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Parenting specificity – the unique and differential effect of warmth, rejection and control attempts on children's syndromes including the dysregulation profile

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Doctoral Thesis

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1. Introduction

The worldwide prevalence of mental health problems in childhood is about fifteen percent and are considered one of the leading contributors of *global burden of disease* (Bruha et al., 2018). Children who are diagnosed with mental health problems suffer from severe functional impairment in all areas of their lives. In addition, suffering from a mental health disorder in childhood makes one more likely to encounter similar issues throughout childhood, adolescence and adulthood, given that some disorders are chronic or can worsen if they remain untreated.

Research has focused on studies that can provide insight into the developmental pathways of these disorders. Evidence shows that childhood disorders are caused by multiple biological and environmental factors, with emphasis being placed on family factors that could either maintain, exacerbate or ameliorate the prognosis in childhood disorders. The family is seen as the first socializing agent in development and there is consensus that parenting has an impact on children's mental health. There is enough evidence to suggest that childrearing practices are linked to all types of disorders (Baumrind, 1966; Dick et al., 2005; Johnston & Mash, 2001; Lahey et al., 1999; Lange et al., 2005; Loeber et al., 2000; McFadyen-Ketchum et al., 1996; Miller et al., 2017; Nelson et al., 2019; Weitkamp & Seiffge-Krenke, 2019). However, there is still the unresolved question of *how*.

Parenting is used as an umbrella term, with different operativizations and definitions and with many studies excluding or inconsistently measuring possible moderating and mediating variables, or specific childhood conditions. This leaves us with unclear results to help determine what parenting dimensions, what symptomatology, and which children

characteristics we need to consider for interventions. Caron et al. (2006), developed a guiding framework to understand the relationship between parenting and childhood outcomes called *parenting specificity.* It focuses on finding the unique, differential and context-specific relationships between parenting variables and childhood outcomes.

Addressing the specificity of the relationship between parenting and childhood disorders will provide a more coherent picture of how to intervene both in intervention and prevention strategies. It may be that although there seems to be general universal patterns in parenting (Smetana, 2017; Weitkamp & Seiffge-Krenke, 2019), without the specificity of the context it will be hard to understand how parenting can be a risk factor for childhood mental illness. When considering childhood disorders, a developmental psychopathology framework provides a lifespan and developmental approach, which guides the understanding of how different disorders appear and manifest at different ages. General population samples provide the opportunity to understand this relationship in a context where prevention is key. Studying young school-aged children in the general population may provide an insight into protective factors that can be incorporated into school and community settings.

Research indicates different pathways for different types of disorders, from higher global impairment to distinct family correlates (Ezpeleta et al., 2006; Hurtig et al., 2007; Richards et al., 2014). Particularly, parenting styles' effects have shown to vary in relation to the type of disorder (Ni & Gau, 2015; Pfiffner et al., 2005; Pfiffner & McBurnett, 2006). There are few studies that evaluate parenting styles relationship to different children mental health problems simultaneously in general population samples (see Eun et al., 2018). Understanding how parenting is associated with different childhood problems simultaneously will provide more clear answers on the specificity of parenting.

In addition, to be able to translate research into practical interventions, it is important to consider the impact that parenting has on children will most likely vary depending on the specific context in which it is being measure. For example, the developmental stage and age children are at, is likely to influence how parenting is associated to outcomes. In school-aged children for example, some disorders are still in prodromal stages not yet fulfilling a specific criteria for a diagnosis and sometimes symptoms are still diffuse. In fact, in childhood disorders, comorbidity is considered the rule more than the exception (Pfiffner et al., 2005). Studying dimensions of childhood problems instead of categorical groups of clinical disorders could allow for more contextually valid results (Hudziak et al., 2007).

Likewise, a child's sex and parental mental health are variables regarding context that need to be taken into account, as studies have shown that parenting's effect on children's symptomatology may vary due to a child's sex (Barnett & Scaramella, 2013; Kopala-Sibley et al., 2017; Rothbaum & Weisz, 1994; Weitkamp & Seiffge-Krenke, 2019). In fact, prevalence, outcomes and prognosis of children's psychopathology have consistently been found to vary due to a child's sex (Carlson et al., 1997; Maughan et al., 2004; McArdle et al., 2004). Some authors even argue for distinct developmental pathways for disorders among boys and girls (Morrell & Murray, 2003). However, studies still show contradicting results regarding a child's sex as a moderator of the association between parenting styles and childhood disorders (Barnett & Scaramella, 2013; Demmer et al., 2018).

Parental mental health is also a potential mediator not thoroughly explored. Although we know maternal mental health is related to child psychopathology, how it affects parenting itself still needs to be explored (Hutchison et al., 2016; Miller et al., 2017). The picture is still unclear on how parents' mental health is related to parenting and child psychopathology.

In light of the importance of parenting styles' relationship to specific disorders and the few studies that have taken a comprehensive research approach, the aim of this research is to evaluate the *specificity* of the effect of parenting styles on the prevalence of children's clinical symptomatology, including the Dysregulation Profile Syndrome.

2. Theoretical Framework

2.1. Parenting: The specificity model

The relationship between parenting styles and children's development is prominent in child psychopathology research literature. One of the main focuses has been on childrearing practices and children's mental health. However, the specificity of this relationship is yet to be understood. Different theories and models have attempted to explain the role of parenting on children's developmental outcomes, though they often differ on how parenting practices influence children's socialization (Clauss-Ehlers, 2017; Frick et al., 1999; Smetana, 2017; Weitkamp & Seiffge-Krenke, 2019). Meta-analyses have found that parenting accounts for approximately 6% of the variance in externalizing disorders, 8% of the variance in child depression, and 4% of the variance in childhood anxiety (see, McLeod, Weisz, et al., 2007; McLeod, Wood, et al., 2007; Rothbaum & Weisz, 1994). One of the points that leads to divergence in findings is the sometimes broad and interchangeable use of the term "parenting." Before assessing the relationship between parenting styles and disorders in childhood, it is important to first delimit the concept of parenting styles.

