduct problems, inversely related to prosocial behaviour and have no relationship with hyperactivity or impulsivity.

4.2.3.1 Dichotomous data for clinical assessment

No significant differences were found between target children with LPE diagnosis for any of the problematic behaviours (table 4), including conduct problems, $t(26) = - 1.47$, $p = .08$, $d = -0.70$, 95% CI (-1.91-2.11), total difficulties, $t(26) = - .615$, $p = .27$, $d = - 0.29$, 95% CI (-2.60 - 4.48), hyperactivity, $t(26) = .55$,

$p = .59$, $d = 0.26$, 95% CI (-0.50 – 1.36), and prosocial behaviour, $t(26) = 2.98$, $p =$ .056, $d = 1.43$, 95% CI (0.82 - 4.23).

Table 4: Means (and standard deviations) for callous unemotional and problematic behaviour target children with no LPE diagnosis and target children with LPE diagnosis.

Behaviour	No LPE diagnosis (N = 22)	LPE diagnosis (N= 6)
SDQ Total difficulties	15.91 (5.53)	17.50 (5.96)
SDQ Conduct problems	3.95 (2.90)	6.00 (3.52)
SDQ Hyperactivity	4.77 (1.82)	4.33 (1.37)
SDQ Prosocial Behaviour	8.27 (1.45)	5.50 (3.51)

* Denotes comparison between two groups that was significant at .05 level (one-tailed) or ** significant at .01 level (one-tailed).

4.2.3.2 Continuous data

When assessing the CAPE as a scale measure rather than diagnostic, CAPE scores were moderately correlated with conduct problems ($r_s(26) = .41$, $p < .05$) and negatively, moderately correlated with prosocial behaviour ($r_s (26) = - .32$, $p < .05$). This means that a higher symptom count on the CAPE was associated with more conduct problems, and less prosocial behaviour. CAPE symptom count was not related to hyperactivity ($r_s (26) = - .13$, $p = .264$) in this study.

4.2.4 Concurrent validity: the ability of the CAPE to predict definite conduct problems.

A logistic regression was used to determine whether the CAPE significantly predicts definite conduct problems (≥ 4 cut off). A logistic regression analysis using CAPE diagnosis (above threshold/below threshold) as a predictor of definite conduct problems was not significant ($X^2 = 1.80$, $p = .180$, df = 1).

4.2.5 CAPE as a continuous measure to predict conduct problems

When entered into a linear regression, the CAPE as a continuous measure also did not significantly predict conduct problems measured on a scale ($R^2 =$ .119, $F(26) = 3.51$, $p = .07$).

5.0 Discussion

5.1 Aims of the study

The aim of the study was to validate the CAPE as a tool to measure LPE in a clinically relevant sample of children and adolescents who display problematic behaviour. In terms of construct validity, it was expected that scores on the CAPE would be highly related to CU traits as measured using pre-existing measures for CU traits as well as show an overlap with other dimensions of child psychopathy. We also expected the CAPE to be related to measures of problematic behaviours, mainly conduct problems, as LPE is defined as high CU with serious conduct problems, to achieve concurrent validity. We did not expect the CAPE to measure or predict serious conduct problems, as it has no diagnostic tool for CD.

5.2 Overview of the FIP sample

From the profile of the families from the FIP sample it was possible to see that there were clear problems based on anecdotal evidence about family history gathered from case file information, behavioural problems indicated by the SDQ, and mother's psychopathy scores on the MTI. Mothers scored highly on behavioural-antisocial and affective-detachment factors on the MTI measure of parent psychopathy and had generally poorer mental health than would be expected in typical families. Many of the children in the FIP sample had also received previous mental health diagnoses (mostly, ASD and/or ADHD). Many families had also been exposed to domestic violence, experienced offending, violence, and contact with police or youth offending services. The majority of families were assumed to have a single parent.

Problematic behaviour was found in the majority of children in the FIP families and was significantly more serious than typically developing children from norm samples. Although more common in males, many of the children in the FIP families scored above the abnormal cut off for total difficulties and conduct problems, but not for hyperactivity.

5.2.1 Overview of target children for problematic behaviours and personality.

To ensure validity analysis of a personality measure were accurate; we removed target children with any previous diagnosis from any further analyses after profiling the FIP sample of families. When the children in the FIP sample were categorised into target children and their siblings, conduct problems on the SDQ were more prominent in the target child sample and siblings were more hyperactive than the target children, although were not statistically significant after Bonferroni correction. Siblings may also have highlighted problems with conduct problems, total difficulties or hyperactivity, which we might expect if they share the same genes and environment as the target children. Target children did, however score higher than siblings on measures for CU traits with medium to large effect sizes as designated by *d*.

Target children were generally older than their siblings, which may needs to be considered in research on LPE as conduct problems, aggression or CU traits may become more severe over time and are a precursor to serious antisocial behaviour or psychosocial disorders in adulthood (López-Romero, Romero, & Luengo, 2012; Frick & White, 2008; Loney, Taylor, Butler, & Iacono, 2007). Target children scored higher on measures for CU traits compared to their siblings, regardless of age. As CU traits are reported as stable over time (Dadds, Fraser, Frost, & Hawes, 2005; Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014), we can be confident that target children had a more complex psychological profile than that of their siblings. This indicates that some target children may have basis for LPE by having high scores for serious conduct problems and high scores on measures for CU traits and therefore an appropriate sample with which to validate the CAPE. Furthermore, it was also found that reports of problematic behaviour were similar between male and female target children. This provided support for the use of this sample with which to validate the CAPE.

