The Development of Conduct Problems in Early Childhood – The Role of Psychopathic Traits and Psychopathic Personality
"It's not about what it is, it's about what it can become"
Dr Seuss, Lorax

To all the children.
The Development of Conduct Problems in Early Childhood – The Role of Psychopathic Traits and Psychopathic Personality
Abstract


Research has shown that children displaying conduct problems (CP) early in life are at greater risk for severe CP and other negative outcomes later in life. However, not all children with early-onset CP will develop severe CP over the life-course. Thus, it is important to identify those at greater risk, preferably as early as possible, in order to adequately prevent a negative development. Psychopathic traits have received much attention in research on risk for severe CP, involving attempts to extend these traits, and their association to CP to childhood. However, research has thus far mainly focused on one dimension of psychopathic traits, that is callous-unemotional (CU) traits, to some extent neglecting two other dimensions of traits commonly included in a psychopathic personality: an interpersonal, and a behavioural dimension. Hence, we still do not know if a full psychopathic personality is identifiable in early childhood, and if and how it is related to the development of severe and persistent CP. The aim of this dissertation was to examine if a psychopathic personality could be identified in early childhood, if psychopathic traits are stable over time, and if and how the psychopathic personality is related to childhood CP. Overall, the results show that psychopathic traits, as well as the display of a psychopathic personality, could be identified in early childhood. These traits were stable over time, and they were clearly and strongly related to childhood CP. Additionally, the combination of early-onset CP and a full psychopathic personality seems to be the most precarious for severe and persistent CP, even more so than the combination of CP and CU traits. With careful consideration to ethical aspects, these results are discussed both in relation to a developmental psychopathology perspective on CP, as well as in relation to diagnostic practice as it is framed today.

Keywords: conduct problems, callous-unemotional traits, developmental psychopathology, diagnostics, early childhood, psychopathic traits, psychopathic personality.

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Acknowledgments

So, here we are. After going from social work to criminology and psychology, after changing my research topic after a year and a half, after hours and hours of blood, sweat, and tears (literally), and after countless discussions, meetings, seminars, comments, revisions, and jugs of coffee. This dissertation has taught me that I actually am capable of doing research (which was sort of the point with the past almost five years), but also that I am by no means invincible. To one day feel like king of the hill for getting a paper accepted for publishing, to feeling like a total fraud for not even remembering simple words in any language the next is a humbling experience. But I am not a fraud, as it turns out. I wrote this! But I wouldn’t have been able to if it wasn’t for a number of people, playing different parts in my life both before and during this period.

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To my friends and loved ones.

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I saved this part for last since I sort of had a feeling I would be crying my eyes out by now. I was right. (If you want the tear stained version to prove it you have to ask for the draft…) So, family. Fiancé. You have no idea what
I have been doing for all these years. And it doesn’t really matter, I’m not sure I do either. But you have tried to understand, and I have tried not to bore you to sleep explaining. You have supported me in all ways possible all through my life, and I thank you for it. Mom, for bringing up a strong, independent, no-bullshit woman, and for providing food, clothes, and advice when needed. Dad, for sitting with me at that old typewriter teaching me how to read, and for explaining space and telling time at bedtime, thus nursing my curiosity. Madelene, Simon, and Karl, for being my support and my strength, and for making me a caring and responsible person. Maja and Miliam, for being auntie’s joy in life! All of these things have made me who I am today, and helped me achieve what I have achieved. I love you.

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A new chapter begins.
List of Studies
This dissertation is based on the following papers, which hereafter will be referred to by their Roman numerals.


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<tr>
<td>ADHD</td>
<td>Attention-Deficit Hyperactivity Disorder</td>
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<td>APSD</td>
<td>Antisocial Process Screening Device</td>
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<td>ASPD</td>
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<td>CD</td>
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<td>CFA</td>
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<td>Diagnostic and Statistical Manual of Mental Disorders, 4th ed, Text Revision</td>
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<tr>
<td>ICU</td>
<td>The Inventory of Callous Unemotional Traits</td>
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<td>INS</td>
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<td>LPE</td>
<td>Limited Prosocial Emotions</td>
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<td>NAR</td>
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I. Introduction

Research has, over the past three decades, established that early-onset conduct problems (CP) increase the risk for later antisocial and criminal offending behavior (e.g., Farrington, 2008; Moffitt, 1993). Conduct problems are defined as the display of a repetitive and persistent pattern of behaviors that violate the rights of others, or that violate major age-appropriate societal norms or rules, for example through the display of physical aggression, stealing, bullying or threatening others, vandalism, and severe defiance and hostility (American Psychiatric Association, 2000, 2013; Loeber & Farrington, 2000; Moffitt, 1993). Children who display persistent levels of such behaviors early in life are at greater risk for exhibiting antisocial and even criminal behavior in adolescence and adulthood than children who display CP at later points in life or not at all (e.g., Broidy et al., 2003; Moffitt, 1993).

There are numerous factors in a child's life, on individual, familial, and societal levels, that can and will affect their development, where some factors will increase the risk for negative outcomes, and some will buffer against the influence of these risk factors. In this dissertation, the focus will be on risk factors for CP on an individual level, more precisely on so called psychopathic traits. Psychopathic traits are traits and behaviors that are comprised within dimensions commonly included in the psychopathy or psychopathic personality constructs. Psychopathy is said to be a multidimensional (i.e. involving several inter-related dimensions) construct consisting of at least three dimensions of interpersonal, affective, and behavior/lifestyle traits and behaviors (Cooke & Michie, 2001; Hare, 2003). All traits included in these dimensions can be referred to as psychopathic traits, for example lack of empathy, lying and manipulation, and impulsivity and sensation-seeking.

Psychopathy has been linked to antisocial behavior among adults and adolescents in numerous studies (Forth, Hart, & Hare, 1990; Gretton, Hare, & Catchpole, 2004; Kotler & McMahon, 2005; Lynam, Charnigo, et al., 2009; Lynam, Miller, Vachon, Loeber, & Stouthamer-Loeber, 2009; Stafford & Cornell, 2003). Research has for quite some time attempted to extend the psychopathy construct to childhood, to investigate both whether adult psychopathy has its precursor in childhood, and what relation psychopathic traits have to the development of CP over the life-span (see Kotler & McMahon, 2005; Salekin & Lynam, 2010). However, the focus has been primarily on the presence of callous-unemotional (CU) traits (e.g., lack of
remorse, guilt and empathy, and shallow emotions), which is one of the dimensions included in the psychopathy construct, rather than on a childhood parallel to the construct as a whole. Some have even suggested that CU traits are a childhood equivalent of psychopathy (Frick, O’Brien, Wootton, & McBurnett, 1994; Kotler & McMahon, 2005), as these traits are considered key in the adult psychopathy construct (Cleckley, 1988; Hare, 1993; Scheepers, Buitelaar, & Matthys, 2011).

However, there are several problems with this way of viewing childhood psychopathic traits. Apart from the apparent and necessary ethical considerations, to which I will return, a growing body of research states that if the psychopathy concept is to be extended to childhood, we need to have a more comprehensive and multidimensional view of psychopathic traits that extends beyond CU only, i.e., impulsive and grandiose-manipulative symptoms dimensions, adding assessment of traits and behaviors like lying, deception, sensation seeking, and impulsivity (Andershed, Kohler, Eno Louden, & Hinrichs, 2008; Frick, Bodin, & Barry, 2000; Salekin, 2016).

The purpose of this dissertation is threefold: to examine if psychopathic traits can be assessed in early childhood, what characterizes the development of CP and psychopathic traits over time, and what the association between psychopathic traits and CP in early childhood is. This research will contribute to the field of research on childhood CP and psychopathic traits by both examining whether more than one dimension of psychopathic traits (i.e., CU) can be reliably assessed in early childhood, and what role all dimensions of psychopathic traits play for the development of CP from an early age.

**Key concepts**

Some of the key concepts in this dissertation require definition, as they tend to differ slightly in the literature. The definitions presented here are used throughout all four empirical studies included in this dissertation.

**Conduct problems**

“Conduct problems” (CP) is used here as a term that encompasses a variety of other terms commonly used in previous research, e.g., Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), as well as externalizing, disruptive, and antisocial behavior. CP in this study was assessed using items based on symptoms of the Conduct Disorder and Oppositional Defiant Disorder diagnoses in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (*DSM-IV-TR*; American Psychiatric Association, 2000).
These criteria are consistent with the CD diagnosis in the 5th edition of the DSM as well (i.e., DSM-5; American Psychiatric Association, 2013). All specific diagnostic criteria were not included in the measurements used here, but rather served as a foundation for the construction of the CP items used in the included studies.

**Psychopathic traits, psychopathy, and psychopathic personality**

“Psychopathic traits” is used to describe single traits that are commonly included in the psychopathy and psychopathic personality constructs. The term “psychopathy” is a concept referring to a multidimensional syndrome consisting of a constellation of several inter-related dimensions of psychopathic traits among adults. “Psychopathic personality” is used to describe the display of high levels of several dimensions of psychopathic traits, primarily in children and adolescents. Research is still in the process of establishing if, and in that case which, psychopathic traits can be identified and measured in early childhood, and if and how these childhood manifestations of psychopathic personality are possible early precursors of adult psychopathology. Thus, it is important to note that display of childhood psychopathic traits does not equal a psychopathy diagnosis. Psychopathy and psychopathic personality commonly include at least three dimensions of psychopathic traits: callous-unemotional (CU) traits; an interpersonal dimension including grandiosity, lying, and manipulation; and a behavioral dimension including impulsivity and sensation-seeking. These dimensions and the traits included are described in greater detail later in the text, in the section titled Psychopathic traits and psychopathic personality.

**Callous-unemotional traits**

The term “callous-unemotional (CU) traits” (i.e., the affective dimension of psychopathic personality) is used as an overarching concept including several traits and behaviors referring to the display of troubled interpersonal relationships and emotional responses, such as lack of empathy, remorse, and guilt. Which traits are included in this concept varies between studies, depending on the exact definitions used, and thus which traits were measured. A description of how CU traits were measured in the studies included in this dissertation is presented in greater detail in the Methods section. Note that term “callous-unemotional traits” is not used as a direct synonym to the DSM-5 CD diagnosis specifier Limited Prosocial Emotions (LPE), i.e. the CU traits and LPE concepts are not used interchangeably. However, the LPE specifier comprises four criteria that are based on the description of CU
traits in the literature. Commonly in research, the combination of CP and such traits is referred to as CP + CU, as few studies so far have tested the exact criteria from the specifier. Thus, albeit not an exact synonym, the CU traits concept does clearly encompass all traits and behaviors included in the LPE specifier (Frick & Moffitt, 2010).

The interpersonal and behavioral dimensions of psychopathic personality
The “interpersonal dimension” of psychopathic personality is, in this dissertation, described as including traits and behaviors such as grandiosity (i.e., an inflated sense of self-worth), and Machiavellianism (i.e., deception and manipulative behavior). In the studies included in this dissertation, this dimension is labelled Grandiose-Deceitful, and the assessment procedure is presented in greater detail in the Methods section.

The “behavioral dimension” of psychopathic personality includes behaviors such as impulsivity, sensation-seeking, and attention difficulties. This dimension is referred to in the studies included in this dissertation as Impulsivity, Need for stimulation. How it was measured in the empirical studies in this dissertation is presented in greater detail in the Methods section.

Age definitions
“Childhood” refers to the age period between infancy and age 12, “adolescence” to ages 13 to 19, and “adulthood” to ages 20 and above. These age demarcations are commonly used, but may slightly differ between previous research studies.

II. The development of conduct problems
Research shows that individuals develop CP over time following different developmental paths, displaying, for example, different times of onset and different levels of persistence (Broidy et al., 2003; Moffitt, 1993). Research has shown that those who display early-onset CP, (i.e., CP during early childhood), are at greater risk for other problematic behaviors, and severe and persistent forms of CP over the course of development (Fanti & Henrich, 2010; Frick & Loney, 1999; Lahey & Loeber, 1994; Loeber & Farrington, 2000; Moffitt, 1993; Moffitt, Caspi, Dickson, Silva, & Stanton, 1996). Behaviors like physical aggression are to some extent part of a normal development in early childhood (Naerde, Ogden, Janson, & Zachrisson, 2014), but they tend to become problematic when they persist over time. Childhood CP seem to significantly increase the risk for both
adolescent antisocial behavior and adult Antisocial Personality Disorder (ASPD; Loeber, Burke, & Lahey, 2002; Rowe, Costello, Angold, Copeland, & Maughan, 2010) and criminality (Moffitt, Caspi, Harrington, & Milne, 2002; Rowe et al., 2010). Also, children with early-onset CP and comorbid psychopathology, such as ODD and CD diagnoses in combination with, for example, internalizing and temperament problems, and psychopathic personality traits also seem to display high levels of psychopathology in adulthood, including ASPD (Burke, Waldman, & Lahey, 2010; Kim-Cohen et al., 2003; Moffitt et al., 2002).

Few, if any, studies have utilized a truly predictive design to test predictive ability of early-onset CP for future CP from early preschool years. There are, however, studies investigating associations between early and future CP, and developmental paths of CP from childhood and onward, even into early adulthood (e.g., Moffitt, 1993). For example, studies based on the Dunedin study, a longitudinal study of health, development, and behavior in a New Zealand cohort, showed that between 5 and 10% of the boys in the sample displayed CP at age three, and continued to do so into early adulthood, increasing the risk for an ASPD diagnosis at age 21 (Caspi, Moffitt, Newman, & Silva, 1996). Both males and females from the Dunedin sample displaying stable levels of CP from early childhood were also more likely to display severe CP (i.e., violence towards others) at age 32 (Odgers et al., 2008). Thus, childhood CP seem to increase the risk for stable high levels of antisocial behavior over time (Broidy et al., 2003; Loeber & Farrington, 2000) and also for other multiple negative outcomes in adolescence and adulthood such as poor social skills, substance use, internalizing problems such as depression, and crime victimization (Kim-Cohen et al., 2003; Loeber & Farrington, 2000; Moffitt et al., 2002). Therefore, it is imperative to be able to identify traits and behaviors that put an individual at risk for developing CP early in life.

**Gender differences**

The risk of early-onset CP tends to be greater among boys than girls, as boys commonly display CP to a larger extent during childhood than girls (Côté, Vaillancourt, Barker, Nagin, & Tremblay, 2007; Fergusson & Horwood, 2002; McCabe, Rodgers, Yeh, & Hough, 2004; Moffitt, Caspi, Rutter, & Silva, 2001). Most studies have shown that males are overrepresented in chronic or stable trajectories of CP, and that severe CP, like physical aggression, is so rare in girls in community samples, that it makes modeling difficult (Côté et al., 2007; NICHD & Arsenio, 2004). One study
showed that of all the girls that met CD criteria in a high-risk sample \( n=303 \), about 50\% displayed early-onset CD (McCabe et al., 2004). This study also showed that early-onset girls were more likely to display a history of family mental illness and antisocial behavior, rank below median parental income, and to be diagnosed with ADHD than adolescence-onset girls. Importantly, early-onset girls were more likely to have a history of family mental illness and a history of maltreatment than were early-onset boys. The risk factors assessed in the study did, however, seem to differentiate between early- and adolescence-onset CD in similar ways among both boys and girls. Research has also shown that girls in community samples are more likely to display so called delayed-onset CP, meaning that they develop severe CP in a similar way to early-onset boys, but they do so in early adolescence rather than in childhood (Broidy et al., 2003; Fergusson & Horwood, 2002; Lahey et al., 2006; Moffitt & Caspi, 2001; Moffitt et al., 2001). The relationship between childhood onset characteristics and adolescent outcomes of CP, such as delinquency and offending among boys also seems to be stronger than among girls (Lahey et al., 2006; Wiesner, Vondracek, Capaldi, & Porfeli, 2003). However, research has shown that even though girls commonly develop severe and persistent CP later, usually during early adolescence, they can still develop just as severe CP and related impairments as boys (Javdani, Sadeh, & Verona, 2011).