Parenting is indeed a very broad term. As Darling and Steinberg (1993) explain in their historical review of parenting styles, the term parenting style was first developed as a heuristic device to describe the parenting milieu. The construct encompassed parenting

behaviours, parenting belief systems and the emotional relationships between parent-child. Different aspects of the construct were assessed depending on the theoretical stance of the researchers. The psychodynamic model for examples, focuses on the emotional relationship between parent-child, and thus centres on the study of parental attitudes: different parental attitudes are considered to produce different relationships or attachment models between parents and children. On the other hand, researchers who followed the learning model focused on rating parental behaviours rather than attitudes since children's development was considered to reflect different learning environments.

Baumrind's (1966) seminal work was one of the first attempts to develop a model through which to measure parenting and its effect on children's development. She proposed a three-fold model on parental authority. Following a configuration approach derived from naturalistic observations of parent-child interactions, Baumrind's model includes three parenting styles' typologies, authoritative, authoritarian and permissive parenting (Baumrind, 1966, 1971; Baumrind & Black, 1967). Her configurational approach was grounded in naturally occurring parenting styles, demonstrating more ecological validity than the available factor-analytic and theoretical models. The consequences of Baumrind's work are twofold: though it has provided valid parental typologies, at the same time it has also provided and guided such research in populations that might not share the same structure. Nonetheless, her work has the inherent disadvantage that it makes it difficult to discern which aspects or factors that make up the typology affect children's development (Darling & Steinberg, 1993). The configurational approach limits the generalizability of the findings as the data it provides is situation-specific and it produces models that are difficult to standardize and measure. Moreover, they are difficult to unpack and thus hinder the assessment of specific relationships between factors and outcomes.

Baumrind's work established that parenting practices occur in relation to one another; thus, it is important to assess how certain parenting behaviours affect other parenting behaviours, or how parenting beliefs affect parenting practices or vice versa. Nonetheless, before a relation between different parenting styles is established, it is essential to first delimit how is each parenting style established and is related in the sample under study.

Maccoby and Martin (1983) redefined Baumrind's model by proposing two high-order dimensions as the core of parenting styles: responsiveness and demandingness. They defined two linear constructs that could measure important parenting aspects found in Baumrind's work, responsiveness and demandingness, which were theoretically orthogonal (Musitu & García, 2005). With their work, Maccoby and Martin transformed Baumrind's qualitative typology of parental authority into a bidimensional model, thus following a dimensional approach. The four parenting styles emerged from the combination of these two dimensions. Authoritative parenting indicates high coercion and high affect; authoritarian parenting indicates high coercion and low affect; indulgent parenting represents low coercion and high affect; and neglectful parenting represents low coercion and low affect. Although this model takes on the dimensional approach, it uses dimensions that are ecologically valid and includes their associations with one another in the formation of a parenting style. This model is frequently used by researchers in this field, with most studies centring on the effects of authoritarian and authoritative parenting on children's development.

Maccoby and Martin (1983) building on Baumrind's work, provided a model that could be empirically tested and validated across different populations. They unpacked the dimensions that make up the different styles, allowing for standardized evaluations of parental typologies that can be used across different populations and for an easier

comparison of findings. Parents can have high or low responsiveness as well as high or low demandingness, yielding four possible combinations which make up four broad parenting styles: authoritative parenting (high responsiveness and high demandingness), authoritarian parenting (low responsiveness and high demandingness), permissive parenting (high responsiveness, low demandingness) and neglectful parenting (low responsiveness and low demandingness) (Maccoby & Martin, 1983). Measuring dimensions has allowed the possibility to operatize and thus measure parenting and translate it more accurately into intervention components.

Historically, there has also been a push to distinguish between parenting styles and parenting practices (Brenner & Fox, 1999; Darling & Steinberg, 1993). Parenting practices are defined as the direct behaviours through which parents educate their children, and parental styles as the parents' beliefs and attitudes about upbringing which are related to behaviours that occur over a broad range of situations (Mahtani & Harris, 2002). Research on parenting practices has revealed that it is more beneficial to study higher-level parenting dimensions over single structured parenting behaviours (Gadeyne et al., 2004). Firstly, parenting styles show more stability across different samples and are considered to be universally applicable. Secondly, parenting styles group a wider array of similar parenting behaviours, which can be measured dimensionally. This provides more robust measurement, in contrast to evaluating specific and isolated parenting behaviours or practices. In populations where certain parenting practices might have very low frequency, parenting styles will prove more beneficial as they will also encompass the likelihood of engaging on different specific parenting behaviours.

A major underlying belief in parenting research is that we need to study how parenting dimensions affect children's development individually and in combination with

the other dimension (Aunola & Nurmi, 2005; Clauss-Ehlers, 2017; Kuppens & Ceulemans, 2019; Mahtani & Harris, 2002; Steinberg et al., 1994). Along the same lines, some researchers are pointing towards the study of how different parenting dimensions affect each other. Gray & Steinberg (1999) were among the first researchers to focus on *unpacking* parenting. Unpacking parenting is the attempt to study parenting dimensions independently and in relation to one another.

Caron et al. (2006) put forward *parenting specificity* as a model to be able to unpack and understand how parenting is related to childhood outcomes. To measure specificity, they offer a three-pronged approach: 1) The first aspect is measuring the unique effect a parenting dimension may have. This means that the parenting variables will be significantly associated with the outcome measured, and this effect will still be present when controlling for other variables' effects; 2) The second step is measuring if the variable has a differential effect dependent on the outcome variables, versus having the same effect across all the dependent variables. For example, parental rejection will be significantly associated with externalizing disorders in childhood but not with internalizing disorders, or with depressive symptomatology but not aggression. 3) The third step is evaluating interaction effects between parenting variables. This means evaluating if the association of a parenting variable depends on the levels of other parenting variables or not.