It may be interesting to use the CAPE on entire families in future studies to be able to explore LPE links between siblings.

5.2.2 Overview of results from the CAPE

From initial analysis using the CAPE coding form after interviews, six target children qualified for LPE diagnosis by surpassing two or more diagnostic criteria rated highly descriptive. All target children who qualified for LPE diagnosis were male, aged 10 to 16 and scored either two or three highly descriptive symptom dimensions. None of the target children who reached diagnostic criteria for LPE scored all four symptom-dimensions highly descriptive. *Lack of remorse or guilt* was the symptom dimension of the CAPE with the most *highly descriptive* ratings. Lack of remorse, by definition, is the dimension that focuses on whether the individual ever feels guilty about actions against a person, breaking norm societal rules and often not accepting responsibility for their actions or concern for the consequences of such actions (Frick, 2013). The *Lack of remorse or guilt* symptom dimension of LPE therefore shares similarities most with the affective component of the CU traits definition as conveyed by Frick and Dickens (2006) "*lack of empathy, shallow or superficial display of emotions*".

It was important to also consider the CAPE as a continuous measure using a score of 0 *no symptom dimensions highly descriptive* and 4 *all symptom dimensions highly descriptive* for use in at-risk samples of children and adolescents who had not already had a diagnosis of CD. Using CAPE symptom count created a measure of severity for LPE allowing us to analyse data using correlations as well as binary classifications, similar to how CU traits are categorised as 'low' and 'high' in research (Frick, Ray, Thornton, & Kahn, 2014) as well as possibly predict future conduct problems. This way of measuring LPE was sensitive towards the children and adolescents who had one symptom dimension rated *highly descriptive* from the CAPE but had not reached the diagnostic threshold for LPE, highlighting problems that were not as serious as those who had reached diagnostic threshold and perhaps more susceptible to intervention.

5.2.3   Outcome of validity analysis on the CAPE

In terms of showing construct validity, the links between scores on the CAPE and measures for CU traits were considered. The CAPE did well to successfully capture aspects of CU traits. Target children scoring above threshold had significantly higher scores on CU traits, with the exception of the self-report version of the Dadds' CU. In other words, the clinician administered measure (which relied on both parent and self-informants) correlated with the parent report measure but not the child report measure of CU traits. This is interesting as it potentially highlights discrepancies between reporting on CU traits between different respondents and supports issues raised in the introduction regarding measurement of this personality trait and is something that should be followed up in the future for all research measures surrounding this topic.

In terms of convergent validity, it was found that scores on the CAPE were related to total child psychopathy, grandiose deceit and impulsivity and need for stimulation. Furthermore, those scoring above threshold had significantly higher scores for total child psychopathy and GD, but not INS, although there was a moderate effect size for INS. This supports the literature showing links between CU traits, LPE and psychopathy. The links between LPE and other dimensions of child psychopathy separate to CU traits need to be considered to fully explore the full definition of LPE as a severe and difficult to treat subgroup of children with CD.

In terms of concurrent validity, when used as a continuous measure, we found the number of CAPE symptom dimensions rated highly descriptive were significantly related to conduct problems and negatively correlated with prosocial behaviour. This is in line with what we expect from the CAPE in terms of measuring LPE, as by definition LPE is high CU traits but also serious conduct problems.

There were no significant differences between those who fell above or below threshold on the CAPE in terms of conduct problems. Furthermore, the regression analyses exploring how scores on the CAPE predicted definite conduct problems on the SDQ showed a similar pattern, in that both the regression using the diagnostic threshold and the one using continuous scores

were not significant. It must be noted however, that sample size for those who fell above and below threshold was quite uneven (above N = 6; below N = 22). Therefore, preliminary support is provided for the CAPE in terms of its concurrent validity, and more needs to be done with significantly bigger sample sizes.

Bonferroni corrections are a useful tool to reduce the risk of making a type I error. Given the uneven nature of the groups and small sample available for analysis of the CAPE data, it was considered justifiable to report the CAPE data without Bonferroni correction. Bonferroni corrections can be considered a conservative measure, which can increase the risk of a type II error (Perneger, 1998). As the nature of the study was exploratory, Cohen's *d* effect sizes and their confidence intervals (CI) were deemed an appropriate alternative to reporting results with Bonferroni correction (Nakagawa, 2004). CIs gave the range of the probable effect size, as well as the magnitude, uncertainty and degree of effect for each CAPE validity analysis.

CIs in this study could be particularly important for non-significant *t*-tests using the CAPE data, as *p*-values could only allow strict "effect or no effect" decisions (Nakagawa, 2004). *d* effect sizes and their CIs can recommend which aspects of the CAPE's dichotomous validation may be important, particularly for externalising behaviours (concurrent validity).