**Children with conduct problems as a heterogeneous group**

Individuals develop conduct problems and psychopathology in different ways and in different stages of life. The developmental psychopathology perspective has advanced as a useful approach to understanding adaptive and maladaptive behaviors in children that may lead to different developmental trajectories and influence emerging forms of psychopathology (Sroufe & Rutter, 1984). Equifinality and multifinality are key concepts within this perspective, which are easily applicable to the development of CP. Children and adolescents with CP commonly display numerous risk factors, as well as various combinations of risk factors (Cicchetti & Rogosch, 1996). These factors can contribute both to the development and the maintenance of CP over time (Farrington & Welsh, 2007). Different sets of risk factors for different individuals can render the same outcome, such as CP (i.e., equifinality). Thus, it is important not to stay focused on one particular (combination of) risk factor(s) only. Conversely, not all children with early-onset CP will develop severe CP over time, which is an example of multifinality, that is, similar conditions leading to different outcomes.
There is a need to distinguish those who actually will be at greater risk to develop CP from those who will not, both to avoid needless stigmatization of children, as well as to target those in real need with adequate tailored interventions.

**Subgroups of children with conduct problems?**

Approaches to define subgroups of individuals with CP have focused on differences in either behavioral manifestations, e.g., severity and persistence of CP, or on the presence or absence of certain personality traits, e.g., psychopathic traits such as lack of empathy, impulsivity, and problematic interpersonal relations (Frick & Viding, 2009). For example, the CD diagnosis in the *DSM-IV-TR* (American Psychiatric Association, 2000) differentiated primarily between childhood and adolescence onset of CP, i.e., onset of symptoms before or after the age of 10. Regarding the presence of psychopathic traits, CU traits have received the most attention in research (Frick, Ray, Thornton, & Kahn, 2014), which led to a new subtype specifier in the *DSM-5* CD diagnosis, i.e., CD with Limited Prosocial Emotions (LPE; American Psychiatric Association, 2013). This is consistent with a developmental view of CP development. Three paths through which children and adolescents develop CP have been suggested based on existing research: one adolescent-onset path, and two childhood-onset paths (Frick & Viding, 2009). The two childhood-onset paths are basically separated by the presence or absence of CU traits, with research indicating a greater risk for severe CP for children with CP and concurrent CU traits compared to children with CP only (see Frick et al., 2014 for a review). The LPE specifier is based on research on CU traits (Frick & Moffitt, 2010), that is, CD with LPE is the same as displaying severe CP (meeting the diagnostic criteria for CD) and co-occurring CU traits.

**Conduct problems and callous-unemotional traits**

Research has suggested that children with combined CP and CU traits display several specific social, emotional, cognitive, and personality characteristics compared to youths with CP without concurrent CU traits, e.g., more negative emotions, fearlessness, hyperactivity, and thrill-seeking behavior, as well as exposure to higher levels of parental dysfunction (Fontaine, McCrory, Boivin, Moffitt, & Viding, 2011; Frick et al., 2014; Frick & White, 2008). They are also suggested to be at greater risk for developing severe CP (Frick et al., 2014). This body of research has led to the inclusion
of the LPE specifier in the *DSM-5* (Frick & Moffitt, 2010), which has provided a diagnostic tool for identifying a subgroup of children with CP. The main argument for this particular inclusion has been that through assessing the presence of psychopathic traits, one would be able to identify a subgroup of children with more severe and chronic CP than when assessing the presence of antisocial behavior only. Because in research, psychopathic traits among children mainly have been pinpointed as CU traits, which seem to be possible to assess reliably in childhood and tend to remain stable over time, the LPE specifier was suggested and later included (Frick & Moffitt, 2010; Scheepers et al., 2011). In this way, children with CD could be divided into meaningful subgroups based on their co-occurring symptoms, in order to highlight the heterogeneity among children with CP, which would then have both clinical and etiological bearing on the development of CP. Based on this, one indicator of the affective component of psychopathy (i.e., lack of remorse) was included in the *DSM IV-TR* CD diagnosis. This, however, did not contribute to the identification of children with specifically severe antisocial behavior (Frick & Moffitt, 2010).

Interestingly, accumulated results from both referred and non-referred samples suggest that CU traits do not distinguish a subgroup of children with CD with elevated risk for ASPD (Burke et al., 2010). These findings also suggest that when CD was present, CU traits made little difference for the prediction of future ASPD, thus the findings did not support the idea to subtype CD using CU traits (Burke et al., 2010). A growing body of research indicates that there is more to psychopathic traits than CU traits, when looking at the psychopathic personality early in life. A three-dimensional structure of psychopathic personality has been identified as both present and measurable in childhood, in community samples (e.g., Frick et al., 2000). This knowledge might have implications for the developmental paths described within developmental psychopathology. If a multidimensional psychopathic traits constellation is identifiable in early childhood, it is important to find out whether this construct is related to the development of CP already early in life. This is crucial knowledge for both theory and practice. It gives even more information on what risks to look for in children with CP, risks that can give as good or better information on the prediction of risk, diagnostic practice, and treatment as the CP and CU traits combination. Thus, taking equifinality in children with CP into account, there might be a more relevant and informative distinction to be made between the childhood-onset paths of CP, focusing on a multidimensional psychopathic personality construct, rather than just on the combination of CP and
CU traits. That is, other combinations of risk factors, in this case CP and psychopathic traits, could be relevant to consider to advance our knowledge on how to identify and help children with severe CP.
III. Psychopathic traits and psychopathic personality

When studying children’s development of CP from a personality perspective, the focus is often on psychopathic traits, i.e. the affective, interpersonal, and behavioral dimensions of personality traits. Research has indeed shown that children with early-onset CP often display more personality risk factors, such as impulsivity (McCabe, Hough, Wood, & Yeh, 2001; Silverthorn, Frick, & Reynolds, 2001), than children with later onset. Exploring the construct of psychopathic personality in early childhood is a first step for testing developmental theories of psychopathy based on personality development over time.

Adult psychopathy is described as a multidimensional syndrome consisting of extreme interpersonal, affective, and behavior/lifestyle traits that co-occur (Cooke & Michie, 2001; Hare, 2003). Research has identified this three-dimensional psychopathy syndrome not only in adults, but also in children and adolescents (Andershed, Gustafson, Kerr, & Stattin, 2002; Cooke & Michie, 2001; Forth, Kosson, & Hare, 2003; Frick et al., 2000). Importantly, psychopathic traits seem to manifest in a similar way in non-referred individuals (adolescents) as they do in incarcerated offenders, which enables the possibility to examine such traits in the general population and not only in high-risk samples (Andershed, Kerr, & Stattin, 2002). Studies have shown that individuals with high levels of all three dimensions of psychopathic traits display more conduct problems and offending than individuals low on these dimensions (e.g., Andershed et al., 2008; Colins, Noom, & Vanderplasschen, 2012; Vincent, Vitacco, Grisso, & Corrado, 2003). It has previously been common to include CP as a part of the psychopathic personality, but studies have shown that psychopathic features are distinguishable from CP. Thus, while CP can be, but is not necessarily related to psychopathic personality, and similarities and overlaps between CP and the behavioral dimension of psychopathic personality have been shown, CP are not a part of the psychopathy construct (e.g., Dadds, Fraser, Frost, & Hawes, 2005; Frick et al., 1994; Loeber, Burke, & Pardini, 2009; Salekin, Leistico, Neumann, DiCicco, & Duros, 2004). Still, despite acknowledging that a psychopathic personality is comprised of three dimensions of psychopathic traits, i.e., the interpersonal, affective, and behavioral dimensions, the entire psychopathic personality is seldom examined when it comes to adolescents and children.
The extension of psychopathic traits to childhood

There have been attempts to extend the psychopathic personality construct to children and adolescents in order to better understand the onset, stability, and malleability of this syndrome from childhood to adulthood (e.g., Frick, 2009; Frick et al., 1994; Salekin & Lynam, 2010). Indeed, such endeavors could aid in the understanding of the etiology of adult psychopathology. However, the term “psychopathy” is not applicable in the context of children and adolescents without controversy, as it comes with negative connotation. It has repeatedly been used when speaking of occurrence of traits and behaviors included in the psychopathy syndrome in children (e.g., Kotler & McMahon, 2005; Salekin, 2016; Salekin & Lynam, 2010). For example, for practitioners, the use of the psychopathy concept might imply a condition so severe that it may not even be treatable, increasing the risk for early labelling of children displaying problematic traits and behaviors (see e.g., Hart, Watt, & Vincent, 2002). It is therefore critical to point out that in this dissertation, as well as in the included studies, the term or diagnosis “psychopathy” as used with adults is by no means applied to or transferred to children. Rather, I prefer to use the terms “psychopathic traits” and “psychopathic personality” in relation to young children, to articulate and indicate the differentiation from psychopathy in adults. Psychopathy in adults is a syndrome and possible diagnosis implying display of several psychopathic traits, i.e., the separate, individual traits and behaviors that are included in the more complex concept of psychopathy. To imply a direct relationship between adult psychopathy and childhood psychopathic traits by simply utilizing the same terminology is problematic, due both to the risks for labelling and stigma, but also because we still do not know whether childhood psychopathic traits are related to adult psychopathy. I will use the term psychopathic traits to describe display of separate traits and behaviors that have been identified as part of what have been called child psychopathy in the literature. However, instead of referring to child psychopathy, I choose to use the term psychopathic personality, to describe the occurrence of several dimensions of psychopathic traits in an individual, in this case in children. This terminology is also consistent with the view of psychopathy and any personality pathology (see American Psychiatric Association, 2013) as a dimensional concept or structure (see Edens, Marcus, Lilienfeld, & Poythress Jr, 2006), which is coherent with the structure of assessment tools for psychopathic traits. How psychopathic traits were measured in the studies included in this dissertation is described below.
Another relevant concern has been that some psychopathic traits may be age appropriate, normative, and temporary characteristics of childhood and adolescence. This may result in many false positives and substantial instability of the traits in question from childhood to adulthood (e.g., Seagrave & Grisso, 2002). There are, however, a number of studies showing no dramatic age-related fluctuations in stability of psychopathic traits during childhood and adolescence, or from youth to adulthood (see Andershed, 2010 for a review). Thus, existing research indicates that the psychopathic personality construct to some extent seems applicable to childhood and adolescence. But whether the psychopathic personality construct is the same thing as psychopathy is an empirical question. As yet, we do not know how this construct relates to the psychopathy syndrome or to the psychopathy personality disorder as defined for adults. To date, there is no psychopathy disorder, diagnosis, or syndrome established among children and adolescents. However, there will still be questions with regard to when in life psychopathic traits develop, and whether, and in that case which psychopathic traits can (or cannot) be measured in early childhood.

**Childhood psychopathic personality – one dimension or several?**

The CU traits line of research has made a substantial contribution to unraveling pathways to CD and serious antisocial behavior (Frick et al., 2014). Nevertheless, one concern has been that CU traits have become more or less synonymous to psychopathic personality, in the study of psychopathic traits and personality in childhood (e.g., Frick et al., 1994; Kotler & McMahon, 2005; Scheepers et al., 2011). Indeed, the combination of CP and CU traits seems to be associated with the development of severe and even long-term CP (Frick & Moffitt, 2010; Frick et al., 2014). However, the key studies that laid the foundation for the LPE inclusion in the *DSM-5* did not control for other psychopathic traits, but rather compared children with CP and CU traits to children with CP only (Kahn, Frick, Youngstrom, Findling, & Youngstrom, 2012; McMahon, Witkiewitz, Kotler, & The Conduct Problems Prevention Research Group, 2010; Pardini, Stepp, Hipwell, Stouthamer-Loeber, & Loeber, 2012). Thus, there is no way of knowing whether the children with CP and CU traits included in these studies, at
least to some extent, also displayed other dimensions of psychopathic traits. It is feasible to assume that at least some of them did, as CU traits commonly correlate with other dimensions of psychopathic traits. For example, one recent longitudinal study showed that the presence of grandiose-manipulative, and impulsive behavior followed the development of combined CP and CU traits, i.e. children with high levels of CP and CU traits over time also displayed high levels of grandiose-deceitful and impulsive traits, while children with low levels of CP and CU traits displayed low levels of these traits (Klingzell et al., 2016). Furthermore, children with high levels of CP, but low levels of CU traits over time also displayed low levels of grandiose-deceitful and impulsive traits. For this reason, as well as for the understanding of the role of psychopathic traits in the development of CP, it is important to test whether CU traits alone are the best way to identify a subgroup of children with CP at great risk for severe and long-term CP.

Another, less travelled path involves trying to identify psychopathic traits in young children, i.e. a multidimensional approach similar to that used with adults. A growing body of research indicates that there is more to psychopathic traits in children than one single dimension of traits, i.e., CU traits (Andershed et al., 2008; Frick et al., 2000; Salekin, 2016). Psychopathic traits other than CU traits do seem to be possible to identify and measure already in young children. Studies have shown that a three-dimensional structure of psychopathic traits (Cooke & Michie, 2001; Frick et al., 2000) resembling the psychopathy construct used with adults and adolescents, may be identifiable in early childhood (Colins, Andershed, & Pardini, 2015; Colins, Veen, Veenstra, Frogner, & Andershed, 2016). These results indicate that the three dimensions of psychopathic traits are related to each other, also among children, suggesting that there is a need to keep looking at other dimensions of psychopathic traits than CU only in children as well, in order to gain as much information as possible on which children are at greatest risk for future CP. In the long run, this will also render more information on which preventive interventions can lead to the most favorable outcomes for children with CP.

**Which psychopathic traits can be identified in early childhood?**

Research has placed an extensive focus on identifying CU traits in early childhood, particularly in relation to CP. However, other psychopathic traits, and possibly other dimensions of the psychopathic personality, can be identified already in early childhood.
The interpersonal dimension: Grandiosity and Machiavellianism

The interpersonal dimension of the psychopathic personality usually refers to traits that can be included in the concepts of grandiosity and Machiavellianism, e.g., traits such as lying, manipulative behavior, deceitfulness, dishonesty, and a grandiose sense of self (Cooke & Michie, 2001).

Lying is defined as making false statements with the intention to deceive (K. Lee, 2000). Successful lying implies the capacity to take the perspective of others (e.g., Bigelow & Dugas, 2008), theory-of-mind understanding (e.g., Hala, Chandler, & Fritz, 1991; Pollak & Harris, 1999), good executive functioning such as working memory (e.g., what did I do and what did I say I did), and inhibition (e.g., suppressing statements that contradict the lie; Talwar & Lee, 2008). Even though these capacities require a certain amount of cognitive maturity, it seems that a number of them, which stem from the adult psychopathy concept, can be observed and measured already in early childhood. Research has shown that children as young as three years old are able to lie strategically (e.g., Fu, Evans, Xu, & Lee, 2012), to verbally deceive others (e.g., Lewis, Stanger, & Sullivan, 1989), and to deliberately attempt to mislead others (Pollak & Harris, 1999). Actually, when looking at young children, there is evidence that a proportion of preschoolers are identified by teachers (14%) and parents (19%) as chronic liars (Stouthamer-Loeber, 1986). Granted, three-year-olds are not particularly good at lying and deceiving, but they do consciously practice these behaviors. About 50% of three-year-olds commonly admit to their wrongdoings when confronted by adults (Talwar & Lee, 2008), while attempts to mislead by four- to five-year-olds are usually detected, as children of this age are typically not capable of maintaining consistency in their stories. Also, research has shown that children as young as four years of age know that lying is wrong and should be accompanied by guilt (Bussey, 1992).