Parenting specificity provides a framework to start dismantling the relationships between parenting and specific outcomes to allow for replicability and translation into prevention and intervention programs. Other authors have even argued for adding *context specificity* into the framework (see Mckee, Forehand, et al., 2008). Their reasoning is that specificity should not only should be measured by these three aspects, but also in a specific context, for example at-risk children, boys vs. girls, etc. Some studies have tried to tackle

parenting specificity with this specificity model (i.e. Al-Elaimat et al., 2018; Caron et al., 2006; Clauss-Ehlers, 2017; Gruhn et al., 2016; Gunderson et al., 2018; Jones et al., 2008; Mckee, Colletti, et al., 2008; Mckee, Forehand, et al., 2008). Of these studies, only McKee et al. (2008) and Gruhn et al. (2016), have included the context in which parenting is measured as part of this specificity. For example, both teams studied how parenting is related to children's internalizing and externalizing symptoms in families where parents had a history of depression.

2.2. Parenting styles and childhood outcomes: specific vs diffuse associations

Untangling this relationship for possible interventions and advancements in the field of developmental psychopathology is a key issue. Three of the most researched parenting dimensions in this field are warmth, control and rejection. Given the last two decades in parenting research, it would be expected that findings show specific relationships between childhood disorders and parenting, but very few studies consider parenting specificity so the results are still diverse. Findings in this area are still inconsistent and thus a clear picture for specificity has not emerged.

Research has shown that to understand the impact of parenting on children's development we need to contextualize and fine-tune how we operatize and measure parenting (see Aunola & Nurmi, 2005; Gray & Steinberg, 1999) therefore, we need to move from bipolar to unipolar parenting dimensions. Measures that provide unipolar scales seem better suited to evaluate parenting specificity. For example, a questionnaire that provides a bidimensional scale, with parental rejection and parental warmth on opposites poles of the same dimension indicates that in the presence of warmth there could be no rejection from the parents and vice versa. Unipolar scales, on the other hand, allow the

comparison and interaction of different parenting styles, which is an important aspect of parenting styles assessment.

Three dimensions that have been extensively studied and shown to be present across cultures and geographical contexts are control (psychological, behavioural, autonomy granting), warmth and rejection or harsh negative parenting. It seems that control warmth and rejection are universal parenting dimensions associated with children's mental health (Clauss-Ehlers, 2017; Jones et al., 2008; Y. Kim et al., 2018; Lei et al., 2018; Pereira et al., 2009; Pinquart & Kauser, 2018; Smetana, 2017; Trenas et al., 2013; Weitkamp & Seiffge-Krenke, 2019; Zhang et al., 2017).

Parental emotional warmth and children's outcomes

Parental warmth is believed to be a universal parenting attribute related to both internalizing and externalizing problem behaviours (Mckee, Colletti, et al., 2008; Pereira et al., 2009). Lack of parental warmth is thought to interfere with a child's capacity to modulate or regulate arousal which might result in internalizing or externalizing symptoms. On the one hand, children can become withdrawn as a coping strategy for dysregulation, which places them at risk of developing symptoms associated with depression. On the other hand, they can exhibit aggressive and disruptive behaviours as they are less capable of modulating or regulating their responses and of evaluating consequences. This would argue for a diffuse association, albeit as a protective factor.

Studies however, have found divergent evidence regarding warmth as diffusely vs uniquely associated to childhood outcomes. Petersen et al. (2015) studied the trajectories of externalizing problems from age 5 to age 24, assessing 44 risk and protective factors. Their results showed that parental warmth was not related to externalizing problems, but only to

internalizing problems. Contrastingly, Mckee, Forehand, et al., (2008) found that warmth and involvement were associated to both to higher levels of internalizing problems and to lower levels of externalizing problems in children. Only one study has been found at this time, which studied the specificity of parenting in relation to categories of mental health disorders in a general population sample, carried out by Eun et al. (2018). Their study showed that maternal care (equivalent to warmth) was associated to lower odds for major depressive disorder or dysthymia, eating disorders, conduct disorder or oppositional defiant disorder and not for the other disorders (phobia, ADHD, bipolar, PTSD, anxiety disorders and substance abuse). Their results indicate a possible specificity of maternal and paternal care (warmth). In a similar line, the study by Ullsperger et al. (2016), with children with attention deficit and hyperactivity disorder (ADHD), also indicated that warmth seemed to have a unique and specific association as a possible protective to ADHD symptoms. They argued that if children do not experience enough parental emotional warmth then they don't learn to self-regulate and that increases ADHD symptoms.

Warmth seems to have a unique association to different type of negative outcomes in children and a possible protective factor to childhood syndromes, in light of other present risk factors. Warmth has been found to moderate the effect of other negative parenting styles. Pereira et al. (2009) found that when there were high levels of warmth, control was not associated with children's negative outcomes. However the specificity is still not clear, is this association as a protective factor present for all types of childhood syndromes or is it specific to some only?

Parental rejection and children's outcomes

Rejection seems to have a diffuse relationship with childhood outcomes. Rejection and hostile parenting is considered to undermine the child's self-esteem, which promotes helplessness and negative schemas (both related to depression) and at the same time undermines children's emotion regulation and increases their sensitivity to anxiety. (McLeod, Weisz, et al., 2007; McLeod, Wood, et al., 2007). It is associated with a major range of disorders and symptomatology in children. Rejection has been consistently associated with internalizing and externalizing problems in childhood and considered a universal attribute of parenting that affect children's outcomes (Pereira et al. 2009).

McLeod et al. conducted a meta-analysis on the association between parenting and depression (McLeod, Weisz, et al., 2007) and another one the association between parenting and anxiety (McLeod, Wood, et al., 2007); with both studies showing that rejection was moderately related to both anxiety and depression. Petersen et al. (2015) in a more recent longitudinal study found that rejection (harsh parenting) was diffuse as it was related both to internalizing and externalizing disorders. Evidence points towards rejection as a diffuse risk factor for children's outcomes.