Large effect sizes were found between target children with basis for LPE diagnosis and those who did not reach LPE diagnosis for conduct problems and particularly for antisocial behaviour (prosocial scores on SDQ reversed; CI = 0.82-4.23), though neither analysis was statistically significant in this study.

Overall, support is provided for the CAPE as a measure of LPE in that it appears to capture CU traits, be somewhat related to child psychopathy, and to be related to conduct problems and anti-social behaviour. Further work is needed to extend the findings reported here in future studies with greater power, given that the current study ended up a small sample of individuals falling above the diagnostic threshold for LPE.

In the current study it was possible to explore construct, convergent and concurrent validity. Future work is needed to explore discriminant and predictive validity. It was previously noted that CU traits remain stable over time

(Frick & Marsee, 2006; Waschbusch & Willoughby, 2008) and can increase in severity from harming animals in childhood (Kimonis, et al., 2008) to being a precursor to adult psychopathy (Frick & Dickens, 2006; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007). CD is also associated with adult antisocial behaviour (Moffit, 2003; Hinshaw, Lahey, & Hart, 1993; Moffitt & Caspi, 2001; Bonin, Stevens, Beecham, Byford, & Parsonage, 2011; Richardson & Joughin, 2002). It is therefore important to determine whether the CAPE has the ability to predict future conduct problems as well as measuring and monitoring LPE in at-risk samples over time. In terms of discriminant validity, there are several constructs that need to be explored; particularly the overlaps of LPE with ADHD and ASD. The efficacy of convergent validity (and therefore construct) could also be strengthened by including discriminant validity analysis in the same validation study (Campbell & Fiske, 1959).

5.3 Critical Analysis: Advantages/Disadvantages of the CAPE

5.3.1 Discussion of the administration process of the CAPE

The main difference between the CAPE and other research measures of CU traits like the ICU is its design and administration. The CAPE is originally developed to be a clinical assessment, to be administered by a trained clinician to establish whether the 'client' has the basis for LPE diagnosis. No target children had any previous diagnosis for CD in this study to be a clinical sample and the CAPE does not have any tool to diagnose CD. The sample used was a clinically relevant sample due to previous history and problem behaviours, and therefore can only be used as a diagnostic guide for LPE. It was also important to explore the CAPE as a possible tool to measure LPE traits in non-clinical samples and promote better methodologies to be used in research to detect and intervene before regression into the clinical remits. The CAPE requires further validation in a clinical sample of children and adolescents with a previous diagnosis of CD when used as a clinical assessment.

The administration process of the CAPE involving a multi-informant, multi-source method with the added control of a clinical judgement provides a

useful alternative to self-report measures often used in research. Previous research on CU traits has often used self-report measures, despite being not appropriate for use with children high in CU or psychopathic traits due to a deceitful personality style and positive impression management (Paulhus, 1984; Book, Holden, Starzyk, Wasylkiw, & Edwards, 2006).

The administration of the CAPE in this style could be beneficial for use as a research or screening tool as the CAPE's administration time is not as long as other clinical assessment measures from literature on psychopathic traits, such as the PCL-YV, and can be widely distributed depending on the availability of trained clinicians with knowledge of LPE.

The CAPE is administered by the trained clinician conducting semi-structured interview on two informants, in this study, the target child and the target child's mother, using open-style questions with a probe for as much information as possible. The trained clinician also has the freedom to gather collateral information from other sources, in this case, previous file information from caseworkers and make a clinical judgement about the four LPE symptom dimensions on the coding sheets.

The CAPE was developed based on the ICU (Kimonis, et al., 2008), which has been reported as a good, valid measure but screening only the affective aspects of CU traits or psychopathy (Frick, 2013; Frick & White, 2008). This may not include the behavioural or interpersonal behaviours associated with CU traits or child psychopathy, meaning the CAPE may not pick up impersonal personality either. This would mean that the CAPE would be biased towards the affective personality style of CU traits as taken from the ICE. However, as the CAPE is designed as a semi-structured interview with open questions and the freedom to gather rich data to make an informed judgement, the CAPE gives a knowledgeable clinician the scope to probe the impersonal personality style of CU traits.

Responses between child and parent reports on CU traits such as the Dadds' CU still showed discrepancies between informants. For example, there was a non-significant, negative correlation between the child and the parent reports of the Dadds' CU measure, which show discrepancies between informants on two self-report measures.

From the CAPE scoring sheet, clinicians were able to rate how accurate and honest each informant seemed to be. Each scale was numbered from 0 '*not at all*' to 3 *'very'*, meaning that a score of 2 or below would show some range of dishonesty or lack of knowledge. From 26 available reports, 76.9% of mothers seemed to show some dishonesty or lack of knowledge, and all of the 18 available self-reports showed lack of honesty and/or knowledge. A point to take forward for future developments of the CAPE would be to address the different definitions for honesty and accuracy, as a lack of honesty could include insight into their own distorted response styles compared to a lack of accuracy which would not. It would have been interesting to explore different symptom dimensions of LPE, or even child psychopathy dimensions (such as a grandiose deceitful personality style) and correlate them with how honest/accurate the informant seemed to be as described by the trained clinician. This can show that the trained clinician is acting as a control to prevent distorted response styles or PIM, which may affect results on the CAPE.