Lying and deception are associated with a normal cognitive development, and are not necessarily problematic or non-normative behaviors during childhood; they can be common strategies used to compensate for lack of physical strength (Fu et al., 2012; Talwar & Lee, 2008). Still, it is valid to include these behaviors in the psychopathic personality construct. Many people – children and adolescents, as well as adults – lie on a day to day basis (Depaulo & Kashy, 1998), but people with psychopathic personality differ from others in their frequency of lying, their readiness to lie, and in how they react when confronted with their lie e.g., lack of guilt or shame (Hare, 2003; Z. Lee, Klaver, & Hart, 2008).
Adult psychopathy also includes grandiosity, which is manifested through an inflated sense of self, overrating one’s own competencies and skills, superiority, arrogance, and dominance (Vitacco & Kosson, 2010). There is no evidence that narcissistic personality disorder, a disorder that is very similar to this aspect of the psychopathic personality, exists in children (Cramer, 2011; Hart & Hare, 1998), and research on early manifestations of grandiosity is still in an early stage (Thomaes, Bushman, Orobroio De Castro, & Stegge, 2009). However, research has shown that narcissistic-like traits, such as an urge to be the center of attention, and to be very sure of oneself, can be reliably measured in early childhood (K. S. Carlson & Gjerde, 2009; Cramer, 2011; Scholte, Stoutjesdijk, Van Oudheusden, Lodewijks, & Van der Ploeg, 2011; Scholte & Van der Ploeg, 2007). Furthermore, narcissistic-like traits measured at age three, have been shown to predict grandiosity in young adulthood (K. S. Carlson & Gjerde, 2009; Cramer, 2011). One study, in four- to five-year-old children, showed that boys with unrealistic high self-esteem were more likely to be perceived as having problems with social skills and aggression in kindergarten, as compared to boys with realistic levels of self-esteem (Mathias, Biebl, & DiLalla, 2011).

In summary, there is some evidence that children, even preschool age children, are able to lie when given the opportunity (Hala et al., 1991), although only a smaller group of children seems to lie much more than is considered normative by their teachers and parents. There is also, as described above, evidence that inflated feelings of self-worth are observable already from age three, supporting attempts to measure psychopathic traits in childhood referring to grandiosity and superiority.

The affective dimension: Callous-unemotional traits
The affective dimension of the psychopathic personality is often referred to as callous-unemotional (CU) traits in the youth literature, and includes traits like callousness; lack of empathy; guilt and remorse; shallow affect; and failure to accept responsibility for one’s own actions (Cooke & Michie, 2001). These traits are considered key in the adult psychopathy construct, but have received a great amount of attention in research on children and adolescents as well (see Frick et al., 2014 for a review).

Empathy consists of an affective, and a cognitive component (e.g., Decety, Michalska, Akitsuki, & Lahey, 2009; Shamay-Tsoory, Aharon-Peretz, & Perry, 2009; Walter, 2012). Cognitive empathy pertains to the capacity to understand other people’s feelings, and affective empathy to
one’s emotional response to another person’s affective state and the sharing of emotions (Shamay-Tsoory et al., 2009). Research has shown that children as early as six months of age respond to emotional distress in peers, and at age two, children respond to others’ distress with comforting behaviors, such as physical or verbal comfort, or distractions for the person in distress (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). At age three, children are typically capable of a variety of empathy-related behaviors, such as expressing verbal and facial concern, and interest in another’s distress (McDonald & Messinger, 2011). At age four, children display the ability, and make efforts, to understand that a situation is distressing for someone else and are able to recognize the other’s emotions evoked by that particular situation, as well as to be emotionally responsive to the emotions expressed by others (Knafo et al., 2009; Singer, 2006). In sum, empathy, and a lack thereof, seems measurable in childhood.

Lack of empathy is closely related to callousness and shallow affect. While empathy concerns the ability to display feelings and behaviors, callousness refers to the tendency to not express caring feelings when others would and to an active disregard of others’ expressions of distress, for example, through enjoyment or hostility (Shirtcliff et al., 2009). Shallow affect typically involves the inability to experience a normal range and depth of emotions, and therefore individuals with this trait appear cold and unemotional (e.g., Hare, 2003). Research has shown that both infants and toddlers typically are emotionally responsive to others’ emotions (e.g., sadness; Bandstra, Chambers, McGrath, & Moore, 2011), which indicates that shallow affect and lack of emotionality should be observable already in preschoolers.

Feelings of guilt include tension, remorse, and regret (Eisenberg, 2000), and are generally seen as consequence of moral transgressions during the lifespan (Tilghman-Osborne, Cole, & Felton, 2010). Studies on guilt in young children often focus on manifestations of discomfort, such as avoidance, increased tension, and overall appearance of being affected (see My Child Measure: Koshanska, DeVet, Goldman, & Murray, 1994; Koshanska, Gross, Lin, & Nichols, 2002). Children experiencing guilt are also expected to display guilt-related behaviors, such as trying to repair what is broken, confessing, or apologizing for their transgression (Tilghman-Osborne et al., 2010). Research has shown that children as young as 22 months have shown responses that reflect tension (e.g., gaze aversion, bodily signals) when they believe they have committed a wrongdoing (Koshanska et al., 2002). It has also been demonstrated that three-year-old children show remediating behaviors, that they are concerned
about the good feelings of others, and that they tend to confess their infractions (e.g., Koshanska et al., 1994). Thus, an increasing body of studies shows that guilt can be observed and measured very early in life.

Taken together, there is evidence indicating that children at very early ages display traits and behaviors that are encompassed by the callous-unemotional, or affective, dimension of the psychopathic personality.

The behavioral dimension: Impulsivity and sensation seeking

The behavioral dimension of the psychopathic personality typically includes traits and behaviors such as impulsivity, a need for stimulation, proneness to boredom, and sensation seeking (Cooke & Michie, 2001).

Impulsivity is often defined as the inability to delay, inhibit, or control behavior (Chacko, Wakschlag, Hill, Danis, & Espy, 2009). Several overlapping, but different, concepts are commonly used in the literature to refer to impulsivity, such as self-regulation/effortful control, pertaining to the capability of voluntarily control or being able to direct one’s behavioral impulses (Koshanska & Aksan, 2006; Ponitz, McClellad, Mathews, & Morrison, 2009), or disinhibition, which implies a disrupted ability to suppress a certain response in favor of a more non-dominant behavior (Dowsett & Livesey, 2000). A considerable body of research suggests that these concepts can be measured in preschool children. Studies on inhibitory control suggest that children develop simple skills, like suppressing motor responses, already between the ages of 22 and 33 months (S. M. Carlson, 2005; Koshanska, Murray, & Harlan, 2000; Koshanska, Murray, Jacques, Koenig, & Vandegeest, 1996), and that between ages three and five more complex inhibition skills can be detected (Garon, Bryson, & Smith, 2008). Studies on ADHD have shown that impulsive behaviors, such as difficulties awaiting turn, blurt out answers, and interrupting or intruding on others, can be measured already at the age of three (Eggers & Angold, 2006; Willoughby, Pek, & Greenberg, 2012). The studies mentioned here demonstrate that impulsive behavior can be expected in early childhood. However, even though a certain degree of impulsivity is normal, as many as between one fifth and one third of children display these behaviors to a large extent (Willoughby et al., 2012).

Sensation seeking is often regarded as seeking varied, novel, intense, arousing, and behavioral experiences that are accompanied by physical risk taking (Morrongiello, Sandomierski, & Valla, 2012). Although risky play may be normative in early childhood for some children (Sandseter & Kennair, 2012), preschoolers with elevated levels of sensation seeking can
reliably be identified. Measures of sensation seeking in older children, adolescents, and adults sometimes include a dimension referring to the intolerance for monotonous, repetitive, or predictable events or people (i.e., boredom susceptibility or proneness to boredom; e.g., Morrongiello & Lasenby, 2006) and are likely applicable for younger children as well.

Thus, there is evidence that suggests that it is possible to identify a group of highly impulsive children, as well as to assess need for stimulation, sensation seeking, and proneness to boredom, in early childhood.

How do we measure psychopathic traits in childhood?
Several instruments to assess psychopathic traits in childhood and adolescence do exist (see Kotler & McMahon, 2005 for a review). However, the existing instruments were not designed to assess the full psychopathic personality nor were they designed for use with young children. For example, the Inventory of Callous Unemotional Traits (ICU) was specifically developed to assess CU traits (Essau, Sasagawa, & Frick, 2006; Frick, 2009). However, the bifactorial model on which this assessment tool is based could not be replicated, and the recent use of the ICU Teacher version among three-year-olds supports a further exploration of the psychopathic personality construct in early childhood, as CU traits were generally associated with other important traits and behaviors (e.g., effortful control, executive functioning; Ezpeleta, de la Osa, Granero, Penelo, & Domenech, 2013). Still, however, the ICU does not allow assessment of features relating to the interpersonal and behavioral dimensions of the psychopathic personality. Most instruments assessing the three-factor psychopathic traits construct have been developed for use in late childhood (e.g., Youth Psychopathic Traits Inventory - Child Version; van Baardewijk et al., 2008) and/or adolescence (e.g., Childhood Psychopathy Scale; Lynam, 1997). In contrast, The Antisocial Process Screening Device (APSD; Frick & Hare, 2001) allows for assessment of a three-factor psychopathic traits construct in relatively young children (from age 6). These factors are a callous-unemotional (CU), a Narcissism (NAR), and an Impulsivity (IMP) factor. There are, however, two main reasons why the APSD is not ideal for use in preschool children. First, there are problems with differentiating between two of the three factors of the instrument, that is, the NAR and the IMP factors, and analyses suggest a two-factor model being a better fit (Fite, Stoppelbein, & Greening, 2009; Frick et al., 2000). Second, where the three-factor model has been confirmed, the internal consistency for the three scales has shown to be less than acceptable (Dadds et al., 2005). None of these assessment
tools was designed to assess the three-factor model of the psychopathic personality construct. Thus, there is still a need for a tool that measures all relevant parts of the psychopathic personality construct in both a reliable and valid way to fully be able to study the development of psychopathic personality from early childhood.

The Child Problematic Traits Inventory
In order to measure both a three-factor psychopathic personality, as well as to do so in young children, (i.e. from the age of 3), we developed a new assessment tool to be used in research only: The Child Problematic Traits Inventory (Colins et al., 2014). The CPTI was designed to be used longitudinally between ages 3 and 12, to test developmental theories and stability of psychopathic traits and psychopathic personality throughout development. The aim was therefore to include items (i.e., traits and behaviors) that could be used with children during this entire time period.

Two guiding principles were in focus when constructing the instrument. First, only traits and behaviors that had theoretical and/or empirical support in the literature for being applicable in children between the ages of 3 and 12 within the frame of the three-factor model of psychopathic personality should be included. Thus, starting off in theoretical arguments and empirical evidence, items were developed that seemed to accurately and relevantly tap into childhood manifestations of psychopathic traits included in the three-factor model. Consequently, traits such as “glibness/superficial charm” and “lack of realistic long-term goals” were not included in the instrument. Second, the CPTI should not include traits or behaviors that significantly overlapped with or were closely related to antisocial behavior in order to avoid contamination when aiming to examine the relationship between childhood psychopathic traits and the development of CP.

Based on a literature review of assessable traits in childhood, and the two guiding principles of the CPTI, the final version of the instrument consisted of 28 items divided into three dimensions (see Figure 1). The interpersonal dimension was assessed with a total of 8 items tapping grandiose sense of self-worth, lying, and deceitfulness. This factor was labelled the Grandiose-Deceitful (GD) factor. The affective dimension was assessed with a total of 10 items measuring lack of remorse or guilt and callous/lack of empathy. This factor was labelled the Callous-Unemotional (CU) factor. Finally, the behavioral dimension was assessed with a total of 10 items tapping need for stimulation, sensation-seeking, and impulsivity. This factor was labelled the Impulsivity, Need for Stimulation (INS) factor.
**Figure 1.** The factorial structure of the Child Problematic Traits Inventory, and the items included in the respective factors.

- **Psychopathic Personality**
  - **Grandiose-Deceitful (GD)**
    - 5. Lies often to avoid problems
    - 7. Seems to see him-/herself as superior compared to others
    - 9. Often lies to get what he/she wants
    - 15. Seems to lie more than other children at the same age
    - 18. Is often superior and arrogant toward others
    - 21. To get people to do what he/she wants, he/she often find it efficient to con them
    - 24. Thinks that he/she is better than everyone on almost everything
    - 26. To frequently lie seems to be completely normal for him/her
  - **Callous-Unemotional (CU)**
    - 2. Seldom expresses sympathy for others
    - 4. Usually does not seem to share others’ joy and sorrow
    - 8. Never seems to have bad conscience for things that he/she has done
    - 11. Often seems to be completely indifferent when other children are upset
    - 13. Does not become upset when others are being hurt
    - 17. Seldom remorseful when he/she has done something not allowed
    - 20. Often does not seem to care about what other people feel or think
    - 22. Sometimes seems to completely lack the capability to feel guilt and remorse
    - 25. Never expresses feelings of guilt when he/she has done something not allowed
    - 27. Does not express guilt and remorse to the same extent as other children of the same age
  - **Impulsivity, Need for Stimulation (INS)**
    - 1. Likes change and that things happen all the time
    - 3. Often has difficulties awaiting his/her turn
    - 6. Seems to do certain things just for the thrill of it
    - 10. Provides him-/herself with different things very fast and eagerly
    - 12. Often does things without thinking ahead
    - 14. Often consumes things immediately rather than saving them
    - 16. Seem to have a great need for change and excitement
    - 19. Does not like waiting
    - 23. Seems to get bored quickly
    - 28. Quickly gets tired of things, and wants new things to happen all the time
Psychopathic personality and stability

It has been argued that the development of psychopathic traits, or a psychopathic personality, can be viewed and defined as a particular, extreme, pattern of general personality traits or a normal personality profile (Edens et al., 2006; Jones, Miller, & Lynam, 2011; Lynam, 2010; Salekin, Leistico, Trobst, Schrum, & Lochman, 2005). This argument is mainly drawn from the Five-Factor Model (FFM; also known as “the Big Five”) of personality (McCrae et al., 2000), which includes traits within five dimensions: Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness (or Constraint). The general personality approach to the development of psychopathic traits, e.g., using the FFM, is coherent with the dimensional way of approaching the psychopathic construct, which involves assessing to what extent characteristics are displayed rather than just the presence or absence of a particular characteristic. Research has found several similarities between traits included in the FFM and important aspects of a psychopathic personality, such as impulse-control, interpersonal relations, and empathy among both adults and juveniles (Lynam, 2010). Research has also shown that adult individuals fulfilling criteria for psychopathy, using the FFM and the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) are commonly very low on almost all aspects of the Agreeableness and Constraint dimensions, which assess the individual’s orientation toward others, and impulse-control, executive functioning, and excitement seeking (Lynam, 2010; Lynam & Widiger, 2001). These individuals also score low in areas such as positive emotions and warmth, and high in hostility and impulsiveness from the Extraversion and Neuroticism dimensions. In children and adolescents, results are quite similar to those in adults. Juvenile psychopathy is strongly related to low Agreeableness and Constraint, weakly related to low Openness and Extraversion, and weakly related to high Neuroticism (Lynam, 2010). These results hold across different methods and instruments for both adults and juveniles. Thus, it is feasible to consider the psychopathic personality as a specific structure of basic personality traits. This way of viewing the psychopathic personality also corresponds well with the developmental psychopathology perspective, as this is a way to identify and study non-normative development in relation to normative development, based in the same starting points, identifying the presence of more or less of particular personality traits.
Stability from childhood

One major concern when attempting to extend the psychopathic personality to childhood is that characteristics of the psychopathy construct are to some extent normative and temporary childhood features. If so, there should be no stability in psychopathic traits from childhood over the life-course, which would suggest that a childhood manifestation of psychopathic personality is not valid or useful because it says nothing about the child’s future psychopathology or development (see e.g., Seagrave & Grisso, 2002). Thus, there is a need to explore not only whether psychopathic traits can be identified and measured in early childhood, but also their stability or change over time. Based on theory and research on the development of personality traits and disorders, environmental factors only affect this development to a limited extent (Fontaine, Rijsdijk, McCrory, & Viding, 2010; Forsman, Lichtenstein, Andershed, & Larsson, 2010; Forsman, Liechtenstein, Andershed, & Larsson, 2008; McCrae et al., 2000; Viding, Frick, & Plomin, 2007). Personality traits should therefore be relatively stable over time and developmental stages. A contextual perspective, on the other hand, suggests that normal development brings considerable change in personality traits (Andershed, 2010; McCrae et al., 2000).