Parental Control and children's outcomes

Coercive parenting is thought to reduce: the child's perceived sense of mastery; their perceived personal control; and induce a perceived helplessness. All which are building-blocks for depression. At the same time, coercive control leads children to experience less self-efficacy and mastery, thus making them more vulnerable to anxiety and depression (McLeod, Weisz, et al., 2007; McLeod, Wood, et al., 2007). In the study by Pederson et al. (2016), higher levels of authoritative parenting (more controlling and less warm) were

related to higher anxiety symptoms in boys who showed proactive aggression. On the other hand, high levels of authoritative parenting buffered the incidence of affective problems for children with proactive aggression, whilst low levels of authoritative parenting exacerbated the relation between proactive aggression and affective problems.

Coercion is also considered to exacerbate disruptive behaviours. Patterson's Coercive Cycle explains how harsh parenting practices, including high coercive practices and demands, contribute to externalizing behaviour problems (Patterson et al., 1990; Reid & Patterson, 1989). Overall, control has been consistently linked with anxiety, depression, ADHD, disruptive behaviours, ODD and CD. As children react with defiance or aggression, parents tend to use more coercive methods such as hostile parenting and harsh discipline, which exacerbate children's disruptive behaviours. Likewise, children who are socialized to use coercive behaviours in the family also tend to use them outside of the family (Mckee, Forehand, et al., 2008).

Bruggen et al. (2008) found in their meta-analyses that parental control was related to child anxiety. In their study they found that parental control was uniquely associated with higher levels of anxiety and depression and with lower levels of disruptive behaviours in clinical samples of older children. Likewise in the study by Pederson et al. (2016) permissive parenting (low levels of control) exacerbated anxiety symptoms in children with proactive aggression, although this association was statistically significant only for older children. Mesman & Koot (2000) studied specific versus diffuse correlates of externalizing and internalizing disorders in children in a longitudinal study and found that parental control was consistently related to pre-adolescent internalizing and externalizing disorders, thus concluding that the association was diffuse, to both type of disorders.

On the other hand, other studies seem to point to specificity as control's effect is moderated by other parenting dimensions and it can be a possible protective factor. In the study by Caron et al. (2006) only behavioural control, in contrast to psychological control and warmth, showed a differential effect between internalizing and externalizing symptoms. Likewise, in the study by Aunola & Nurmi (2005), high behavioural control in combination with low psychological control was found to predict a decrease only in externalizing behaviours and not in internalizing symptoms. In the study by Pereira et al. (2009), parental control had no effect in children's internalizing or externalizing problems when warmth was high and rejection was low. It is important to consider that control may be moderated by other parenting variables.

Most studies that assess parenting specificity have assessed the relationship between parenting and a specific disorder or between internalizing and externalizing categories. In their study, Eun et al. (2018), investigated this association for children with clinical disorders (as per the Diagnostic Statistic Manual). Maternal control was significantly associated with greater odds for many of the disorders: mood dysregulation disorder/ dysthymia, social phobia, panic disorder, separation anxiety disorder, PTSD, eating disorders, and conduct disorder/ oppositional defiant disorder. Likewise, in a study with a community sample, maternal control was uniquely associated with child- reported depressive symptoms (Frazer & Fite, 2016). There seems to be evidence pointing both to a diffuse and a specific association.

Having considered the last two decades of research on parenting, results are not clear on if parenting has specific relationship with childhood outcomes. This could be a problem of methodological factors. As Mckee, Forehand, et al. (2008) explained in their meta-

analysis, it is important for research on parenting to measure specificity from the start and not as a by-product, if not investigations will continue yielding conflicting results.

Children's outcomes and the Dysregulation Profile

Delimiting children outcome variables is also important when assessing the specificity of parenting. Studies have varied between studying externalizing and internalizing problems, specific childhood diagnosis (either clinical diagnosis or their specific symptomatology) or childhood dimensional syndromes. There is debate between the use of categorical vs dimensional approaches for both practice and research in clinical psychopathology (Hudziak et al., 2007). For strong cultural and cross-cultural validity and replicability dimensional scales can sometimes be more effective. The Child Behavior Checklist (CBCL) proposes eight syndrome scales that have shown strong cross-cultural validity (Ivanova et al., 2007). The CBCL provides contextually valid and reliable syndromes that do not differ between clinical and non-clinical population and assess difficulties that seem stable over time. The syndrome scales provided by the CBCL will provide replicability in other setting or other studies regarding children's anxiety, depression, aggressive behaviours, attention and hyperactivity difficulties and other specific outcomes.

The CBCL also allows for the study of the Dysregulation Profile (DP) in childhood, considered a relative new construct within psychopathology. Although a relatively recent syndrome, it has received a lot of attention as it considerably affects functionality and is linked to a severe negative prognosis in adolescence and adulthood. Considering the DP as a separate construct is important. It has received growing attention, as it is associated with severe functional impairment and a negative prognosis in adolescence and adulthood as

well as higher rates of hospitalization (Biederman et al., 2013; Uchida et al., 2014). Children in this group are considered one of the most challenging groups in terms of functional impairment, therapeutic interventions and poor outcomes (Rescorla et al., 2019).

There has been some debate in regards to defining the DP as a specific psychopathology or a presentation of comorbidity. Recent studies have showed that the DP is best conceptualized as a broad syndrome of dysregulation (Bellani, Negri & Brambilla, 2012; Kim et al., 2012), which incorporates both internalizing and externalizing symptomatology. There still is debate regarding DP as a specific nosology or a presentation of comorbidity, but current evidence points to it being a distinct profile of a broad dysregulation syndrome that differs from other disorders and may encompass some of the comorbidity found in clinical cases (Geeraerts et al., 2015). When first researched it was considered a precursor or predictor of Bipolar Disorder (Biederman et al., 2013; Uchida et al., 2014). However, as more data emerged, the DP has shown itself not to be specific in detecting possible Bipolar Disorder but rather, as a useful index for identifying children and adolescents at risk for psychopathology, as well as impairment and mental health problems in adolescence and adulthood (Aitken et al., 2019; Bellani et al., 2012; Geeraerts et al., 2015; Holtmann et al., 2011; Peyre et al., 2015; Wang et al., 2018).