Clinicians were also able to score how well the second informant, in this case the mother, seemed to know the child. Of the 26 available reports, 58% of parents were rated to only *somewhat* (15%) or *moderately* (42%) know the target child compared to 42% parents rated as knowing the child very well. We found a relationship between mothers' psychopathy and their report of conduct problems for their child, however this changed after Bonferroni corrections were adjusted. From previous research on the correlation between parental warmth, violent upbringing (or being exposed to violence) and CU traits and aggression, it is important to note that not only may the development of CU traits be escalated due to parental factors, but reports that rely on parents may also contain bias. This is in in line with research that suggests that parents are not always a suitable informant choice (Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014) and supports the use of including trained clinicians to provide judgement. The trained clinician could act as a buffer to make a guided judgement based on clinical experience and knowledge of CU traits and LPE.

The CAPE has therefore been validated for use with children and adolescents who are clinically relevant of all ages and both genders. Possible gender differences are a point of interest as the CAPE and diagnostic measures

for LPE are still standardised with the same cut offs (i.e. two symptom dimensions rated highly descriptive) for both genders. We found no gender differences for conduct problems or hyperactivity, but we did find that those scoring above threshold on the CAPE were all male. Gender differences may be present in the CU traits aspect of LPE, which the CAPE is measuring. It is possible that females may display LPE in a different way, such as more manipulative, interpersonal than disruptive, taking example from literature on aggression (Archer, 2000) and on CU traits (Penney & Moretti, 2007). The CAPE must be sensitive to differences in externalising behaviour from LPE symptoms, which is something that needs to be explored in future research. One suggestion might involve using the CAPE with an equal sample of males and females who already have a diagnosis of CD or CD with LPE, and conducting a discriminant function analysis to see if the CAPE accurately captures their profile of behaviour.

5.4 Limitations of the study and suggestions for future research

Due to the issues around the operational definition of CU traits and the overlap with psychopathic traits, we felt it important to consider child psychopathy as well as CU traits when validating the CAPE (Scholte & Van der Ploeg, 2007; Cooke & Michie, 2001; Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014) for convergent validity. Target children scored highly for child psychopathy as well as CU traits, indicating that they may have a more complex psychological profile than sole CU traits with conduct problems. Although CU traits are defined as interpersonal and affective (Frick & Dickens, 2006), interpersonal aspects include the callous use of others for an instrumental gain. This could be extended to include a more manipulative, deceitful facet as included within child psychopathy, as well as impulsivity and need for stimulation, which is related to fearlessness and thrill seeking behaviour (Colins, Andershed, Frogner, Lopez-Romero, Veen, & Andershed, 2014; Frick & White, 2008). We found that there were relationships between CAPE symptom count and all three child psychopathy dimensions, including but not limited to CU traits as well as child psychopathy as a global construct. CU traits are often described as the affective facet of psychopathy (Frick & White,

2008). CU traits have also previously been used interchangeably with psychopathy, and the CU traits terminology is used due to the stigma attached to the psychopathy label.

This study could only go as far as validate the CAPE against both CU traits alone and other child psychopathic traits so as not to be restrictive, as it is not quite clear where the boundary between CD with LPE and psychopathy lies.

Further exploration into LPE, CU traits and child psychopathy is needed as well as discriminant constructs to understand the underlying functionality of LPE to better understand an extremely serious subgroup of children and adolescents needing bespoke interventions before regression into adult antisocial personality.

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.* Arlington, VA: American Psychiatric Association.

Archer, J. (2000). Sex differences in aggression between heterosexual partners: a meta-analytic review. *Psychological bulletin, 126* (5), 651.

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of autism and developmental disorders, 34* (2), 163-175.

Berg, J. M., Lilienfield, S. O., Reddy, S. D., Latzman, R. D., Roose, A., Craighead, L. W., et al. (2013). The inventory of callous and unemotional traits: a construct-validational analysis in an at-risk sample. *Assessment, 20* (5), 532.

Blair, R. J., & Coles, M. (2000). Expression recognition and behavioural problems in early adolescence. *Cognitive development, 15* (4), 421-434.

Bonin, E. M., Stevens, M., Beecham, J., Byford, S., & Parsonage, M. (2011). Costs and longer-term savings of parenting programmes for the prevention of persistent conduct disorder: a modelling study. *BMC Public Health, 11* (1), 1.

Book, A. S., Holden, R. R., Starzyk, K. B., Wasylkiw, L., & Edwards, M. J. (2006). Psychopathic traits and experimentally induced deception in self-report assessment. *Personality and Individual Differences, 41* (4), 601-608.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological bulletin, 56* (2), 81.

Cleckley, H. (1976). The Mask of Sanity. St Louis: CV Mosby Co.

Cohen, J. (1977). Statistical power analysis for the behavioral sciences (revised

ed.).

Cohen, J. (1992). A power primer. Psychological bulletin, 112(1), 155.

Colins, O. F., Andershed, H., Frogner, L., Lopez-Romero, L., Veen, V., & Andershed,

A. K. (2014). A new measure to assess psychopathic personality in

children: The Child Problematic Traits Inventory. Journal of

psychopathology and behavioral assessment, 36 (1), 4-21.

Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: towards a

hierarchical model. *Psychological assessment, 13* (2), 171.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests.

Psychological bulletin, 52 (4), 281.

Dadds, M. R., El Masry, Y., Wimalaweera, S., & Guastella, A. J. (2008). Reduced eye

gaze explains "fear blindness" in childhood psychopathic traits. *Journal of

the American Academy of Child & Adolescent Psychiatry, 47* (4), 455-463.

Dadds, M. R., Fraser, J., Frost, A., & Hawes, D. J. (2005). Disentangling the

underlying dimensions of psychopathy and conduct problems in

childhood: a community study. *Journal of consulting and clinical

psychology, 73* (3), 400.

Dadds, M. R., Hawes, D. J., Frost, A. D., Vassallo, S., Bunn, P., Hunter, K., et al. (2009).

Learning to 'talk the talk': the relationship of psychopathic traits to

deficits in empathy across childhood. *Journal of Child Psychology and

Psychiatry, 50* (5), 599-606.

Dadds, M. R., Moul, C., Cauchi, A., Dobson-Stone, C., Hawes, D. J., Brennan, J., et al. (2014). Methylation of the oxytocin receptor gene and oxytocin blood levels in the development of psychopathy. *Development and psychopathology, 26* (1), 33-40.

Dawel, A., O'Kearney, R., McKone, E., & Palermo, R. (2012). Not just fear and sadness: meta-analytic evidence of pervasive emotion recognition deficits for facial and vocal expressions in psychopathy. *Neuroscience & Biobehavioral Reviews, 36* (10), 2288-2304.

Ekman, P. (1993). *Telling Lies: Clues to Deceit in the Marketplace, Politics, and Marriage.* New York: WW Norton & Company.

Essau, C. A., Sasagawa, S., & Frick, P. J. (2006). Callous-unemotional traits in adolescents. *Assessment, 20*, 1-16.

Fisher, L., & Blair, R. J. (1998). Cognitive impairment and its relationship to psychopathic tendencies in children with emotional and behavioral difficulties. *Journal of abnormal child psychology, 26* (6), 511-519.

Forth, A. E., Kosson, D. S., & Hare, R. D. (2003). *The Hare PCL:YV.* Toronto, Canada: Multi Health System.

Frick, P. J. (2009). Extending the construct of psychopathy to youth: Implications for understanding, diagnosing, and treating antisocial children and adolescents. *Canadian Journal of Psychiatry/Revue canadienne de psychiatre, 31* (12), 803.

Frick, P. J. (2013). Clinical assessment of prosocial emotions version 1.1 (CAPE 1.1). *University of New Orleans: Unpublished Rating Scale.*

Frick, P. J., & Dickens, C. (2006). Current perspectives on conduct disorder. *Current*

psychiatry reports, 8 (1), 59-72.

Frick, P. J., & Dickens, C. (2006). Current perspectives on conduct disorder. *Current psychiatry reports, 8* (1), 59-72.

Frick, P. J., & Hare, R. D. (2001). *Antisocial process screening device: APSD.* Toronto: Multi-Health Systems.

Frick, P. J., & Marsee, M. A. (2006). Psychopathy and developmental pathways to antisocial behavior in youth. In C. Patrick, *Handbook of psychopathy* (pp. 353-374). New York: Guilford Press.

Frick, P. J., & Moffitt, T. E. (2010). A proposal to the DSM-V childhood disorders and the ADHD and disruptive behavior disorders work groups to include a specifier to the diagnosis of conduct disorder based on the presence of callous-unemotional traits. (pp. 1-36). Washington, DC: American Psychiatric Association.

Frick, P. J., & White, S. F. (2008). Research review: The importance of callous-unemotional traits for developmental models of aggressive and antisocial behavior. *Journal of Child Psychology and Psychiatry, 49* (4), 359-375.

Frick, P. J., Cornell, A. H., Bodin, S. D., Dane, H. E., Barry, C. T., & Loney, B. R. (2003). Callous-unemotional traits and developmental pathways to severe conduct problems. *Developmental psychology, 39* (2), 246.

Frick, P. J., Lahey, B. B., Loeber, R., Stouthamer-Loeber, M., Christ, M. A., & Hanson, K. (1992). Familial risk factors to oppositional defiant disorder and conduct disorder: parental psychopathology and maternal parenting. *Journal of consulting and clinical psychology, 60* (1), 49.

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Annual Research Review:

A developmental psychopathology approach to understanding callous-unemotional traits in children and adolescents with serious conduct problems. *Journal of child Psychology and Psychiatry*, *55* (6), 532-548.

Fung, A. L., Gao, Y., & Raine, A. (2009). The utility of the child and adolescent psychopathy construct in Hong Kong, China. *Journal of Clinical Child & Adolesent Psychology, 39* (1), 134-140.

Goffman, E. (2005). *Interaction ritual: Essays in face to face behavior.* Chicago: AldineTransaction.

Goodman, A., & Goodman, R. (2009). Strengths and difficulties questionnaire as a dimensional measure of child mental health. *Journal of the American Academy of Child & Adolescent Psychiatry, 48* (4), 400-403.