There is a core assumption in personality psychology that “traits” remain stable over time (e.g., West & Graziano, 1989), and one definition describes a trait as “a psychological organismic structure underlying a relatively enduring behavioral disposition” (Tellegen, 1988, p. 622). However, research on when in life traits are the most consistent, or established, is still sparse. For example, if age is related to trait consistency, an individual’s personality traits will change over time, to a certain point, when the traits reach their peak of consistency. Consequently, interventions aiming to promote change in specific traits are more likely to be effective if they are implemented at a point in time before the traits are more firmly established (Roberts & DelVecchio, 2000). Childhood is commonly seen as a period in which traits still change, likely as a consequence of the multiple developmental transformations the child goes through (e.g., Case, Hayward, Lewis, & Hurst, 1988), such as a developing temperament (Shiner, 1998) and emotional and cognitive abilities (Fischer & Silvenn, 1985). Also, previous research on the consistency of personality traits has shown that the earliest years of life are characterized by the least consistency (Roberts & DelVecchio, 2000). Research has demonstrated both stability and change in FFM traits from childhood to early adulthood (Fraley & Roberts, 2005; Roberts & DelVecchio, 2000; Roberts, Walon, & Viechtbauer, 2006). Furthermore, personality
consistency does not vary across gender or across the different FFM traits (Roberts & DelVecchio, 2000). Studies on ipsative personality change, that is, within-individual stability or change in constellations of variables, have shown high to very high correlations between childhood and adolescence, between early and late adolescence, and between late adolescence and adulthood (Andershed, 2010). Similar results have, as described above, been rendered in studies on stability of psychopathic personality traits in childhood and adolescence (Dadds et al., 2005; Klingzell et al., 2016).

**Psychopathic traits show both stability and change**

Considering that aspects of the psychopathic personality resemble traits included in the FFM and that it is a continuous dimensional construct, a general perspective on the development of personality, or personality disorders, such as the FFM, can give clues regarding stability and change in psychopathic traits as well. More specifically, results regarding psychopathic traits are somewhat inconclusive, leaning more toward stability than change. Studies have shown both stability and change in early childhood (Klingzell et al., 2016) and have found stability from childhood to adulthood as well as between adolescence and adulthood (Forsman et al., 2008; Salekin, Rosenbaum, & Lee, 2008) in community samples. However, only one study has investigated the stability of psychopathic traits in children younger than the age of five (Dadds et al., 2005). This study followed 900 boys and girls between the ages of four and nine, measuring psychopathic traits using the APSD (Frick & Hare, 2001), showing a high rank order stability of psychopathic traits over a twelve-month period. Although no other studies have investigated stability from early childhood, studies of older children have also shown stable levels of CU traits, grandiosity, and impulsivity/CP, with no reported gender differences, between ages 9-12 (T. D. Barry, Barry, Deming, & Lochman, 2008), ages 8-16 (Obradovic, Pardini, Long, & Loeber, 2007), and ages 12-15 (Muñoz, Kerr, & Bésic, 2008). There is still a need to look for stability in psychopathic personality manifestations and stability in earlier stages of life, e.g., from preschool age, not least based on the argued importance of early identification and prevention of problematic traits in children (e.g., Farrington & Welsh, 2007; Loeber & Farrington, 2000).

In general, men and women tend to differ in their personalities (Feingold, 1994), but when it comes to consistency of personality traits, there seem to be no apparent gender differences after controlling for age and time intervals (Roberts & DelVecchio, 2000). This suggests that a similar developmental model of personality traits could be applicable to both men and
women. There are indications that findings of stability in psychopathic traits cannot be generalized from one gender to another, as studies have shown gender differences in stability (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2006; Forsman et al., 2008; Hemphälä, Kosson, Westerman, & Hodgins, 2015). However, these results appear to differ between samples and measures of psychopathic traits. For example, one study (Blonigen et al., 2006) found gender differences in impulsivity, while another study (Forsman et al., 2008) found gender differences in callous-unemotional traits. These two studies were conducted on individuals in late adolescence and early adulthood and cannot be directly generalized to children. Furthermore, in adults, research suggests that deficiencies in socialization, self-control, and in expression and experience of emotions and empathy, characterize both male and female psychopaths (Verona & Vitale, 2007). During childhood, boys tend to display CU traits to a larger extent than girls (Charles, Acheson, Mathias, Furr, & Dougherty, 2012), as well as less impulse-control (Moffitt et al., 2001; Odgers et al., 2008). Among older children, personality trait correlates of antisocial behavior seem to be similar among both boys and girls, but boys tend to display more negative emotionality and less constraint (Moffitt et al., 2001). It has also been shown that gender differences in personality traits account for gender differences in antisocial behavior (Moffitt et al., 2001). However, research is sparse on the manifestation of psychopathy-relevant personality traits, and possible gender differences therein, in early childhood.

Research on the stability of psychopathic traits in women is still sparse, and stability in psychopathic traits in young children, including assessments of gender differences, even more so. However, similar to findings on normative personality trait development, stability in psychopathic traits seems to increase with age (Cauffman, Skeem, Dmitrieva, & Cavanagh, 2016; Lynam, Charnigo, et al., 2009; McCrae et al., 2000; Roberts et al., 2006). This is, however, yet to be investigated in young children.

The above results, although limited, support the hypotheses that psychopathic traits can be measured at an early age, that a three-dimensional structure of psychopathic personality is identifiable in childhood, that the construct is similar to that used with adults and adolescents, and that there are possibilities of change over time. To establish the degree of stability of psychopathic traits already present from a young age is important in order to identify children at risk as early as possible (see Farrington & Welsh, 2007; Loeber & Farrington, 2000).
IV. Psychopathic traits and conduct problems in early childhood

Several studies have demonstrated that the predictive ability of childhood CP and psychopathic traits on CP later in life (Forth et al., 1990; Gretton et al., 2004; Loney, Taylor, Butler, & Iacono, 2007; Lynam, Caspi, Moffitt, Loeber, & Stouthamer-Loeber, 2007; Lynam, Charnigo, et al., 2009; Lynam, Miller, et al., 2009; Stafford & Cornell, 2003), and of psychopathic traits on criminality and antisocial behavior in adolescence and adulthood (Forth et al., 1990; Leistico, Salekin, DeCoster, & Rogers, 2008). Research suggests that young male offenders scoring high on the Psychopathy Checklist – Youth Version (PCL-YV) display both more and earlier convictions than those with low psychopathy scores (Vincent, Vitacco, & Grisso, 2003), and PCL-YV scores correlate with the age of onset of CP (Salekin, Brannen, Zalot, Leistico, & Neumann, 2006). Also, psychopathic traits seem to relate similarly to severe antisocial behavior among non-referred adolescents and incarcerated adolescents and adults (Andershed, Kerr, et al., 2002). Apart from linking CU traits to severe CP, studies have also pointed out the increased risk for children displaying traits like impulsivity (or low impulse-control) and poor social skills (Farrington & Welsh, 2007; Loeber & Farrington, 2000). Thus, it is reasonable to assume that exhibiting all these traits and behaviors suggests an increased risk for severe and persistent CP also in childhood. This has, however, yet to be tested properly.

While CP have been demonstrated to be a circumscribed construct that can be related to psychopathic personality, there is little research, and a lack of theories, on how the multidimensional psychopathic personality is related to the development of CP in childhood. The approach to these issues has mainly been empirical, with a dominating focus on co-occurring CP and CU traits (see e.g., Forth & Book, 2010; Frick et al., 2014; Kotler & McMahon, 2005). Thus, there is still a need to explore how CP are related to the full psychopathic personality, particularly in early childhood. That is, if CP is related primarily to CU traits, or what role the other dimensions of psychopathic traits could possibly play.

Mainly due to the lack of instruments that extend the psychopathic personality construct to early childhood, research on the predictive ability of psychopathic personality on CP has been conducted with older children and adolescents. However, psychopathic personality in combination with early CP seems to be a strong predictor of future CP in childhood. A study of 6-to 11-year-olds (n=138) showed that a subgroup of children with high levels
of both psychopathic traits and CP developed more severe parent rated CP from childhood to adolescence, at a six-year follow-up, than children with CP only or psychopathic traits only (Lopez-Romero, Romero, & Luengo, 2012). However, there were no significant differences in teacher rated CP at the follow-up between children with psychopathic traits and CP, children with psychopathic traits only, or children with CP only. In a review of child psychopathy and its relationship to CP, it was stated that childhood psychopathy is predictive of future CP (Kotler & McMahon, 2005). However, this review focused mainly on CU traits as a childhood manifestation of psychopathic personality, and pointed out that there is an inconsistency in the use of the psychopathy concept and suggested that more research is needed to explore the three-dimensional psychopathy construct, i.e., to test CU traits versus the full psychopathic personality.

**Conduct problems and callous-unemotional traits versus psychopathic personality**

Many studies investigating the implications of CU traits for CP have focused on comparing children – predominantly boys – with the combination of CP and CU traits to children with CP only (Frick et al., 2014). There are numerous studies showing the increased risk for serious and persistent CP for children with concurrent CU traits (see Frick et al., 2014, for a review). Research has shown that CU traits do not necessarily play the same role in antisocial development during childhood. One study showed that CU traits only predicted CP for older children (7th graders) at a three-year follow-up. For the youngest children (1st graders), display of early-onset CP was the only significant predictor of future CP in a three-year follow-up, and for the middle cohort (4th graders), CP and inattention predicted future CP (Pardini, Obradovic, & Loeber, 2006). Also, while CU traits have been found to independently predict future ASPD, findings suggest that CU traits do not distinguish a subgroup of children with CP with elevated risk for ASPD (Burke et al., 2010). When CD was present, CU traits made little difference for the prediction of future ASPD, thus the findings did not support the idea to subtype CD using CU traits (Burke et al., 2010). Yet another study of a non-referred, early adolescence sample ($n = 811$, 45.5% girls; ages 13 to 15 at baseline) has shown that while the interpersonal and behavioral dimensions significantly predict stable high levels of antisocial behavior, the CU traits dimension did not (Salihovic & Stattin, 2016). Hence, children with CP seem to be even more heterogeneous and differ from each other beyond levels of CU traits alone. This suggests that other psychopathic
traits might be helpful in designating meaningful subgroups of children with CP. These results may even indicate that CU traits are not the most relevant predictor of future CP in childhood. At the least, CU traits are not the only significant risk factor when looking at what predicts levels of CP in early childhood. Furthermore, the potential causal relations between psychopathic traits or psychopathic personality and CP in early childhood has yet to be investigated. This also implies that it would most likely be fruitful to target both the conduct problems and the different psychopathic traits with early interventions in order to improve the children’s prognoses for the future.

The main focus on CU traits in the literature on childhood psychopathic traits also applies to any investigation of gender differences. Research has primarily emphasized male samples (see Frick et al., 2014, for a review). One study showed that high levels of psychopathic traits predicted aggression and delinquency to a similar extent among both boys and girls between fifth and ninth grade, and that the only clear gender difference was a stronger relationship between psychopathic traits and relational aggression among girls (Marsee, Silverthorn, & Frick, 2005). Another study has shown that while boys generally display higher levels of CU traits, CU traits seem to be more prominently related to adjustment problems among girls, which would suggest that the manifestation of CU traits can increase the risk for severe impairments for girls (Charles et al., 2012). However, due to the lack of research on female samples, particularly among children, it is hard to draw any conclusions regarding gender differences in psychopathic traits and their relationship to CP. Rates among boys and girls might be similar, but manifestations and consequences can be different (see Kotler & McMahon, 2005). Thus, there is a need to build on this knowledge by further examining the gendered nature of psychopathic traits in relation to CP from early childhood. We know very little about gender differences in the display and development of the full psychopathic personality and how they may be linked to the development of severe CP, especially in early childhood. Do psychopathic traits have an equally strong relationship to other problematic traits and behaviors such as CP in early childhood among both boys and girls? And are psychopathic traits stable, if at all, over time to the same extent among both boys and girls? Knowledge like this could provide much needed insight into what developmental models of both psychopathic personality and CP are applicable for boys and girls respectively in child-
hood. It would also benefit diagnostic practice as well as treatment, as results could imply a need for gender-specific subtype diagnostic criteria for CP, which in turn could have implications for optimal treatment options.

**Cumulative risk**

Children commonly display more than one risk factor for CP (e.g., Appleyard, Egeland, van Dulmen, & Sroufe, 2005; Calkins, Blandon, Williford, & Keane, 2007; Ribeaud & Eisner, 2010). Thus, a cumulative risk model is applicable to understanding the development of CP. Research has shown that the sheer amount of risk is a risk in itself (Ribeaud & Eisner, 2010). Risk factors can add to each other in either an additive way, i.e., the addition of more risk factors increases the risk, or in an interactive way, i.e., risk factors interact with each other to increase risk, but do not affect the level of risk without the interacting “partner” (Hughes, Crothers, & Jimerson, 2008). This could for example mean that including additional dimensions of psychopathic traits could increase the risk for CP, e.g., adding grandiose-manipulative behavior and impulsivity to CU traits. It could also suggest that one dimension of psychopathic traits does not increase the risk for CP without the interaction of the others, e.g., CU traits do not affect the risk of CP without interacting with grandiose-manipulative behavior and impulsivity. Furthermore, looking past psychopathic traits and the individual level, there are numerous known risk factors on different levels, i.e., risk factors in the family, as well as biological, societal, and environmental risk factors, that could affect the development of CP. Thus, it is important to not only investigate presence, absence, or amount of psychopathic traits in children with CP, but to also study other co-occurring risk factors. Such knowledge could help identify a number of traits and behaviors that are likely to characterize children with CP, and that are informative in the tailoring of preventive measures and treatment (see Loeber & Farrington, 2000; Moffitt & Caspi, 2001).

**Fearlessness and Attention Deficit Hyperactivity Disorder (ADHD) symptoms**

Two examples of empirically and theoretically established risk factors for future CP are fearlessness and ADHD symptoms. Both the co-occurrence with CP and the predictive ability for CP of these risk factors have been repeatedly documented in research (Caspi, 2000; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Moffitt, 1993; Shaw, Gilliom, Ingoldsby, & Nagin, 2003; Shaw, Lacourse, & Nagin, 2005).
Fearlessness
Research has shown that fearless children are more likely to exhibit early-onset CP, as well as severe and stable forms of CP, than children who do not display this temperamental trait (Calkins et al., 2007; Moffitt, 1993; Shaw et al., 2003). Fearless children commonly show a preference for thrill-seek ing activities; they willingly seek out novel situations and experience less physical arousal as a result of such situations (e.g., Frick & White, 2008). Furthermore, it is common among children with high levels of fearlessness to not fear punishment and negative consequences of their (mis)behavior. These features make it hard for the individual to socialize and adapt to norms in a prosocial way, as the low arousal and punishment insensitivity might hinder adequate development of guilt and empathy (Dadds & Salmon, 2003; Frick & Sheffield Morris, 2004; Kochanska, 1991; Shaw et al., 2003). Boys with chronically high levels of CP are commonly characterized by high levels of fearlessness (e.g., Shaw et al., 2003). Conversely, low fearfulness has been shown to predict CP among girls, whereas low fearfulness only predicted CP in interaction with time and high activity levels among boys (Colder, Mott, & Berman, 2002).

Guilt and empathy, in turn, are two of the key features of CU traits, which is likely why fearlessness in research to a large extent have been linked to children’s levels of CU traits and CP (C. T. Barry et al., 2000; Fanti, Panayiotou, Lazarou, Michael, & Georgiou, 2015; Frick et al., 2014; Frick & Sheffield Morris, 2004; Shaw et al., 2003). However, the occurrence of CU traits seems to be closely linked to the co-occurrence of other psychopathic traits, and all these traits, in turn, are related to fearlessness. One study of 2,121 boys and girls (the same cohort as used in this dissertation) showed that children with high levels of CP and CU traits in combination also displayed high levels of fearlessness as well as high levels of other psychopathic traits (Klingzell et al., 2016). High rates of psychopathic traits, and not only CU traits, have been found to mediate the relationship between fearlessness and offending in young adulthood (Kubak & Salekin, 2009). Further, levels of fearlessness at age three seem to be associated with high ratings on psychopathic traits, over and above CU traits both among both boys and girls in early childhood (Glenn, Raine, Venables, & Mednick, 2007).