In the first longitudinal study carried out outside the US, in a German population sample (Holtmann et al., 2011), researchers found that the DP as measured by the CBCL (i.e., CBCL-DP) seemed more of a predictor of psychopathology and impairment and not a disorder in itself. It didn't predict for ADHD and mood disorders, which means it may work better as a measure of severity. At its core the DP can be seen as constituting severe dysregulation. Although some authors still argue that the CBCL-DP profile may be used as a predictor of Bipolar Disorder (Biederman et al., 2013; Uchida et al., 2014) the general

consensus is that the CBCL-DP is not specific in detecting possible Bipolar Disorder but that it is a useful index for identifying children and adolescents at risk for mental health problems in early adulthood (Aitken et al., 2019; Bellani et al., 2012; Geeraerts et al., 2015; Peyre et al., 2015).

Currently the DP is considered a phenotype of transdiagnostic dimensions (Wang et al., 2021). Deutz et al. (2020) have proposed that the CBCL-DP can be seen as "a general vulnerability for psychopathology with (emotional) dysregulation at its core" (Deutz et al., 2020, pg.114). Their longitudinal study focused on the CBLC-DP and the General Pychopathology Index (GP) and showed similarities in both constructs and stability across time. The authors have argued that since the specific factors of the CBCL-DP showed stability, albeit only weak to moderate, this may indicate that the DP remains stable. However, the presentation of symptoms can be susceptible to change. Furthermore, the CBCL-DP was associated with certain socio-demographic precursors like greater economic disadvantage and lower maternal education and maternal depression. This profile has shown stability across time (Deutz et al., 2020) and its prevalence varies between 1-5% in epidemiological samples (Wang et al., 2021).

Research suggests a specific profile for children with DP. Specific family correlates and neurobiological profiles have been associated with the CBCL-DP, differentiating it from other childhood disorders. The cognitive profile for children with DP seems to differ from other pathologies. In comparison to ADHD children, children with CBLC-DP have shown a fast and impulsive response style, a more inattentive profile responding more slowly and with attenuated d-band and elevated a-band which suggests specific functioning in the parietal regions, which has previously been associated with depression (McGough et al., 2013).

As well as a specific neurobiological profile, specific family correlates have also been associated with the DP. Kim et al., (2012) found that mothers of children with CBCL-DP reported higher prevalence of maternal depression and anxiety. Marino et al. (2019) also found maternal depression as a predictor to children CBCL-DP. The DP has also been associated with parental psychiatric disorders, low family income (Deutz et al., 2020; Holtman et al., 2011), greater economic disadvantage and lower maternal education (Biederman et al., 2013; Deutz et al., 2020). Family structure has also been linked to the presence of DP in adolescents (Nobile et al., 2016). In their longitudinal study, Nobile et al. (2016) found that family structure increased the likelihood of dysregulation difficulties in adolescence, for children who already had dysregulation problems in childhood and were carriers of the GG TPH2 genotype.

Although parenting is one of the most studied family variables found to influence different childhood outcomes and children's wellbeing, studies focusing on CBCL-DP and parenting styles studies are still sparse. The few the studies measuring parenting dimensions associations to CBCL-DP have found a significant association. The study by Poustka et al. (2015) showed that maternal responsiveness is linked to CBCL-DP in childhood and adolescence, for children who were carriers of the DRD4 7r allele and had regulation problems during infancy. Likewise, Kim et al. (2012) found that mothers of preschoolers with CBCL-DP reported more authoritarian parenting, and reported engaging in more punitive and controlling behaviours. Basten et al. (2013) also found that parental hostility is linked to the dysregulation profile in children.

Further investigation into parenting dimensions and the DP is needed not only to untangle risk factors for prevention, but also to provide better insights that can be used in intervention programs. Control and rejection are associated to both internalizing and

externalizing disorders (Aunola & Nurmi, 2005; Caron et al., 2006; McLeod, Weisz, et al., 2007; McLeod, Wood, et al., 2007; Rothbaum & Weisz, 1994), considering the DP has higher levels of both affective and behavioural problems we would expect it to be associated to all three parenting variables.

The CBCL-DP is a specific profile that is associated with a worse prognosis for children's wellbeing and higher rates of hospitalization (Biederman et al., 2013, 2018). Furthermore, current evidence points to it being a distinct profile of a broad dysregulation syndrome (Geeraerts et al., 2015) that differs from other disorders and may encompass some of the comorbidity found in clinical cases. It is important to study it independently from the other pathologies.

2.3. Contextual factors

Evaluating the context in which parenting and children's outcomes occur is key for being able to assess specific associations. Many sociodemographic and contextual variables are considered to moderate and in some cases mediate the relationship between parenting and children's outcomes. However, there are two that appear to almost consistently affect this association: children's sex and parents' mental health.

Research has thrown contradicting results regarding child's sex as a moderator of the relationship between parenting and childhood disorders (Barnett & Scaramella, 2013; Bruggen et al., 2008; Eun et al., 2018; Gruhn et al., 2016; Jones et al., 2008; Lei et al., 2018; Pereira et al., 2009). Pereira et al. (2009) researched the relationship between parenting styles and internalizing and externalizing symptoms in a Portuguese sample of children and found that there was no interaction between child gender and four patterns of rearing styles. Likewise, Hutchison et al. (2016) studied the relationship between executive

functions in children with ASD and ADHD and health controls and found that neither age nor gender had an interaction with parenting in relation to executive functions. However, in the study by Eun et al. (2018), the impact of parenting styles on childhood outcomes differed by gender. In females only, higher maternal control was associated with higher odds of anxiety disorders and to higher odds of substance abuse/dependence. Likewise, in a relatively recent meta-analysis studying the relationship between family variables and child anxiety data (see, Bruggen et al., 2008) suggested that the relationship between parental control and child-rated anxiety was stronger among samples with a higher percentage of girls, for school-aged children and for children in families reporting higher SES.