Goodman, R., Ford, T., Simmons, H., Gatward, R., & Meltzer, H. (2000). Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *The British Journal of Psychiatry, 177* (6), 534-539.

Hare, R. D. (2003). *Manual for the revised psychopathy checklist.*

Hare, R. D., & Neumann, C. S. (2008). Psychopathy as a clinical and empirical construct. *Annual Review of Clinical Psychology, 4*, 217-246.

Hare, R. D., & Vertommen, H. (1991). *The Hare psychopathy checklist-revised.* Multi Health Systems.

Hawes, D. J., & Dadds, M. R. (2005). The treatment of conduct problems in children with callous-unemotional traits. *Journal of consulting and clinical psychology, 73* (4), 737.

Hawes, D. J., Price, M. J., & Dadds, M. R. (2014). Callous-unemotional traits and the

treatment of conduct problems in childhood and adolescence: A comprehensive review. *Clinical child and family psychology review , 17* (3), 248-267.

Herpers, P. C., Rommelse, N. N., Bons, D. M., Buitelaar, J. K., & Scheepers, F. E. (2012). Callous-unemotional traits as a cross-disorders construct. *Social psychiatry and psychiatric epidemiology, 47* (12), 2045-2064.

Hinshaw, S. P., Lahey, B. B., & Hart, E. L. (1993). Issues of taxonomy and comorbidity in the development of conduct disorder. *Development and psychopathology, 5* (1), 31-51.

Jones, A. P., Happé, F. G., Gilbert, F., Burnett, S., & Viding, E. (2010). Feeling, caring, knowing: different types of empathy deceit in boys with psychopathic tendencies and autism spectrum disorder. *Journal of Child Psychology and Psychiatry, 51* (11), 1188-1197.

Jones, S., Cauffman, E., Miller, J. D., & Mulvey, E. (2006). Investigating different factor structures of the psychopathy checklist: youth version: confirmatory factor analytic findings. *Psychological assessment, 18* (1), 33.

Kimonis, E. R., Frick, P. J., Munoz, L. C., & Aucoin, K. J. (2008). Callous-unemotional traits and the emotional processing of distress cues in detained boys: Testing the moderating role of aggression, exposure to community violence, and histories of abuse. *Development and psychopathology*, *20* (2), 569-589.

Kimonis, E. R., Frick, P. J., Skeem, J. L., Marsee, M. A., Cruise, K., Munoz, L. C., et al. (2008). Assessing callous-unemotional traits in adolescent offenders: Validation of the Inventory of Callous-Unemotional Traits. *International*

journal of law and psychiatry, 31 (3), 241-252.

Kosson, D. S., Cyterski, T. D., Steuerwald, B. L., Neumann, C. S., & Walker-Matthews, S. (2002). The reliability and validity of the psychopathy checklist: youth version (PCL: YV) in nonincarcerated adolescent males. *Psychological assessment, 14* (1), 97.

Leno, V. C., Charman, T., Pickles, A., Jones, C. R., Baird, G., Happé, F., et al. (2015). Callous-unemotional traits in adolescents with autism spectrum disorder. *The British Journal of Psychiatry, 207* (5), 392-399.

Loney, B. R., Frick, P. J., Clements, C. B., Ellis, M. L., & Kerlin, K. (2003). Callous-unemotional traits, impulsivity, and emotional processing in adolescents with antisocial behavior problems. *Journal of Clinical Child and Adolescent Psychology, 32* (1), 66-80.

Loney, B. R., Taylor, J., Butler, M. A., & Iacono, W. G. (2007). Adolescent psychopathy features: 6-Year temporal stability and the prediction of externalising symptoms during the transition to adulthood. *Aggressive Behavior, 33* (3), 242-252.

Loney, B. R., Taylor, J., Butler, M., & Iacono, W. G. (2002). The Minnesota Temperament Inventory: A psychometric study of adolescent self-reported psychopathy. *Unpublished Manuscript.*

López-Romero, L., Romero, E., & Luengo, M. A. (2012). Disentangling the role of psychopathic traits and externalizing behaviour in predicting conduct problems from childhood to adolescence. *Journal of youth and adolescence, 41* (11), 1397-1408.

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 psychopathy, 116* (1), 155.

Moffit, T. E. (2003). Life-course-persistent and adolescence-limited antisocial behaviour: a 10-year research review and a research agenda. *Causes of conduct disorder and juvenile delinquency*, 49-75.

Moffitt, T. E., & Caspi, A. (2001). Childhood predictors differentiate life-course persistent and adolescence-limited antisocial pathways among males and females. *Development and psychopathology, 13* (02), 355-375.

Moffitt, T. E., Arseneault, L., Jaffee, S. R., Kim-Cohen, J., Koenen, K. C., Odgers, C. L., et al. (2008). Research Review: DSM-V conduct disorder: research needs for an evidence base. Journal of Child Psychology and Psychiatry, 49 (1), 3-33.

Nakagawa, S. (2004). A farewell to Bonferroni: the problems of low statistical power and publication bias. *Behavioral Ecology*, 15(6), 1044-1045.

Newcorn, J. H. (2013). Can children with callous and unemotional traits be treated successfully? *Journal of the American Academy of Child & Adolescent Psychiatry, 52* (12), 1257-1259.