Attention-Deficit Hyperactivity Disorder symptoms
ADHD is a disorder characterized by a persistent pattern of inattention and/or hyperactivity/impulsivity that occurs at school, work, and in social
situations (see American Psychiatric Association, 2013). Attention problems can include making careless mistakes, failing to complete tasks, having problems staying organized and keeping track of things, becoming easily distracted, etc. Problems with hyperactivity can include excessive squirminess, running or climbing when it is not appropriate, excessive talking, and being constantly on the go. Impulsivity can be expressed as impatience, difficulties awaiting one’s turn, blurtinout answers, and frequent interrupting. Although many individuals with ADHD display both inattentive and hyperactive/impulsive symptoms, some individuals show symptoms from one category but not the other. The DSM-5 ADHD diagnosis is divided into three subtypes separating individuals displaying inattention only, individuals with hyperactivity/impulsivity only, and individuals with the combination of the two (American Psychiatric Association, 2013). A systematic review and meta-analysis puts the ADHD prevalence at about 7.2% in a normal population of children (Thomas, Sanders, Doust, Beller, & Glasziou, 2015).

ADHD symptoms, such as impulsivity, hyperactivity, and restlessness, commonly co-occur with ODD and CD (Biederman, 2005), and have been established as substantial risk factors for severe and long-term CP and criminality among both boys and girls (Caspi, 2000; Fletcher & Wolfe, 2009; Gianotta & Rydell, 2016; S. S. Lee & Hinshaw, 2006; Loeber & Farrington, 2000; Manuzza, Klein, Abikoff, & Moulton, 2004; Moffitt, 1993; Murray, Irving, Farrington, Colman, & Bloxsom, 2010; Sibley et al., 2014; Waschbusch, 2002). Children with stable levels of CP over time also seem to follow stable trajectories of ADHD symptoms, with correlations increasing with age, indicating that these traits and behaviors follow similar developmental paths (Kuja-Halkola, Lichtenstein, D’Onofrio, & Larsson, 2015; López-Romero, Romero, & Andershed, 2015; Nagin & Tremblay, 2001; Shaw et al., 2005). Studies have shown covariance between CP (or more specifically the CD diagnosis) and ADHD symptoms, that might account for the predictive ability of ADHD symptoms for CP (e.g., Sibley et al., 2014; Tuvblad, Zheng, Raine, & Baker, 2009; Waschbusch, 2002). One of the previously mentioned studies did, however, show that ADHD predicted future ASPD even in the absence of comorbid childhood ODD or CD (Manuzza et al., 2004). Nevertheless, the combination of CP and concurrent ADHD symptoms between preschool age and early adolescence, has been suggested to be an especially problematic combination for predicting future violent, antisocial, and criminal behavior compared to displaying
ADHD symptoms only (Mordre, Groholt, Kjelsberg, Sandstad, & Myhre, 2011; Satterfield et al., 2007; Simonoff et al., 2004; Stormont, 2000).

Research has also shown that co-occurring ADHD symptoms and CP tend to be related to psychopathic traits, and not only to CU traits. Children rating high on psychopathic personality also tend to display high levels of CD and ADHD compared to children displaying only single dimensions of psychopathic traits (DeLisi et al., 2014; Frick et al., 2000). In this case, however, it is important to note that an overlap occurs between the behavioral (impulsivity) dimension of the psychopathic personality (or the psychopathy syndrome) and the DSM ADHD hyperactivity/impulsivity or combined types. Both scales include traits such as impulsivity and sensation seeking, which is why it is likely that this overlap might carry some of the association between the psychopathic personality and ADHD symptoms.

Against this theoretical and empirical background, both ADHD and fearlessness are interesting to consider when investigating different subgroups of children with CP. This does not reduce the need to test other risk factors on both individual and other levels, such as biological markers, family, environment, and society risk factors. Knowledge of other potential risk factors is essential for diagnostic practice, and for tailoring adequate treatment options for children with CP, especially if one subgroup of children, e.g., children with CP and psychopathic personality, would display high levels of other risk factors as well to a larger extent than other children with CP.
V. The aim of this dissertation

To further improve diagnostic practice and prevention of development of severe and persistent CP over time, there is still a need to investigate if psychopathic traits can be assessed in early childhood, if they are stable over time, and to test the relationship between the full psychopathic personality and CP. Based on current diagnostic practice, there is also a need to further investigate what (combinations of) risk factors seem to bring the greatest risk for CP, and if CU traits are the most relevant way to distinguish a subgroup of children with CP at great risk for future CP. The following section describes the specific research questions and hypotheses posed in the studies included in this dissertation.

Study I aimed to test the psychometric properties of the CPTI, more specifically to test the internal, factorial validity and the reliability (internal consistency) of the CPTI through factor analyses and tests of model fit. The main hypotheses were that results would show either a good, or at least acceptable, model fit for the proposed three-factor model (GD, CU, and INS), a better model fit than a one-factor model of all items, or a CU-factor only model, and that the CPTI and the three factors would show good internal consistencies. We also expected that the three factors would be moderately to strongly related to each other. Possible gender and age differences in mean levels of the CPTI total score and scores on the separate dimensions were also investigated using an exploratory approach, with the hypothesis that boys would display higher scores than girls in all cases. Another aim was to test external criterion validity of the CPTI by examining the relation between the CPTI and external constructs of interest, specifically CP, ADHD symptoms, fearlessness, and easy temperament. Here, we expected that CPTI total scores and scores for the separate dimensions would show significant zero-order correlations with all constructs (positive correlations for all except easy temperament) that would hold when controlling for sociodemographic factors (i.e., child’s gender and age, and parent’s SES and origin), and that partial correlations between the separate CPTI factors and the external constructs while controlling for the other two factors would be weaker, indicating inter-dependency among the three CPTI factors in relation to the analyzed external constructs. A final aim was to investigate the importance of the CPTI factors in relation to concurrent CP, with the hypothesis that the interaction between the three factors would be a better predictor of concurrent CP than the separate factors on their own, suggesting that the full psychopathic personality is more useful to predict CP than
other constructs such as CU traits alone. This argument was based on that three dimensions of the psychopathic personality seem to be identifiable in childhood (Andershed et al., 2008; Frick et al., 2000), and that psychopathic personality rather than only separate dimensions of traits, has been linked to severe CP in late childhood and adolescence (Andershed et al., 2008; Lynam, Miller, et al., 2009; Salekin, 2016; Salekin & Lynam, 2010).

The aim of Study II was to assess the stability of three dimensions of psychopathic traits in early childhood, from the age of three, by examining group and individual levels of stability and change, with a separate focus on the potential differential stability in girls. The hypotheses were that stability across a two-year follow-up would be high, but with a likely decrease as the children got older, and that behavior oriented traits, such as impulsivity, would be less stable over time than personality oriented traits, such as callousness. Furthermore, it was hypothesized that boys and girls would display similar group level stability of psychopathic traits. Research has shown that males display stable levels of psychopathic traits over time on an individual level to a greater extent than females (Blonigen et al., 2006; Fanti et al., 2016; Forsman et al., 2008). Thus, it was also expected that larger proportions of boys would display stable levels of all dimensions of psychopathic traits, and larger proportions of girls would display decreasing levels of psychopathic traits.

Study III aimed to investigate whether psychopathic personality, i.e., high levels on all three dimensions of psychopathic traits, and CU traits alone would predict future CP over a two-year period in early childhood, and if they did so over and above the presence of early-onset CP. As research has shown a clear relationship between psychopathic traits and the development of CP in adolescents and adults (Leistico et al., 2008; Lynam et al., 2007; Lynam, Charnigo, et al., 2009; Lynam, Miller, et al., 2009), the hypothesis was that CU traits and the other two dimensions of psychopathic traits, i.e., the Grandiose-Deceitful and the Impulsivity, Need for Stimulation dimensions (Colins et al., 2014), would significantly predict future CP in early childhood as well. However, studies have also shown that when controlling for early-onset CP, the association between psychopathic traits and CP can decrease (Frick, Cornell, Barry, Bodin, & Dane, 2003; Pardini et al., 2006). Thus, we proposed that the predictive ability of the separate psychopathic traits dimensions would be diminished, or even disappear, when controlling for early-onset CP. Furthermore, the aim was to compare the predictive ability for future CP of combined CP and psychopathic personality in comparison with combined CP and CU traits, as well as compared with early-
onset CP only. Here, the hypotheses were that early-onset CP would no longer be the strongest predictor of future CP when compared to combinations of CP and psychopathic traits. In addition, we proposed that the combination of psychopathic personality and early-onset CP would display the strongest association to future severe CP, compared to early-onset only and combined CP and CU traits. Research in this area in childhood is limited, but some studies have shown that the combination of CU traits and CP is not necessarily the best predictor of future CP (Corrado, Vincent, Hart, & Cohen, 2004; Frick et al., 2000). All analyses were conducted separately for boys and girls, in order to enable discovery of gender-specific patterns in the development of CP and psychopathic traits.

In Study IV, the main aim was to investigate possible differences between groups of children with CP – more specifically between children with early-onset CP, combined CP and CU traits, and children with CP and concurrent psychopathic personality – on their levels of other established risk factors for CP. In this case, fearlessness and ADHD symptoms, as well as ADHD symptoms in combination with CP, both cross-sectionally and longitudinally, were put under closer scrutiny. The hypotheses were that children with high levels of combined CP and psychopathic personality would display the highest levels of both fearlessness, ADHD symptoms and combined ADHD symptoms + CP at baseline, and stable levels of these risk factors over a two-year follow-up. Importantly, the children with CP and psychopathic personality were expected to display higher levels of fearlessness, ADHD symptoms, and the combination of ADHD symptoms and CP than the children with combined CP and CU traits, suggesting that focusing on children with CP and CU traits does not seem to be the best, or at least not the only, way to distinguish a subgroup of children with CP at great risk for future CP. All analyses were conducted for boys and girls separately to explore potential differences in patterns between genders.
VI. Method

Data for the studies included in this dissertation were collected as a part of the SOFIA study (Social and Physical development, Interventions and Adaptation). This is a prospective, longitudinal research project that aims to increase knowledge of and understanding for correlates, determinants, and heterogeneity of children’s development and adaptation.

The SOFIA study – Procedure and participants

All of the procedures were evaluated and approved by an ethics committee (#2009/429). The target population of the SOFIA-study (N = 2,542) was all the children born 2005-2007 and enrolled in preschools during the spring of 2010, in a mid-sized Swedish municipality. About 10% of the children attended private preschools, and the rest attended public schools. The participating municipality had about 85,000 citizens in 2010 and is similar to other Swedish municipalities of this size with regard to age, sex, education, employment, and a mix of rural and urban areas.

In 2010, information about the study was presented to the highest level of decisions makers in the Child and Adolescent Department (Barn- och Ungdomsförvaltningen) of the municipality, as well as to all preschool principals. In a political agreement, it was decided that all public schools were to participate in the SOFIA study, where all children were to be invited to participate, and teachers would fill out questionnaires as part of their daily work. The private preschools were informed separately and the majority chose to participate.

Preschools in Sweden are commonly organized into departments based on the children’s age. In the participating municipality, the departments typically held between 10 and 30 children (M = 18), and three staff members who usually have a formal university education. Also, the year a child turns 6 years old, its’ parents are offered a place for the child in a preschool class. This is a non-compulsory part of the primary school system in Sweden that aims to ease the transition from preschool to school, by combining practices and methods from both, and that is led by preschool teachers. However, most children attend preschool class at the age of six, before starting primary school at age seven. During the fall of 2011, the eldest cohort in the SOFIA study was enrolled in preschool class. Hence, from this point, primary schools were also included in the study through participation by headmasters and teachers.
Data
Data was collected between March and September of 2010, 2011, and 2012, respectively, through web questionnaires, with the option to print the form with assistance from the preschools\(^1\) for pen-and-paper completion. Preceding the start of the data collection each year, thorough information was provided at an assembly (voluntary participation) for teachers, principals, and headmasters presenting the contents and aim of the study. User information for the web questionnaire was handed out to teachers from each department then and there, and the teachers, in turn, handed out user information to the caregivers. Caregivers approved participation for their child by filling out an active consent form, rendering a sample of 2,121 (47% girls) participating children.

Questionnaires were completed by principals/headmasters regarding structural aspects of preschool/school such as curriculum activities, and class and department sizes. Also, teachers and caregivers responded to questionnaires concerning each individual child’s behavior, wellbeing, adjustment, health, and support and interventions. The questionnaires to teachers and caregivers were to a large extent similar in what questions were asked regarding the child. Caregivers also responded to questions regarding parenting strategies and the parent-child relationship. As there were several participating children in each preschool department/class, each teacher typically answered the questionnaire for more than one child. The instruction given was that each teacher should fill out the questionnaire for the child(ren) they knew the best. The questionnaire took about 30 minutes to complete for caregivers, and about 20-30 minutes for teachers. Preschool and school staff answered the questionnaires as part of their daily work, and therefore did not receive any personal compensation. Parents received a gift voucher of 100 SEK per participating child/completed questionnaire.

Non-participants
A total of 16.6% of the target population declined participation in the study, either by actively saying no, or by never submitting the consent form. Caregivers of 15 boys and 15 girls randomly selected from this non-participating group were contacted via telephone at the start of the study (in

\(^1\) In 2010, pen-and-paper questionnaires translated to five common foreign languages were offered as an option. However, due to the low response rate to the translated questionnaires, help from the preschools with translation was offered in the subsequent data collections.
and asked to answer a smaller number of questions, e.g., regarding demographics and the child’s conduct problems. All 30 contacted caregivers chose to respond to the questions asked. Their responses were analyzed and revealed that it was significantly more common in the non-participating group that the mother was born outside of Sweden (Cohen’s $d = .71$), and that parents reported significantly less affection and praise toward their children (Cohen’s $d = .46$). However, the non-participating group did not differ significantly from the participating group concerning important dimensions for the study, such as conduct problems (Cohen’s $d = .02$), internalizing problems (Cohen’s $d = .26$), socio-economic status of the caregivers (Cohen’s $d = .48$), or the country of origin of the father and the child (Cohen’s $d = .31$).

**Sample**

At baseline, the mean age of the children participating in the SOFIA study was 3.86 years ($SD = 0.86$ years), with 34.4% of children being three-year-olds, 33.1% four-year-olds, and 32.5% five-year-olds. Ratings of 2,113 (99.6%) of the participating children were completed by teachers. At the 1-year follow-up, when the children were 4-6 years old, ratings of 2,041 (96.2%) of the original participating children were completed, and at the 2-year follow-up, when the children were 5-7 years old, ratings for 1,934 (91.2%) children were completed. An overview of the three data collection waves is presented in Figure 2.
Figure 2. Flow-chart of the three SOFIA study data collection waves included in the dissertation.

The SOFIA study
Social and Physical development, Interventions, and Adaptation

Baseline
2010
- Children’s age: 3-5
- Target population: 2,542
- Participants: 2,121 (83.4%)
- Response rate: 2,113 (99.6%)
- Attrition analysis: 30 children (100% response rate)

1-year follow-up
2011
- Children’s age: 4-6
- Response rate: 2,041 (96.2%)

2-year follow-up
2012
- Children’s age: 5-7
- Response rate: 1,934 (91.2%)

Study I
2,056 children
(96.9% of participants)

Study II
2,121 children
(100% of baseline participants)

Study III
1,867 children
(88.0% of baseline participants)

Study IV
1,867 children
(88.0% of baseline participants)

Note. Teacher ratings were included in all studies. Parent ratings of CP were included only in Study I.
Sample for Study I
Children from the SOFIA study with available data for the variables of focus in Study I were included. This resulted in the inclusion of 2,056 children (i.e., 80.1% of the target population, \( n = 1,087 \); 52.9% boys, and \( n = 969 \); 47.1% girls). Mean age of the included children was 3.86 years (SD = .86). Specifically, 687 (33.4%) were three-year-olds, 687 (33.4%) were four-year-olds, and the remaining 682 (33.2%) were five-year-olds. In terms of origin, 18.4% out of the 2,056 children had at least one parent who was born in another country than Sweden.