Lei et al. (2018) also carried out a meta-analysis of Chinese studies assessing the relationship between parenting and aggression and found similar patterns to Western research. Positive parenting was related to lower levels of aggression and negative parenting was significantly associated with higher levels of aggression. However, gender was an important moderating factor. The relationship between negative parenting and aggression was stronger for males, while the relationship between positive parenting and aggression remained constant across samples of girls and boys. There were also some differences in the results across regions that seem to be related to SES.

A child's sex is also a likely moderator variable of parenting effects on childhood CBCL-DP. In the study by Marino et al. (2019) the indirect effect of maternal depression on CBC-DP was significant only for females. Basten et al. (2013) also found different results for boys vs. girls with dysregulated profiles, with a higher number of boys in the group of dysregulation. The moderating effect of the child's sex or gender could be attributed to the *differential susceptibility* and *differential exposure* hypotheses. Differential susceptibly indicates that individuals will differ on how vulnerable or susceptible they are

to environmental factors, due to specific individual characteristics (i.e. the child's sex), while individuals could also be more likely to be exposed to an environmental risk factor due to an individual characteristic (i.e. child's sex) (Barnett & Scaramella, 2013). The impact that warmth, rejection control may have on childhood outcomes could depend on individual characteristics of the child, in this case the child's sex or gender. Furthermore, children could be experiencing more exposure to one type of parenting style due to their sex.

Gruhn et al. (2016) have found that parental mental health effect on internalizing and externalizing childhood problems is mediated by the child's sex. In their study, parental depressive symptoms were not associated with increased levels of observed intrusive parenting for girls. Parental depressive symptoms were associated with increased intrusive parenting only for boys, which suggests that when experiencing depressive symptoms parents may respond differently to their daughters and their sons. Furthermore, they found an interaction between parental withdrawal and externalizing problems only in girls. Externalizing problems are related to low levels of withdrawn parenting for boys, while for girls externalizing problems are related to high levels of withdrawn parenting. This data provides evidence for susceptibility for children of parents with depressive symptoms. Being a girl will place a child more at risk of developing externalizing problems in children whose parents have depressive symptoms. Being a boy, on the other hand could place a child more at risk of having parents use intrusive parenting.

Maternal wellbeing and stress are also important context variables. They are known to impact children's wellbeing and developmental outcomes, and have also been associated specifically to the presence of CBCL-DP (Deutz et al., 2020; Geeraerts et al., 2015; Holtmann et al., 2011; Marino et al., 2019; Nobile et al., 2016; Poustka et al., 2015).

Understanding how it may moderate the role of parenting styles is still not so clear and there are very few studies evaluating its moderating role specifically. With few studies specifically assessing the moderating role of parental anxiety and depression, it is even more acutely important to measure if there is a moderating effect.

Maternal depression is considered to impact children's wellbeing, but it may be impacting parents' ability to engage in what are considered positive parenting styles and engage in negative parenting styles. Kopala-Sibley et al. (2017) studied the transactional relationships between parental history of depression, parenting and childhood internalizing and externalizing symptomatology across three points in time, when children were three, six and nine years old. In their study, they found that when children were 3 years old, a history of maternal depression affected externalizing and internalizing symptoms, but it didn't have an effect on parenting. However, at age 6 a history of parental depression did affect parenting. Understanding parental depression levels as a specific context in which parenting is related to negative childhood outcomes will help understand how to implement interventions more effectively.

Regarding parental anxiety and parenting, parents with anxiety symptoms could tend to use more controlling or coercive parenting attitudes as they try to protect their children from what they considered dangerous situation. However the study by Bruggen et al., (2008) studied specifically the role of parental anxiety and found that parental anxiety did not act as a moderator, in the association between parenting and children's outcome. In fact, it was not related to child anxiety once other variables were measured. Studying caregivers' depression and anxiety levels as a moderating factor could guide interventions, as it would help the variables to tackle in children considered at-risk. For example, if

parental anxiety does not moderate the effect of parenting then that is a factor that would not need to be measured or considered in parenting interventions.

3. Current study

As part of a larger investigation, the aim of this study is to examine the specificity in the relationships between parenting and childhood outcomes. Caron et al.'s (2006) proposal of parenting specificity as a measurable construct to incorporate in research provides the framework to assess how parenting dimensions are related to childhood outcomes. Understanding the specificity of this relationship allows for a clearer pathway into prevention and treatment when working with children and their families. Nonetheless, studies taking on the parenting specificity construct are still few and far between, leaving a gap between research and practice.

This study centers on evaluating the specificity of three parenting dimensions, Emotional Warmth, Rejection and Control Attempts, in a general population sample of schooled children. Parenting dimensions related to clinical disorders will provide a better understanding of the relationship in general population samples. Using unipolar dimensions provides a more accurate picture of the nature of these relationships as they allow for the evaluation of interaction terms. Furthermore, Warmth, Rejection and Control Attempts are widely researched variables that will provide replicability of results as well as a good translation into community and preventive settings. Many studies use clinical samples, the results of which directly impact clinical settings and therapies. A general population sample on the other hand is able to give results that can be used in community or school settings and also in prevention efforts. Furthermore, using parenting dimensions also allows for more ecologically valid results that can support prevention and intervention programs.

To be able to assess if the relationship between these parenting dimensions and childhood outcomes is specific, we need to see if the relationship varies by different types of problem. Using dimensional scale of childhood syndromes in a general population sample can provide more replicable and practical results (Coghill & Sonuga-Barke, 2012). A category may not reflect the reality of non-clinical samples where children may have a different problematic but not a specific disorder. Using syndromes from a dimensional approach can provide more robust results.

The Child Behaviour Checklist (CBCL) provides eight syndrome scales associated with different disorders which can provide more translatable results in community and school settings. The eight scales show specific syndromes that affect children's wellbeing and functionality. Using specific syndromes allows for the comparison between types of problem outcomes for children. Furthermore the CBCL is a robust measure and the eight syndromes have shown ecological and statistical validity across different cultures (Ivanova et al., 2007). The Dysregulation profile is a profile that consists of three of the CBCL syndromes. It is made up of the scores on the CBCL scales of Aggression, Attention and Anxiety/Depression. The dysregulation profile is considered present if scores are 60 or above for each scale.