O'Brien, B. S., & Frick, P. J. (1996). Reward dominance: associations with anxiety, conduct problems, and psychopathy in children. *Journal of Abnormal Child Psychology, 24* (2), 223-240.

Pardini, D. A., & Byrd, A. L. (2012). Perceptions of aggressive conflicts and others' distress in children with callous-unemotional traits: 'I'll show you who's boss, even if you suffer and I get in trouble'. *Journal of Child Psychology and Psychiatry, 53* (3), 283-291.

Pardini, D. A., & Fite, P. J. (2010). Symptoms of conduct disorder, oppositional defiant disorder, attention-deficit/hyperactivity disorder, and callous-unemotional traits as unique predictors of psychosocial maladjustment in boys: advancing an evidence base for DSM-V. *Journal of the American Academy of Child & Adolescent Psychiatry, 49* (11), 1134-1144.

Pardini, D. A., Lochman, J. E., & Frick, P. J. (2003). Callous/unemotional traits and social-cognitive processes in adjudicated youths. *Journal of the American Academy of Child & Adolescent Psychiatry, 42* (3), 364-371.

Pardini, D. A., Lochman, J. E., & Frick, P. J. (2003). Callous/unemotional traits and social-cognitive processes in adjudicated youths. *Journal of the American Academy of Child & Adolescent Psychiatry, 42* (3), 364-371.

Pastor, P. N., Reuben, C. A., & Duran, C. R. (2012). *Identifying Emotional and Behavioral Problems in Children Aged 4-17 Years: United States, 2001-2007.* National Health Statistics Reports. National Center for Health Statistics.

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of personality and social psychology, 46* (3), 598.

Penney, S. R., & Moretti, M. M. (2007). The relation of psychopathy to concurrent aggression and antisocial behaviour in high risk adolescent girls and boys. Behavioral Sciences & the Law, 25 (1), 21-41.

Perneger, T. V. (1998). What's wrong with Bonferroni adjustments. *Bmj*, 316 (7139), 1236-1238.

Poythress, N. G., Dembo, R., Wareham, J., & Greenbaum, P. E. (2006). Construct validity of the Youth Psychopathic Traits Inventory (YPI) and the

Antisocial Process Screening Device (APSD). *Criminal Justice and Behavior, 33* (1), 26-55.

Ray, J. V., Rivera-Hudson, N. G., Poythress, N. G., Lilienfield, S. O., & Morano, M. (2013). The relation between self-reported psychopathic traits and distorted response styles: A meta-analytic review. *Personality Disorders: Theory, Research, and Treatment, 4* (1), 1.

Rogers, R. (2008). *Clinical assessment of malingering and deception.* New York: Guilford Press.

Rogers, R., & Cruise, K. R. (2000). Malingering and deception among psychopaths. *The clinical and forensic assessment of psychopathy: A practitioner's guide* , 269-284.

Roose, A., Bijttebier, P., Decoene, S., Claes, L., & Frick, P. J. (2010). Assessing the affective features of psychopathy in adolescence: a further validation of the inventory of callous and unemotional traits. *Assessment, 17* (1), 44-57.

Salekin, R. T. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical psychology review, 22* (1), 79-112.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the psychopathy checklist and psychopathy checklist-revised. *Clinical Psychology: Science and Practice, 3* (3), 203-215.

Scholte, E. M., & Van der Ploeg, J. D. (2007). The development of a rating scale to screen social and emotional detachment in children and adolescents. *International Journal of Methods in Psychiatric Research, 16* (3), 137-149.

Schwenck, C., Mergenthaler, J., Keller, K., Zech, J., Salehi, S., Taurines, R., et al. (2012). Empathy in children with autism and conduct disorder: Group-

specific profiles and developmental aspects. *Journal of Child Psychology and Psychiatry*, *53* (6), 651-659.

Sebastian, C. L., McCory, E. J., Cecil, C. A., Lockwood, P. L., De Brito, S. A., Fontaine, N. M., et al. (2012). Neural responses to affective and cognitive theory of mind in children with conduct problems and varying levels of callous-unemotional traits. *Archives of General Psychiatry*, *69*, 814-822.

Sylvers, P. D., Brennan, P. A., & Lilienfield, S. O. (2011). Psychopathic traits and preattentive threat processing in children a novel test of the fearlessness hypothesis. *Psychological Science, 22* (10), 1280-1287.

Szyf, M., & Bick, J. (2013). DNA methylation: a mechanism for embedding early life experiences in the genome. *Child development*, *84* (1), 49-57.

Thornton, L. C., Frick, P. J., Crapanzano, A. M., & Terranova, A. M. (2013). The incremental utility of callous-unemotional traits and conduct problems in predicting aggression and bullying in a community sample of boys and girls. *Psychological assessment*, *25* (2), 366.

Veen, V. C., Stevens, G. W., Andershed, H., Raaijmakers, Q. A., Doreleijers, T. A., & Vollebergh, W. A. (2011). Cross-ethnic generalizability of the three-factor model of psychopathy: The Youth Psychopathic Traits Inventory in an incarcerated sample of native Dutch and Moroccan immigrant boys. *International journal of law and psychiatry*, *34* (2), 127-130.