Sample for Study II
The sample for this study consisted of the entire initially participating sample of the SOFIA study, i.e., 2,121 children (47% girls).

Sample for Study III and Study IV
Study III and Study IV made use of the same sample. Only children in the primary sample with valid information on study variables, i.e., CP and all dimensions of psychopathic traits, were included. This rendered a sample of 1,867 (88%; 47% girls) of the initial 2,121 participating children.

Measures
Teacher ratings were the primary source of information for all the studies included in this dissertation. In addition, parent ratings of conduct problems were included in Study I. All measures were designed to assess the children’s behaviors during the past six months.

Conduct problems
Conduct problems was assessed through ten items deriving from criteria of Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) in the DSM-IV-TR (APA, 2000), relevant to preschool children. Examples of items are: “Has taken things without permission,” “Has violated important rules in preschool/at home,” and “Has beaten, torn, shoved, kicked, or thrown something on others without a reason.” Both teachers and parents rated the frequency of each of the ten items on the following response scale: \( 1 = \text{Never}, \ 2 = \text{Rarely}, \ 3 = \text{Sometimes}, \ 4 = \text{Often}, \ 5 = \text{Very often} \). The mean scores, for teacher ratings and parent ratings (Study I) respectively of the ten items was calculated for each data collection point, to gain the Conduct Problems (CP) variables. At baseline, Cronbach’s alphas were \( \alpha = .93 \) for
teacher ratings and $\alpha = .83$ for parent ratings. Teacher ratings of one- and two-year follow-up CP were used in Study III and Study IV for boys and girls separately. For the one-year follow-up, Cronbach’s alpha was $\alpha = .95$ for boys, and $\alpha = .93$ for girls, and for the two-year follow-up, Cronbach’s alpha was $\alpha = .95$ for boys and $\alpha = .95$ for girls.

**Psychopathic traits**

Three dimensions of psychopathic traits were assessed using the 28 teacher rated items of the CPTI (the Child Problematic Traits Inventory; Colins et al., 2014); see Figure 1. Eight items were used for measuring the Grandiose-Deceitful dimension (GD), and 10 items each for measuring the Callous-Unemotional (CU) and Impulsivity, Need for Stimulation (INS) dimensions, respectively. The response scale for each item in the CPTI ranges from 1 = *Does not apply at all*; 2 = *Does not apply well*; 3 = *Applies fairly well*; to 4 = *Applies very well*. Examples of items are: He/she “Lies often to avoid problems” and “Is often superior and arrogant towards others” (GD; Cronbach’s alpha $\alpha = .92$ for boys, $\alpha = .90$ for girls), “Does not express guilt and remorse to the same extent as other children of the same age” and “Usually does not seem to share others’ joy and sorrow” (CU; Cronbach’s alpha $\alpha = .95$ for boys, $\alpha = .94$ for girls), and “Likes change and that things happen all the time” and “Often does things without thinking ahead” (INS; Cronbach’s alpha $\alpha = .93$ for boys, $\alpha = .91$ for girls).

**Fearlessness**

Fearlessness was assessed through the Child Fearlessness Scale (CFS; Colins, Fanti, Larsson, & Andershed, 2016; Klingzell et al., 2016), consisting of six teacher rated items. Examples of items are: “He/she does not seem to be afraid of anything” and “He/she never seems to get scared when someone is mad at him/her.” The response scale is: 1 = *Does not apply at all*, 2 = *Applies poorly*, 3 = *Applies fairly well*, and 4 = *Applies well*. The mean score of the six items from each time point respectively was calculated to gain the Fearlessness variables. Baseline Cronbach’s alphas were $\alpha = .91$ for boys and $\alpha = .87$ for girls, one-year follow-up Cronbach’s alphas was $\alpha = .91$ for boys and $\alpha = .90$ for girls, and two-year follow-up Cronbach’s alphas was $\alpha = .92$ for boys and $\alpha = .90$ for girls.

**Attention-Deficit Hyperactivity Disorder (ADHD) symptoms**

ADHD symptoms were assessed through 18 teacher rated items aimed to assess the diagnostic criteria of ADHD as described in the *DSM-IV-TR*
(American Psychiatric Association, 2000), using DuPaul’s ADHD scale (DuPaul et al., 1998). Examples of items are: “He/she has a hard time paying attention to tasks or activities” and “He/she has trouble waiting his/her turn.” The response scale is: 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, 5 = Very Often. The mean score of the 18 items from each time point respectively was calculated to gain the mean ADHD symptom score. Baseline Cronbach’s alphas were $\alpha = .96$ for both boys and girls respectively, one-year follow-up Cronbach’s alphas were $\alpha = .97$ for boys, and $\alpha = .96$ for girls, and two-year follow-up Cronbach’s alphas were $\alpha = .97$ for both boys and girls.

**Easy temperament**

Easy temperament was assessed through three teacher rated items developed for the purpose of the present study. The following response scale was used: 1 = Does not apply at all, 2 = Applies poorly, 3 = Applies fairly well, and 4 = Applies well. The three items are: “He/she is happy and positive,” “He/she is a child who other children want to play with” and “He/she is easy and nice to be with”. The mean score of the three items was calculated to gain the Easy temperament variable used in Study I. Cronbach’s alpha was $\alpha = .82$.

**Parents’ socioeconomic status and origin**

Parents’ socioeconomic status (SES) was assessed through questions about the parents’ level of education and income. The SES variable was created by first computing the mean of the two parents’ educational levels, and then the mean of their yearly income. After $z$-transformation, the mean of these two mean values were computed into the SES variable. Parents’ origin was assessed through one question asking whether or not they were born in Sweden.
VII. Results

Study I

Study I primarily aimed to describe the development of and test the measurement characteristics of the Child Problematic Traits Inventory (CPTI), an assessment tool for teacher ratings of psychopathic traits in early childhood. A cross-sectional sample of 2,056 three- to five-year-olds was used to examine factor structure, reliability, and validity of the CPTI. Can we measure psychopathic traits, based on a three-factor structure in early childhood, and if so, how, if at all, are psychopathic traits related to concurrent CP? The 28 items of the CPTI loaded distinctly on the three hypothesized GD, CU, and INS factors. Fit indices rendered from Confirmatory Factor Analyses (CFA) showed an acceptable model fit for the three-factor model, while model fit for a one-factor model including all items, and a CU-only model were not acceptable. The model fit for the three-factor model was replicated in sub samples based on gender and age, i.e., among boys and girls separately, and among three-, four-, and five-year-olds separately. Furthermore, the CPTI factors showed internal consistency and external validity in terms of expected correlations with theoretically relevant constructs, such as fearlessness, ADHD symptoms, and easy temperament.

A second aim was to examine whether and how the three psychopathic traits factors were related to concurrent CP. The results showed that in terms of explained variance, the INS factor was the best of the three separate factors for predicting concurrent CP. However, the interaction of GD, CU, and INS had a unique association to CP over and above the separate factors individually, and was the strongest predictor of concurrent CP.

In conclusion, the CPTI had good internal consistency and external validity, and can be used to assess a psychopathic personality construct in young children that on the surface resembles the psychopathy construct used with adults. Also, the interaction among all psychopathic traits factor had a stronger statistical relationship to concurrent CP than separate factors, including the CU factor.

Study II

In this study, we aimed to assess the stability of psychopathic traits in 2,121 children that were between three and five years old at baseline, expecting that these traits would be stable over a two-year period, and that stability of psychopathic traits would increase with age. A second aim was to examine girls’ differential stability of psychopathic traits. Research has shown no
clear and consistent gender differences in stability over time, as results tend to vary with different studies, samples, and measures of psychopathy. However, research on older children shows that males tend to display stable levels of psychopathic traits to a larger extent than females. The results of this study revealed low to moderate group-level stability in psychopathic traits across two years during early childhood, and that age, gender, and type of psychopathic traits did not matter for the stability. Comparable stability results were found in all three age cohorts. On an individual level, psychopathic traits remained stable across two years among the vast majority of both boys and girls. A greater number of girls than boys decreased in INS over this time, and more boys than girls increased in GD. Boys and girls displayed stability and change in CU traits to a similar extent. These results indicate that psychopathic traits are rather stable in early childhood, suggesting that the early display of these traits might have implications for the child’s development of problematic traits and behaviors over time.

**Study III**

Children with conduct problems and CU traits often display severe behavioral dysfunctions, but a growing body of research shows that other dimensions of psychopathic personality, such as grandiosity and impulsivity, may also be important for understanding the etiology of CP. In this study, we used a sample of 1,867 children (47% girls) to investigate whether early-onset CP and concurrent psychopathic traits predicted future and stable levels of CP in a two-year follow-up. We tested the predictive ability of psychopathic traits both in combination with CP, and with control for early-onset CP. Primarily, by grouping the children based on their levels of CP and psychopathic traits at baseline, we compared children with high baseline levels of CP only, to children with CP and concurrent CU traits, and to children with CP and full psychopathic personality, i.e., high levels on both the interpersonal, affective, and behavioral dimensions of psychopathic traits. To identify these groups, high and low levels of CP and psychopathic traits were calculated using a 0.5 SD within gender cutoff, i.e., high levels = scores above the cutoff, and low levels = scores below the cutoff. In this way, five groups were identified:

- **CP only**, including children with elevated levels of baseline CP but low levels of all three psychopathic traits dimensions,
- **CU only**, including children with elevated levels of baseline CU traits but low levels of concurrent CP or other dimensions of psychopathic traits,
• *Psychopathic personality* (PP) only, including children with elevated levels of all three psychopathic dimensions at baseline, but low levels of concurrent CP,

• *CPCU*, including children with elevated levels of concurrent CP and CU traits at baseline, but low levels of the other two psychopathic traits dimensions), and

• *CPPP*, including children with elevated levels of baseline CP and of all three psychopathic traits dimensions.

These mutually exclusive groups were then coded into five separate dummy variables coded 0=not fulfilling criteria for group membership, and 1=fulfilling criteria for group membership. This way, we could compare the predictive ability of CP and concurrent CU traits – analogous to the *DSM-5* Conduct Disorder (CD) diagnosis with Limited Prosocial Emotions (LPE) – to that of CP and concurrent psychopathic personality. The dummy coded group variables, i.e., CP only, CU only, PP only, CPCU, and CPPP, were entered into regression analyses as independent variables to predict one-year follow-up CP, two-year follow-up CP, and stable CP (across two years). The variable *Stable CP* was attained the same way as the group variables, that is, by calculating high and low levels of CP at the one- and two-year follow-ups using a 0.5 SD within gender cutoff. Children with high CP on both occasions were considered to have stable CP (coded as 1), while all other children were considered as not having stable CP (coded as 0).

Analyses showed that all three psychopathic traits dimensions were positively and significantly related to follow-up and stable CP, but when controlling for early-onset CP, psychopathic traits were no longer significant predictors. However, when comparing early-onset CP only to combinations of early-onset CP and psychopathic traits – i.e., CP and CU traits, and CP and psychopathic personality – CP only was either a weak but significant predictor (among girls), or no longer a significant predictor of future CP (among boys). CU traits and psychopathic personality on their own did not predict follow-up or stable CP either. CPPP was the strongest predictor of one- and two-year follow-up CP, and importantly, a stronger predictor than CPCU among both boys and girls. CPPP was the strongest predictor of stable CP among boys, while CPPP and CPCU were equally strong predictors of stable CP for girls.

In conclusion, there is something in the combination of early-onset CP and psychopathic traits, primarily psychopathic personality that is related to the development and sustainment of CP over time among both boys and girls. This suggests that children with CP and psychopathic personality is a
subgroup that likely needs to be considered from diagnostic and treatment perspectives.

**Study IV**

It is essential to keep investigating what are distinct and meaningful subgroups of children with CP, as different risk factors can provide crucial information regarding future risk and severity of CP, as well as regarding possible specific treatment needs. Thus, in this study, using a sample of 1,867 non-referred children (47% girls), we created groups based on the children’s baseline levels of CP and psychopathic traits in order to investigate which constellation of early-onset CP and psychopathic traits best predicted multiple risks over a two-year follow-up. The groups were compared on their follow-up and stable levels of substantial risk factors on an individual level: fearlessness, ADHD symptoms, and the combination of CP and ADHD symptoms. These factors are theoretically and empirically established risk factors for CP that also provide information relevant for early identification and tailoring of adequate treatment interventions. The groups created, using a 0.5 SD within gender cutoff, were:

- **CP only**, including children with elevated levels of baseline CP but low levels of all three psychopathic traits dimensions,
- **CU only**, including children with elevated levels of baseline CU traits but low levels of concurrent CP or other dimensions of psychopathic traits,
- **Psychopathic personality** (PP) only, including children with elevated levels of all three psychopathic dimensions at baseline, but low levels of concurrent CP,
- **CPCU**, including children with elevated levels of concurrent CP and CU traits at baseline, but low levels of the other two psychopathic traits dimensions), and
- **CPPP**, including children with elevated levels of baseline CP and of all three psychopathic traits dimensions.

These groups were compared on baseline levels of CP, psychopathic traits, and baseline and stable levels of fearlessness and ADHD symptoms. The groups were then entered into regression analyses as independent variables to predict stable levels of fearlessness, ADHD symptoms, and the CP+ADHD combination, i.e. above a 0.5 SD within gender cutoff of these traits and behaviors at both the one- and the two-year follow-ups.

Analyses showed that both boys and girls with CPPP had the highest baseline levels of CP, psychopathic traits, ADHD symptoms, and CPPP girls
had higher levels of fearlessness, while the CPPP boys did not differ from the CPCU boys in levels of baseline fearlessness. It is essential for the interpretation of the results to note that some of these differences in stable levels of fearlessness, ADHD symptoms and CP+ADHD symptoms did not reach statistical significance at a five-percent level. However, this was most likely due to power issues, as the subgroups were rather small, and the substantial percentage differences indicated a clear trend. CPPP was clearly the strongest predictor of stable fearlessness, ADHD symptoms, and the stable CP+ADHD symptoms over a two-year period.

CU traits only and CPCU were significant predictors of fearlessness among boys, but not on the same level as CPPP. Psychopathic personality only was a significant predictor for fearlessness among girls, and indicated a substantial increase of fearlessness over time, however not nearly as large an increase as CPPP. However, due to power issues because of small subgroups in the sample, it is feasible to assume that some results would have been statistically significant, had the groups been larger, whereas they in the present study were not. Nevertheless, the tendencies in this study suggest that children with early-onset CP and concurrent CU traits are hard to identify, as these groups were rather small among both boys and girls, especially in comparison to the CPPP groups. This is meaningful information in itself, as these results indicate that children with high levels of CU traits are likely to display other dimensions of psychopathic traits. This, in turn, is relevant to consider with regard to how to identify children at risk early in life.

Based on the results from this study, we conclude that children with CPPP display the largest amount of problematic traits and behaviors, both early in life and over time. This indicates that children with CP and psychopathic personality is a subgroup of children with CP that suffer a great risk, and importantly a greater risk than children with CPCU, for severe and persistent risk factors that are likely to sustain conduct problems over time. Thus, children with early-onset CP and concurrent psychopathic personality seems to be a subgroup of children with CP that needs attention also, instead of focusing on the combination of CP and CU traits only, both in predicting risk, in diagnostic practice, and in treatment planning.
VIII. Discussion

The overall aim of this dissertation was to investigate whether psychopathic traits can be assessed in early childhood, whether they are stable over time, and to test the relationship between psychopathic traits and CP, in order to contribute to the further improvement of diagnostic practice and prevention of the development of severe and persistent CP over time. I also wanted to explore gender-specific patterns by focusing on results for boys and girls separately in three of the four included studies.