To test for specificity, we follow a three-step approach: First, testing for significant and unique associations between each parenting scale and each of the eight CBCL syndrome scales and the CBCL-DP; second, testing for moderating effects of parenting dimensions, the child's sex and the caregivers' anxious and depressive symptoms; and thirdly examining if the overall effects - including moderation effects - differ by type of childhood syndrome and category.

The first set of analyses test the associations between each parenting variable and each childhood syndrome scale. Understanding if there is a direct and significant association between each parenting variable and each outcome is the first step to see if there is a unique association. The second set of analyses, explores the moderating role of contextual variables. Evaluating the moderating role of specific variables is key to examine the specificity of the associations. Assessing how, and if, each parenting style moderates the other parenting styles is the first step in this direction. The child's sex is a key variable associated to a possible differential susceptibility of family factors related to negative childhood outcomes. In addition, the consideration of the context in which the specificity of parenting is measured, is key to integrate results into a more coherent picture. A caregiver's mental health is also a central factor associated to family stability, parental skills and childhood psychopathology. The third set of analyses focus on examining how the relationship changes in relation to the type of childhood syndrome.

This three-step analysis provides a clear picture on the specificity of the relationship between parenting and childhood outcomes: are the relationships diffuse across most childhood problems or are they specific and vary contingent to the outcomes and the moderator variables?

4. Objectives and hypotheses

4.1. Objective 1

Assess the individual and unique effects of the three parenting dimensions, Emotional Warmth, Rejection and Control Attempts on the eight CBCL syndrome scales: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour and Aggressive Behaviour and the

CBCL-Dysregulation Profile. As previous studies have found, we expect for all parenting variables to have unique effect on children's problem scales and the CBCL-DP (see, Bruggen et al., 2008; Kim et al., 2012; Mckee, Colletti, et al., 2008; Pederson et al., 2016; Pereira et al., 2009; Ullsperger et al., 2016).

Hypothesis 1.1- Emotional Warmth will be significantly and inversely associated with high levels for each CBCL syndrome scale (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour) and with the presence of the CBCL-DP

Hypothesis 1.2- Rejection will be significantly and directly associated with higher levels of CBCL syndromes (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour) and with the presence of the CBCL-DP

Hypothesis 1.3- Control attempts will be significantly and directly associated with higher levels of childhood syndromes (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour Aggressive Behaviour) and with the presence of CBCL-DP.

4.2. Objective 2

Evaluate the moderating effect each parenting style dimension on the association between Emotional Warmth, Rejection, Control Attempts and the eight CBCL syndrome scales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour)

and the CBCL-DP. We expect to find moderating effects on the association of control based on previous studies results (see Aunola & Nurmi, 2005; Pereira et al, 2009).

Hypothesis 2.1- Emotional Warmth will interact significantly with control. When Warmth is higher control will not have an association with the CBCL syndrome scales nor with the presence of CBCL-DP.

Hypothesis 2.2 – Rejection will interact significantly with control. When Rejection levels are low, Control Attempts will not have a significant association with the CBCL syndrome scales nor with the presence of CBCL—DP.

4.3. Objective 3

Examine how the child's sex affects the specificity of these relationships by measuring for possible differential exposure and differential susceptibility (Barnett & Scaramella, 2013; Jones et al., 2008). Based on previous findings (Bruggen et al., 2008; Eun et al., 2018; Lei et al., 2018), it is expected that the child's sex will moderate the relationship between parenting styles and the CBCL syndrome scales and the CBCL-DP.

Hypothesis 3.1- It is expected that caregivers of girls in comparison to boys, will report higher levels of Emotional Warmth, higher levels of Control Attempts and lower levels of Rejection.

Hypothesis 3.2- It is expected that the relationship of Control to CBCL scale of Anxious/ Depressed problems will be stronger for girls than for boys.

Hypothesis 3.3- It is expected that the relationship of Control with the CBCL syndromes of Rule Breaking Behaviour and Aggressive Behavior will be stronger for boys than for girls.

Hypothesis 3.4- It is expected that the relationship of Rejection and the CBCL syndromes of Rule Breaking Behaviour and Aggressive Behavior will be stronger for boys than for girls.

4.4. Objective 4

Examine how the caregiver's mental health influences these relationships by evaluating the moderating role of a caregiver's depressive symptomatology and anxious symptomatology on the association of Warmth, Rejection and Control Attempts on the eight CBCL syndrome scales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour) and the CBCL-Dysregulation Profile and the CBCL-DP.

There are limited studies evaluating the moderating effect (see, Bruggen et al., 2008; Kopala-Sibley et al., 2017). However, they do point towards a moderating effect of caregiver's depression but not for caregiver's anxiety.

Hypothesis 4.1 – Higher levels of caregivers' depression will increase the effect of Emotional Warmth, Rejection and Control Attempts on children's outcomes.

Hypothesis 4.2- Caregivers' anxiety levels will not moderate the relationship between Warmth, Rejection and children's outcomes.

5. Method

5.1. Design

We chose a cross-sectional design and a cluster sampling strategy for our study. In a cross-sectional design the participants are evaluated at a single point in time. This type of design is efficient for studying large samples and for evaluating associations. Although this

design is less efficient for establishing cause and effect, it is low-cost and provides a fast collection of data allowing the assessment of many participants. The cluster sampling strategy consists of first dividing the selected population chosen for the study into mutually exclusive and exhaustive groups (or clusters) and then randomly selecting individual units of study from each of the groups for testing. The clusters were formed by elementary schools' statuses as private or public.

The study's final sampling units were participating girls and boys in 1st and 2nd grade in the Region of Osona, part of the Autonomous Region of Catalonia, Spain. To access the participants, we first sampled all the schools, including rural, urban, and private and public schools, in the Region of Osona. There are 63 elementary schools in Osona; 47 (74.6%) are public and 16 (25.4%) are private. Using the cluster sampling method, 29 schools were contacted and 25 agreed to participate (39.7% of the total), from which 21 (84%) were public and 4 (16%) were private.