Vitacco, M. J., Rogers, R., & Neumann, C. S. (2003). The antisocial process screening device an examination of its construct and criterion-related validity. *Assessment*, *10* (2), 143-150.

Waschbusch, D. A., & Willoughby, M. T. (2008). Attention deficit/hyperactivity

disorder and callous-unemotional traits as moderators for conduct

problems when examining impairment and aggression in elementary

school children. *Aggressive behavior, 34* (2), 139-153.

Wooodworth, M., & Waschbusch, D. (2008). Emotional processing in children with

conduct problems and callous/unemotional traits. *Child: Care, Health and*

Development, *34* (2), 234-244.

Appendix 1: Correlation matrix table of all correlations run

Target Children	CAPE Scores (Not Bonferroni corrected)	Dadds' CU (Parent Report)	Dadds' CU (Child Report)	CPTI-CU	CPTI-Total Score	CPTI-GD	CPTI-INS	SDQ-Total Difficulties	SDQ-CP	SDQ-Prosocial	SDQ-Hype
Limited Prosocial Emotions (LPE): CAPE scores	-										
CU traits: Dadds' CU (Parent Report)	$r_s = .41^*$ $p < .05$ $N = 28$	-									
CU traits: Dadds' CU (Child Report)	$r_s = .15$ $p = .26$ $N = 21$	$r_s = -.08$ $p = .35$ $N = 25$	-								
Callous-Unemotional Traits: CPTI-CU	$r_s = .54^{**}$ $p < .01$ $N = 28$	**$r_s = .80^{***}$** $p < .001$ $N = 28$	$r_s = -.15$ $p = .25$ $N = 25$	-							
Child Psychopathy: CPTI-Total Score	$r_s = .51^{**}$ $p < .01$ $N = 28$	**$r_s = .82^{***}$** $p < .001$ $N = 28$	$r_s = -.08$ $p = .36$ $N = 25$	N/A	-						
Grandiose Deceit: CPTI-GD	$r_s = .47^{**}$ $p < .01$ $N = 28$	**$r_s = .71^{***}$** $p < .001$ $N = 28$	$r_s = .01$ $p = .477$ $N = 21$	**$r_s = .68^{***}$** $p < .001$ $N = 28$	N/A	-					
Impulsivity need stimulation: CPTI-INS	$r_s = .35^*$ $p < .05$ $N = 28$	**$r_s = .62^{***}$** $p < .001$ $N = 28$	$r_s = .06$ $p = .396$ $N = 21$	**$r_s = -.55^{***}$** $p = .001$ $N = 28$	N/A	**$r_s = .73^{***}$** $p < .001$ $N = 28$	-				
Total Difficulties: SDQ-Total Score/Difficulties	$r_s = .19$ $p = .171$ $N = 28$	N/A	N/A	**$r_s = .53^{***}$** $p < .001$ $N = 28$	**$r_s = .72^{***}$** $p < .001$ $N = 28$	**$r_s = .67^{***}$** $p < .001$ $N = 28$	**$r_s = .64^{***}$** $p < .001$ $N = 28$	-			
Conduct Problems: SDQ-CP	$r_s = .41^*$ $p < .05$ $N = 28$	**$r_s = .74^{***}$** $p < .001$ $N = 28$	$r_s = -.02$ $p = .466$ $N = 21$	**$r_s = .69^{***}$** $p < .001$ $N = 28$	**$r_s = .84$** $p < .001$ $N = 28$	**$r_s = .88^{***}$** $p < .001$ $N = 28$	**$r_s = .69^{***}$** $p < .001$ $N = 28$	N/A	-		
Prosocial Behaviour: SDQ-Prosocial	$r_s = -.32^*$ $p < .05$ $N = 28$	**$r_s = -.83^{***}$** $p < .001$ $N = 28$	$r_s = .24$ $p = .146$ $N = 21$	**$r_s = -.64^{***}$** $p < .001$ $N = 28$	**$r_s = -.61^{***}$** $p < .001$ $N = 28$	$r_s = -.47^{**}$ $p < .01$ $N = 28$	$r_s = -.41^*$ $p < .05$ $N = 28$	N/A	**$r_s = -.58^{***}$** $p < .001$ $N = 28$	-	
Hyperactivity: SDQ-Hype	$r_s = -.13$ $p = .264$ $N = 28$	$r_s = .002$ $p = .495$ $N = 28$	$r_s = .15$ $p = .253$ $N = 21$	$r_s = .-.22$ $p = .131$ $N = 28$	$r_s = .11$ $p = .283$ $N = 28$	$r_s = .03$ $p = .438$ $N = 28$	$r_s = .26$ $p = .091$ $N = 28$	N/A	$r_s = .05$ $p = .402$ $N = 28$	$r_s = -.12$ $p = .277$ $N = 28$	-

Shaded area denotes r_s with *p* adjusted to .0013 (.05/36). **r_s** in bold indicate r_s significant at α = .001/Bonferroni level.

* r_s significant at *p* < .05 level

** r_s significant at *p* < .01 level

*** r_s significant at *p* < .001 level