The collective results of the included studies indicate that it is indeed possible to identify a three-dimensional psychopathic personality structure as early as at age three (Study I), and that the three dimensions of psychopathic traits, i.e. GD, CU, and INS, are relatively stable over a two-year period (Study II). Also, combined CP and psychopathic personality is the strongest predictor of concurrent (Study I) and future CP (Study III). More importantly, it is a stronger predictor than combined CP and CU traits alone (Study III). Among girls, however, CP and CU traits increased the risk for future CP to the same extent (Study III). In addition, both boys and girls with combined CP and psychopathic personality displayed higher levels of known risk factors for severe and persistent CP, i.e. fearlessness and ADHD symptoms, than children with CP and CU traits (Study IV). These results bring forward several compelling arguments for the need to look more in depth at children with CP, aiming to identify subgroups at increased risk for severe and persistent CP, how different developmental paths of CP and psychopathic traits manifest through childhood, and what implications this has for furthering diagnostic practice and preventive endeavors.

However, the ethical aspect brought up in the introduction is necessary to consider. What does it mean for these children to be pointed out as having a “psychopathic personality,” and do the possible benefits outweigh the potential costs? I argue for not using the term “psychopathy” when referring to children, as this concept describes a very specific disorder identified in adults. The term itself brings negative connotations that contribute to labelling of children as “untreatable”, even though studies now actually show that it indeed may be possible to be effective in interventions among both youths and adults exhibiting psychopathy (Salekin, 2002; Salekin, Worley, & Grimes, 2010; Skeem, Polaschek, Patrick, & Lilienfeld, 2011; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). It is important to note that these studies focus not only on treating psychopathy in itself, but also
on treatment of criminality and violent tendencies. Nevertheless, as psychopathic traits have been demonstrated to be associated to childhood CP, and as they are included in modern diagnostic practice, we cannot shy away from investigating the presence and development of such traits. We need to be clear that we cannot yet know if displaying a psychopathic personality in childhood will lead to a psychopathy diagnosis as operationalized among adults. We also have to be clear about the purpose of assessing psychopathic traits, that is, the intention to prevent the development of negative outcomes, such as severe CP and psychopathology. Such clarity is needed primarily towards the children, their families, and towards the practitioners working with them. Thus, studies like the ones included in this dissertation are a first step to gather the information needed in order to, in the long run, be able to identify children in actual need of early interventions, and to find adequate treatment options tailored for reducing prominent risk factors in order to optimize the outcomes.

**A developmental perspective on psychopathic personality**

The results from this dissertation challenge a consolidated view in both literature and practice on the development of CP from early childhood. While the focus has been primarily on the presence of CU traits in children with CP, more and more research speaks for the importance of considering a full psychopathic personality in combination with CP. Not only do the findings presented here show that a three-dimensional psychopathic personality is identifiable already at age three, they also indicate that these traits seem to be stable over time and are associated to co-occurring CP. Importantly, results from previous studies, albeit in early adolescence, show that psychopathic traits seem to manifest similarly in a community-based population as in incarcerated youths (Andershed, Kerr, et al., 2002). To show that such extreme traits can be identified in a normal population is essential for studies on the development of severe psychopathology conducted in non-referred samples, as one crucial part of the developmental psychopathology perspective is to study maladaptation in the light of adaptation. The possibility to measure psychopathic personality traits in a non-referred sample facilitates comparisons between different developmental paths as not all children with childhood indicators of psychopathology maintain these problems, or develop severe psychopathology over time.

In Study I, psychometric properties of a new assessment tool for psychopathic traits, the CPTI, was tested. All results in that study suggested that psychopathic traits were indeed identifiable as early as age three, and that a
three-dimensional structure (psychopathic personality) had the best fit. This suggests that something that, at least on the surface, resembles the adult psychopathy construct, albeit featuring age-appropriate traits, is measurable in early childhood. Thus, there seems to be more to psychopathic personality in childhood than only one of the separate dimensions, e.g., CU traits, alone.

The internal criterion validity of the CPTI was further fortified in the testing of the relationship between CPTI ratings and concurrent CP. The CPTI showed both additive and interactive effects on the prediction of CP. These results suggest that a cumulative risk model is applicable to psychopathic traits, as adding the three dimensions of psychopathic together also added to the predictive ability, and as the interaction between the three dimensions was the strongest predictor of concurrent CP (see Hughes et al., 2008). This means that not only single psychopathic traits, or separate dimensions of them, matter for the development of CP, but that the full psychopathic personality could be assessed already in early childhood for children with CP.

The identification and stability of psychopathic traits in early childhood suggests developmental significance for the psychopathic personality. The resemblance between FFM traits and psychopathic personality traits makes it feasible to assume that the development of a psychopathic personality follows the patterns of normal personality development (see Lynam, 2010; Roberts & DelVecchio, 2000). The findings from this dissertation show that all three dimensions of the psychopathic personality are measurable already in preschool age, and that psychopathic traits are quite stable over time in childhood. This suggests that the psychopathic personality, like other personality traits, develops and/or starts to be expressed early in life. Research on personality development has shown that personality traits can be stable early in life, but that the degree of stability commonly increases with age. Similar patterns were discovered in this dissertation; while being stable over time as a whole, stability of psychopathic traits also increased with age. However, there are indications, both in the results presented here and in previous research, that psychopathic traits can still change in early childhood. From a treatment perspective, it is crucial to know that the traits to be targeted with interventions are malleable, and what interventions are optimal for affecting the trait in question. Furthermore, children with high levels of psychopathic traits seem to react more to stress than adult psychopaths; this indicates a possible susceptibility to treatment and change in children (Ribeiro da Silva, Rijo, & Salekin, 2012). Knowledge like this could
greatly aid the treatment and prevention of unwanted individual features in children at risk for growing up with severe behavioral problems and psychopathology.

Stability of psychopathic traits in early childhood has implications for a developmental psychopathology perspective on the psychopathic personality. If the psychopathic personality indeed develops in early childhood, and remains relatively stable over time, it is an important contribution to the explanation of the adult psychopathy syndrome. And even if the predictive validity will hold only over shorter time spans in childhood, this is still essential information for the development of early-onset CP, as well as for informing early prevention and treatment. One concern regarding attempts to extend the psychopathy construct to early childhood has been whether key aspects of the psychopathic personality are age-related, i.e., normally present for limited periods in childhood. If this was the case, research should show substantial age-related fluctuations. This has, however, not been established in either previous research or in this dissertation. Rather, results suggest valid measures of, and lack of substantial change in psychopathic traits in early childhood. These findings lend support both to the similarities in the development of normal personality and of psychopathic personality, and to the idea of later established consistency in personality. To discover whether these results are valid across additional developmental stages, studies need to be conducted over longer periods of time than in this dissertation.

**Subgroups of children with conduct problems**

Previous research has repeatedly pointed out children with CU traits as a subgroup of children with CP at great risk for sustained, future CP. One of the main problems with this research base is that the most common approach has been to compare children with combined CP and CU traits to children with CP but without CU traits. Children with CP and CU traits are, as studies show, clearly worse off than children with CP in these studies, displaying more severe impairments and risks for the future in comparison (see Frick et al., 2014, for a review). However, most of the key studies that laid the foundation for the LPE inclusion in the DSM-5 CD diagnosis, have not controlled for presence of other dimensions of psychopathic traits (as shown in the studies by Kahn et al., 2012; McMahon et al., 2010; Pardini et al., 2012). Thus, there is no way of knowing if children in these studies displaying CP and CU traits, at least to some extent also displayed other
dimensions of psychopathic traits. According to the results in this dissertation, it is reasonable to assume that this would be the case. The findings here show that the interaction of all three dimensions of psychopathic traits was the stronger predictor of concurrent CP, and importantly a stronger predictor than the CU traits dimension alone. This indicates that there is a need to look at additional aspects of the psychopathic personality in children with CP in order to identify subgroups at greater risk for CP.

In two of the studies included in this dissertation, several subgroups of children with high levels of CP and psychopathic traits were identified and compared. The groups were children with CP only, children with CU traits or psychopathic personality only, children with combined CP and CU traits, and children with combined CP and psychopathic personality. These groups were compared both in their predictive ability of future CP and on the presence of other risk factors, i.e., fearlessness and ADHD symptoms. Separate dimensions of psychopathic traits significantly predicted future CP in Study III, until a control for early-onset CP was added. Then, early-onset CP were clearly the strongest predictor of future CP, both at separate follow-ups, and for stable CP over time. This supports the extensive body of research suggesting that early-onset CP is one of the most important and influential risk factors for severe and persistent CP (see e.g., Broidy et al., 2003; Farrington, 2008; Moffitt, 1993). However, as a next step, and as the main purpose of Study III, groups of children were compared based on their baseline levels of CP and psychopathic traits. This way, the predictive ability of different combinations of CP and psychopathic traits for future CP could be investigated. The most interesting results emerged as the comparisons between the groups described above were made. When the predictive ability of early-onset CP was compared to combinations of CP and psychopathic traits – i.e. CP and CU traits, and CP and psychopathic personality – CP were no longer a strong, or even significant predictor of future CP. These results support the idea of the cumulative risk model being a fitting explanation for the development of CP. They also highlight the possibility that children in previous studies on early-onset CP as a risk factor for future CP likely displayed psychopathic traits as well.

Another interesting result was that displaying CU traits only or psychopathic personality only was not significantly predictive of future CP. That is, neither CP only nor CU only or psychopathic personality only were strong, or even significant, predictors of future CP. The only combinations of CP and psychopathic traits that predicted both one- and two-year follow-
up CP, as well as stable CP, were the CP and CU traits, and CP and psychopathic personality combinations. Previous research has shown that CU traits only are not predictive of CP to the same extent as CU traits in combination with CP (Frick et al., 2014), so when adding controls for CP in combination with psychopathic traits, these results were expected. Together, these results are noteworthy as they go against the vast knowledge base suggesting that early-onset CP are the most prominent of risk factors for future CP (e.g., Broidy et al., 2003; Farrington, 2008; Moffitt, 1993). Rather, there seems to be something in the combination of CP and psychopathic traits that amplifies the risk for developing both severe and long-term CP. These kinds of studies are still lacking, especially in early childhood.

The most telling set of results was that when comparing combinations of CP and CU traits, and CP and psychopathic personality, the CP and CU traits no longer showed a strong or even significant association to future CP, neither at separate follow-ups nor for stable CP. The CP and psychopathic personality combination was clearly the strongest predictor. These results are of great consequence as they put the LPE specifier for CD in question. Granted, none of the included studies tested the exact CD and LPE combination, i.e., using measures directly based on the LPE specifier (the CP scale was closely based on the DSM-IV-TR CD diagnosis). However, there is good reason based on the findings presented here to question whether the combination of CP and CU traits is really the only, or even the best way to identify a subgroup of children with CP that displays the greatest risk for severe and persistent CP. As mentioned above, studies that in the literature have been considered key for the inclusion of the LPE specifier have not controlled for dimensions of psychopathic traits other than CU traits. The results from this dissertation suggest that while the children in these studies displaying CP and CU traits are at great risk for severe impairments, we may overlook essential information regarding severity, prognosis, and potentially important treatment needs when not including the full psychopathic personality in the assessments. More studies comparing combined CP and psychopathic personality with the CP and CU traits combination are still needed, in order to gain sufficient knowledge to enable a more informed diagnostic practice, as well as tailored preventive interventions.

It is of significance that none of the studies included in this dissertation tested causality of risk factors for future CP. In the included studies, we have only focused on testing correlations between CP, psychopathic traits, and theoretically relevant constructs, as well as testing the predictive ability of
different combinations of CP and psychopathic traits both for concurrent and future CP and for display of other risk factors (fearlessness and ADHD symptoms). Thus, there is no way of knowing, based on the findings presented here, whether the combination of CP and psychopathic personality causes the development of stable CP. There is also no way of knowing if occurrence of early psychopathic traits causes development of later psychopathic traits. However, the results presented have implications from primarily two aspects. First, CP alone were not a strong, or even significant predictor of future CP, or of stable levels of fearlessness or ADHD, when controlling for CP in combination with psychopathic traits. Neither were CU traits or psychopathic personality alone. As mentioned, causality was not tested, but the results clearly suggest that there is something in the combination of CP and psychopathic traits, and primarily the full psychopathic personality, that needs to be considered when aiming to identify subgroups of children with CP in order to predict outcomes and severity. Second, this has implications for prevention possibilities and treatment of long-term, and likely escalating (to age-appropriate) CP. Learning that children with CP and concurrent psychopathic personality are at greater risk for severe and long-term antisocial behavior gives more possible intervention targets, that is, knowledge of co-occurring risk gives more treatment relevant information. Working with prevention is complicated. Even though research on the predictive ability of risk and protective factors, as well as the effectiveness of interventions does exist (Farrington, Loeber, & Ttofi, 2012; Lipsey, 2009; Murray & Farrington, 2010), studies are conducted and results are presented on a group level, while, in practice, preventive interventions are provided on an individual level. Thus, research will not provide all the answers, even if causality can be established between certain risk factors and outcomes. However, both research and practice can contribute by making sure to gather all relevant information in order to make the best decisions possible regarding what interventions to provide, in this case to children displaying severe CP and other traits and behaviors that seem to increase the risk for CP. In the case of this dissertation, we show that CP and psychopathic personality is a particularly risky combination for future CP. Thus, we can conclude that we need to keep a lookout for children with this combination. We can also perhaps suggest that those children (and their families) may be in need of special support, depending on their particular strengths and vulnerabilities.

Further, children with CP and psychopathic personality displayed fearlessness, ADHD symptoms, and combined stable levels of CP and ADHD
symptoms over time than children with other constellations of CP and psychopathic traits. This suggests that the cumulative risk model is most likely not the only relevant explanation for the increased risk of future CP for this group of children. Rather, this indicates that there might be something in the CP psychopathic personality combination that is strongly related to the development of fearlessness and ADHD symptoms as well. These results indicate that children with CP and psychopathic personality appear to be more exposed to several risk factors with implications for the development of severe CP. So, if the psychopathic personality remains stable over time, concurrent early-onset CP, and other risk factors possibly driven by the presence of psychopathic personality and CP, are likely to be maintained, again underlining the need for early identification and prevention. Thus, it is important to keep investigating what other possible risk factors for severe and persistent CP might occur in children with CP and psychopathic personality, in order to identify additional factors that contribute to a negative development, and that can give information on what interventions might be appropriate in order to optimize outcomes. The results underline the developmental psychopathology assumption to not only focus on single traits, or on one single subgroup (equifinality). Rather, we need to identify the most prominent risks for a negative development to be able to tailor adequate interventions targeting these risk factors and individuals at greatest risk for the future. Consequently, we can increase the ability to promote change, and prevent development of severe psychopathology and behavior disorders over the life span.

**Implications for practice**

Individuals expressing CP often display additional risk factors that help maintain these behavior problems, making children with CP a heterogeneous group. Heterogeneous constellations of risk can contribute to the same outcome, such as CP, but imply different treatment needs. Knowledge on different combinations of risk, and what combinations are most likely to bring severe impairments over time, is critical in order to identify children at greatest risk for future CP. Early identification, and early intervention are also essential in order to prevent such a development (e.g., Farrington & Welsh, 2007; Loeber & Farrington, 2000). Interventions can target both CP themselves, as well as risk factors that contribute to maintaining CP over time. In order to implement adequate interventions, though, we need to know what risk factors to target. Thus, we need a rich and informative...
knowledge base on what risk factors that together with CP increase the risk for future CP, and how early in life these risks can be reliably detected.

An apparent risk with extending constructs and concepts from adult psychopathology to children is the risk of labeling and stigma. By pointing out children at risk at an early age, the child could receive a label that follows them for a long time, perhaps even throughout life, contributing to their own and others’ definitions and views of them. For example, if a child would be said to display a psychopathic personality already in preschool, this could communicate to both teachers, parents, and clinicians that the child is “incurable” (e.g., Hart et al., 2002). However, if we learn what risk factors to look for at an early age or stage, risk factors that may cause severe problems in the future, we may not only be able to promptly identify those in real need of interventions, but also rule out those with some risk factors, but substantially lower risk for future issues (see Farrington & Welsh, 2007; Loeber & Farrington, 2000). This way, we could, to a larger extent than today, avoid false positives in diagnostic practice, thus also avoiding labeling and stigma for children that do not display the same severity of problems or risk thereof. Furthermore, as research has shown that stability of personality traits (both normal and psychopathic) increases with age (e.g., Roberts & DelVecchio, 2000), early identification will likely greatly increase the possibilities of implementing adequate treatment before these traits become a more consistent parts of the child’s personality and before patterns of behavior become habits that are hard to break. Especially since research does show that psychopathic traits do display both stability and change in childhood and from childhood to adulthood, and that psychopathic traits are not immutable (Klingzell et al., 2016; Salekin et al., 2008). With early identification comes the possibility of early prevention and treatment, which might very well change and improve children’s developmental paths to prevent antisocial behavior in the future.

Diagnosing conduct problems

Turning to diagnostic practice, early-onset CP have been distinguished from late-onset CP for quite some time as the CD diagnosis differentiates between onset of symptoms before and after the age of 10 (American Psychiatric Association, 2000, 2013). The overwhelming focus in research on the CP and CU combination has also led to the inclusion of the LPE specifier. Previous research has shown that displaying CP and concurrent CU traits increases the risk for both severe CP and other impairments (see Frick et al 2014 for a review). However, the results from this dissertation
suggest that displaying CP in combination with the full psychopathic personality gives more information on the child’s condition and seems to worsen the prognosis for the future.

With today’s diagnostic focus, using only CU traits (i.e., the LPE specifier) to distinguish children with CP at greater risk for severe and persistent forms of antisocial behavior, we risk not providing the most accurate diagnoses or predictions of risk and severity. Also, as a result, we risk missing out on important information that is useful in the long run for tailoring treatment, thus, striving toward the best possible outcomes. I present no clear solution in this dissertation; but I do present compelling arguments for looking past the occurrence, and even importance, of CU traits in the identification of children at risk for severe, long-term CP. According both to findings included here, as well as previous research, CU traits (i.e., the LPE specifier) do not seem to be the only or even the best way to identify a subgroup of children with CP at greatest risk for a negative development. Removing the LPE specifier from the DSM CD diagnosis would likely broaden the spectrum when it comes to identifying the amount and characteristics of risk factors in children with CD. One alternative could be to go back to a more general CD diagnosis but with stricter and more informed assessments of the child’s risk factors, based on the full psychopathic personality and other risk factors that this personality composition seems to be associated with. With this option, it would likely also be beneficial to treat the CD diagnosis as dimensional rather than categorical, thereby considering variation in severity. This way, we could better specify both the child’s severity of symptoms as well as treatment needs, thus optimizing outcomes through implementing evidence-based knowledge of risk and need. Developmental psychopathology emphasizes the importance of merging theory and practice, as well as translating knowledge into action. This dissertation is an example of how the accumulation of knowledge about children with psychopathic personality can be used to conclude that the entire psychopathic personality is more informative than CU traits only when it comes to risk, severity and treatment for children with CP.

**Gender aspects of psychopathic personality and conduct problems**

There is a vast knowledge gap regarding possible gender differences or gender-specific patterns when it comes to both the development of CP, and the development and manifestation of psychopathic traits. Most research focuses on boys, as CP are highly overrepresented among males. Studies that
do examine gender differences have been conducted on older children, adolescents, or adults, rendering results that do suggest possible gender differences in prevalence of psychopathic traits (e.g., Charles et al., 2012).

All analyses in Studies II, III, and IV were conducted separately for boys and girls. This was much needed, as research on psychopathic traits in childhood mainly have utilized samples consisting of boys only. Overall, results were similar for boys and girls. Psychopathic personality seems to be identifiable in early childhood in both boys and girls, and the relations to CP and other risk factors seem to be similar as well. Furthermore, gender did not affect levels of stability or change of psychopathic traits. The only notable difference was that while CP and concurrent CU traits did not strongly predict future CP among boys, they did among girls. These tendencies are visible already when testing the predictive ability for future CP of separate dimensions of psychopathic traits with control for early-onset CP (Study III, where CU traits stay a significant predictor, albeit weaker, among girls). There are, however, studies showing that among older children, CP and psychopathic traits are clearly the stronger predictor of CP among girls as well, and the differences displayed here are not apparent (Colins, Fanti, et al., 2016). These differences could be due to several factors, for example different samples, raters, or age. They could also be an indication of gender-specific risk limited to early childhood, but this needs to be tested further.

Early-onset CP only predicted stable CP among girls, but not among boys, even when controlling for the CP and psychopathic traits combinations, albeit not as strongly. These results are interesting, as research has shown that girls are underrepresented in chronic trajectories of CP with early-onset (Côté et al., 2007; NICHD & Arsenio, 2004) and that it is more common for girls to develop severe CP later in life, displaying a so-called delayed-onset (Javdani et al., 2011). Delayed-onset girls often develop CP following the same patterns as early-onset boys and show the same related impairments. So, girls displaying early-onset CP are not as common, but based on the results presented here, early-onset CP seem to bring a greater risk for future CP for girls than they do for boys. Also, as mentioned above, CU traits seem to be more prominent in girls in early childhood. So even if early-onset girls are few, are they worse off than early-onset boys when it comes to the development of CP over time? There is still a pressing need to keep investigating girls, focusing on both girls with early-onset CP as well as the relationship between CP and childhood psychopathic traits in girls in early childhood.
The results presented here might not motivate gender-specific manifestations of psychopathic traits, or diagnoses in early childhood. There may, however, still be a need to pay closer attention to girls displaying early-onset CP, both alone and in combination with CU traits, as it might steer toward the same negative outcomes in early childhood for girls as the CP and psychopathic personality combination. The overall results, however, imply the possibility of similar developmental models of both psychopathic personality and CP for boys and girls in early childhood.

**Contribution to the field**

This dissertation contributes in several ways to the field of psychopathy in general and to the field of psychopathic personality in childhood in particular. First, a new instrument to assess psychopathic traits in children between the ages of 3 and 12 was introduced, i.e. the Child Problematic Traits Inventory (CPTI). Studies are still being conducted to test the psychometric properties of the CPTI in different ages and countries, but so far it has shown good possibilities to measure a three-dimensional structure of psychopathic personality in childhood. Second, psychopathic traits seem to be both identifiable and measurable in early childhood, already at preschool age. Also, there are indications of a psychopathic personality similar to a multidimensional approach to adult psychopathy. Third, psychopathic traits seem to be stable over time in early childhood, suggesting the possibility of a predecessor to adolescent or adult psychopathy should these results hold over longer periods of time. Fourth, psychopathic personality predicts both concurrent and future CP, as well as stable levels of CP over time. Psychopathic personality with concurrent early-onset CP seems to be a problematic combination when looking at the development of severe and persistent CP from early childhood. However, early-onset CP do not seem to predict future CP when controlling for this combination. Fifth, importantly, the combination of CP and psychopathic personality has a clearly stronger association to future severe CP than the CP and CU traits combination. These results should have implications for both diagnostic framing and practice. Sixth, few gender-specific patterns emerged in the included studies, suggesting that there is little reason, to consider gender specific manifestations of psychopathic traits in early childhood, or gender-specific criteria for possible CD diagnosis specifiers based on psychopathic traits.
Strengths and limitations

The studies included in this dissertation had both substantial strengths and important limitations. First, all studies used samples from the SOFIA study. The SOFIA study features a large Swedish sample of preschoolers, which strengthens the validity, and makes generalizations to other populations feasible. As a result, valid and reliable conclusions can be drawn from results rendered from this sample. Further, the group of children whose parents chose not to enroll them in the study was quite small (16.6% of the target population). Importantly, this group did not differ from the participating group on key variables such as CP, SES, or parent’s origin. Increased reliability of the studies was also attempted through a number of supplementary analyses aiming to strengthen the results and conclusions by ruling out alternative hypotheses. Also, pertaining to Study II, stability of psychopathic traits was measured in three different ways, in order to identify stability and change on both group and individual levels.

Lastly, despite being a new assessment tool for psychopathic traits, the CPTI has so far shown good internal consistency and external validity in several European samples, strengthening the reliability of the study. The proposed three-factor structure of the CPTI has been repeatedly reinforced in different samples, and support for teacher ratings of psychopathic traits has been strengthened (Colins, Fanti, et al., 2016; Colins, Veen, et al., 2016). The results in this dissertation have also been replicated, regarding the comparison of the predictive ability of early-onset CP in combination with psychopathic traits, showing that children with CP and psychopathic personality are at greatest risk for severe and persistent CP (Colins, Anderhed, & Fanti, 2016).

One limitation of this dissertation is the way stability of psychopathic traits was analyzed. There are primarily two common approaches to studying stability and change in personality traits. Rank-order stability gives an idea of whether the relative ordering of individuals on a given trait holds over time, while mean-level stability shows stability or change at a group (mean) level over time (Andershed, 2010). Both these approaches fail to investigate stability on an individual level, i.e., within-individual change or stability over time. This is key, since increases and decreases on a subsample level may go undetected if embedded in a larger sample, i.e. analyses of total sample level show stability when there actually is change. One option could have been to conduct group-based modeling analyses, where individuals displaying different levels of psychopathic traits could have been followed over time (Nagin & Tremblay, 1999, 2001). However, the use of only three data
collection waves would have limited the available options to identify all possible developmental trajectories, i.e., different levels of stability and change, which also would have been a great limitation for the results. There are however possibilities in the future to conduct such analyses with data from the SOFIA study, as it is still ongoing, with more data collections.

Furthermore, the three dimensions of psychopathic traits were studied separately. Ipsative stability refers to within-individual stability or change in a constellation of variables, e.g., all three dimensions of the psychopathic personality, rather than focusing on single traits (Andershed, 2010). Thus, it illustrates the individual’s changes in a certain “personality configuration” (Roberts, Caspi, & Moffitt, 2001). It is reasonable to assume that significant individual differences exist in stability and change of psychopathic personality traits. The crucial issue is to identify those who will display stable psychopathic traits over time, and whether this group is the majority or minority of children with early development of psychopathic traits (see Andershed, 2010). These types of analyses would be a reasonable next step in investigating development of psychopathic personality from early childhood, in order to see if the construct as a whole holds over time on an individual level. It is crucial to keep investigating the presence and stability of psychopathic traits in childhood, and especially to look further into what can promote change in psychopathic traits. With early identification comes the possibility of early prevention.

There are also some limitations of the included studies that are necessary to address for the interpretation of the results. One recurring discussion is the sole use of teacher ratings. In Study I, parent rated CP were included as a correlate, but apart from that, the included studies rely exclusively on teacher rated variables despite recommendations in research to use multiple informants (Vitacco, Neumann, & Caldwell, 2010). There are a couple of reasons for this decision. Based on a number of arguments, the CPTI was designed to be rated by teachers. First, it has been argued that parents and teachers are the adults who spend the largest amount of time with the child, thus being in a privileged position to observe their child’s behavior (e.g., Ballespí, Jané, & Riba, 2012). In Sweden, the most common situation is that both parents work (often full time), and the children start preschool, normally between the ages of 12 and 24 months. Thus, children in Sweden spend a large part of their waking hours with their teacher or other adults.

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2 Parents in Sweden are allowed paid parental leave for a total of 480 days. Parental leave can start either before or on the same day the child is born.
(e.g., grandparents, after school kindergarten staff) than at home with their parents. In low-income families, this may particularly be the case as these parents often have to combine several jobs that do not coincide with school program schedules. Thus, teachers of preschool age children have the opportunity to observe the children in different situations (both structured and unstructured) and in interaction with different people, such as peers and adults other than the parents (see also Abikoff, Courtney, Pelham Jr, & Koplewicz, 1993). Third, due to their education, and their experiences on the job, teachers may better distinguish between age-related normative and age-related inappropriate traits and behaviors (e.g., Campbell, 2002) than parents. Furthermore, teachers are more willing to rate problematic behaviors and negative features in children than parents, as they are not emotionally involved to the same extent as parents. Lastly, there is a large body of literature relying on teacher ratings. Studies that have used teachers for assessing psychopathic traits in early childhood commonly report better internal consistency indices for the dimensions of psychopathic personality than studies that rely on parent reports (Dadds et al., 2005; Scholte & Van der Ploeg, 2007; Willoughby et al., 2012). This lends further support to the decision to use teacher ratings for the studies included in this dissertation.

Further, as there were only teacher ratings of psychopathic traits available, the decision was made to use only teacher ratings of other key variables, e.g., CP, in order to avoid rater variance (by using different raters for different variables). Previous research has shown that correlations between parent and teacher ratings of problematic traits and behaviors tend to be low (Somma, Andershed, Borroni, & Fossati, 2015). The decision to not use information from multiple informants can increase the risk for common method variance, and thus limit the possibilities of generalization. However, there is still a vast amount of knowledge to be gained from these results.

Another vital limitation becomes apparent in Studies III and IV, where the initially large sample is split into smaller groups based on baseline CP and psychopathic traits ratings, and then categorized into dichotomized variables in several analyses. These groups could not be identified in the sample through other approaches, for example, using continuous scores to create multiplicative interaction terms (which brought on severe multicollinearity issues), and had to be created manually to enable comparisons. Due to the creation of these smaller subsamples, several of the analyses suffered from power issues likely to have substantial implications for the results. In this case, the issue becomes Type II errors, or possible false negatives, meaning that differences are not found where differences likely exist. That is, despite
large differences between groups, few of them turned out to be statistically significant, even at a 5% level. These notable percentage differences indicate that with larger subsamples, the differences are likely to have been statistically significant. However, with larger samples, the tables are turned, because with large enough samples most analyses will render statistically significant results, thus increasing the risk for Type I errors, or false positives. We conducted additional analyses using groups created with stricter cutoffs to see whether the results held, which they did. We also provided comparisons of baseline levels of CP and psychopathic traits to visualize initial differences that might potentially affect any differences in outcomes.

**Conclusions and future directions**

This dissertation brings forward knowledge that indicates that the developmental psychopathology aspect of childhood-onset antisocial behavior needs to be broadened. Also, there is still a need to keep investigating what combinations of traits and behaviors that bring the most aggravating circumstances for the future in order to optimize diagnostic practice and treatment outcome. It would be of great interest and gain for this field of research to keep investigating gender differences and gender-specific patterns in both psychopathic traits and CP and in the relationship between the two. There is also a need to study the possible influence of biological, family, social, and environmental factors for children with combined CP and psychopathic personality. This would give much needed insight into potential causes of stability and change, and also possible protective factors. Furthermore, it would be relevant to keep investigating the prevalence of other risk factors in children with CP and psychopathic personality, as done in Study IV, to see whether this group of children are also worse off when it comes to biological markers, and family and environment risk factors. This would be facilitated with larger samples, in order to avoid statistical power issues.

There is also a need to investigate CP and psychopathic personality and the development of persistent CP over a longer time period and several developmental stages, to render knowledge on developmental paths, stability and change, risk, severity, and prediction from early childhood. However, it is also important to not just keep investigating. Measures need to be taken in practice as well, as soon as there is enough valid knowledge supporting change. For example, one step forward is to consider a revision of the CD diagnosis in future versions of diagnostic tools. Lastly, there is a need for additional treatment studies on interventions targeting psychopathic traits and CP in early childhood to find out what works for what risks and at
what stages in life. This way, treatment outcomes can be optimized and it will be possible to prevent a negative development for afflicted children.

It is hard to identify homogenous subgroups of children as individuals exist in a context and not in a void, and numerous aspects of life can affect development over time. Nonetheless, we can still strive to gain and utilize as much knowledge as possible on how to identify individuals at great risk for future CP, and learn how to prevent a negative development. Based on the results presented in this dissertation, we are still today, with the focus in both research and diagnostic practice, missing important information in both diagnostic practice and in treatment and prevention. This needs to change, and hopefully this dissertation has contributed with one piece to this large and complex puzzle.
IX. References


Cramer, P. (2011). Young adult narcissism: A 20 year longitudinal study of the contribution of parenting styles, preschool precursors of narcissism,


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