5.2. Participants

Twenty-five schools agreed to participate in the study, with a total number of 1,356 matriculated children in 1st and 2nd grade. This made up 46.9% of the total number of matriculated children in the region of Osona 1st and 2nd grade of elementary, for the 2005/2006 school year (*Institut d'Estadística de Catalunya, Idescat*, 2007). We received parental consent for 731 of the children attending 1st and 2nd grade, a response rate of 53.9%. We excluded from the study children with developmental disorders or intellectual handicap (n=4), children who have been living in Spain for less than one year (n=5), children whose parents who did not answer more than 50% of the questions in questionnaires (n= 17) and children whose parents' answers indicated that they had not

understood the questionnaires (n=3). Furthermore, we excluded children whose parents had not answered or showed inconsistent response patterns in the parental styles questionnaire (n = 5), independent from their response for the whole battery of questionnaires. In Table 1 we present the sociodemographic characteristics of the sample across gender.

Table 1

Sociodemographic characteristics of the sample by sex

	Boys		Girls		Total	
	N	%	N	%	N	%
Family Structure						
Nuclear-traditional	29	8.1%	27	8.0%	56	8.1%
Blended family	329	91.9%	310	92.0%	639	91.9%
Socioeconomic Status						
Medium High	91	25.6%	92	27.3%	183	26.4%
Medium Low	201	56.5%	185	54.9%	386	55.7%
Low	64	18%	60	17.8%	124	17.9%
Informant						
Father	42	11.7%	44	13%	88	12.3%
Mother	268	74.9%	231	68.1%	499	71.6%
Mother & Father	45	12.6%	59	17.4%	104	14.9%
Other	3	0.8%	5	1.5%	8	1.1%
Child country of origin						
Spain	326	90.2%	318	93.8%	641	92%
Other	35	9.8%	21	6.2%	56	8%
Parents country of origin						
Spain	308	86%	292	86.1%	600	86.1%
Other	50	14%	47	13.9%	97	13.9%
	X	SD	X	SD	X	SD
Child's Age	7.24	0.61	7.25	0.6	7.25	0.61
Total Stressful Life Events	0.84	1.13	0.79	1.13	0.82	1.13

Our final sample consisted of 697 children, 339 girls (48.6%) and 358 boys (51.4%), between the ages of six and eight years (mean = 7.25, SD= 0.67) attending 1st (n= 338) and 2nd (n=359) grade of elementary school. Most participating children were of Spanish ethnic background (92.1% vs. Other ethnic background 7.9%).

Almost all the children in the sample were living with at least one of their parents (99.3%), with only a small percentage of children living with only one of their parents (13.1%). It was mostly mothers who acted as informants (71.6%) and somewhat more than half of our sample falls under the Medium-Low SES category (55.7%).

From our total sample, 86.1% of parents were of Spanish origin. From the 97 parents reporting another country of origin, only 57 reported being in Spain less than 8 years (x = 4.3 years, SD 2.0).

5.3. Procedure

This study centres on the specificity of parenting styles and childhood symptomatology in a Spanish sample. It is part of a larger investigation carried out by the *Unitat de Recerca en Psicopatologia de la Infància i l'Adolescència*, from the *Universitat Autònoma de Barcelona*, which focuses on the preventive assessment of externalizing disorders in children, during their first school years. The investigation was approved by the ethics committee of the *Generalitat de Catalunya* (Catalonia Local Government).

We had the previous authorization of the *Generalitat de Catalunya* for this study. We contacted Osona's Psycho-pedagogic Advising Team (*Equip de Assessorament I Orentació Psicopedagògica*, EAP) for the randomized selection of schools. They were also responsible for making the first contact with the schools that were selected. If a school refused to participate after this first contact, another one was chosen randomly from the

same cluster. 29 schools in the Province of Osona were chosen to participate. After the first contact was made by the EAP, another contact call was made by the research team during which the schools' principal was told the method and aim of the study and was asked for the school's collaboration. As an incentive, the schools were offered the possibility of the research team giving a lecture for the parents and/or school faculty in a topic concerning children's development, which could be chosen by the school. When a school agreed to participate, a meeting was arranged with the parents and teachers of the first and second grade students attending the school.

The meetings were scheduled at the school during evening hours accessible for parents and teachers. At least two staff members of the Research Team were present at the meetings to explain the study and ask for the parents' collaboration. During the meeting, the researchers first explained the general objective of the study and then the way in which the investigation would proceed. Parents and teachers were informed that all information would be confidential, and that the school and the district's Psycho-pedagogic Advising Team would be notified about children who showed risk of developing an externalized disorder and an open question period followed. The parents willing to participate signed an informed consent letter that explained the study's objective and their right to withdraw from the study at any time. Subsequently, the researchers proceeded to explain how to fill out the forms and questionnaires included in the parent evaluation package. Parents had the option to complete the parent evaluation packet either at the meeting or at home. The parent evaluation package consisted of a letter explaining the study and asking for their informed consent, a Sociodemographic questionnaire (*Questionari Per Els Pares*; Doménech, Canals, Viñas & Jané, 1999) and the following scales: Hollingshead socioeconomic status index (Hollingshead, 1975), *Cuestionario de Salud General de Goldberg* (*QSG-28*; (Lobo

et al., 1986), Child Behavior Checklist for Parents (CBCL 6-18; (Achenbach & Rescorla, 2001; Achenbach et al., 2001), Child Symptom Inventory-4 parents' version (CSI-4; (Gadow & Sprafkin, 1998, 2002), and the parenting styles questionnaire EMBU-P (Castro et al., 1997). For the parents of first and second graders who could not attend the meeting the package was sent home in a sealed envelope via their children. Once the parents completed the questionnaires, they sent them back to the school for the research team to pick them up.

Classroom teachers of first and second graders informed the children about the study and completed the teacher packages for every child whose parents had completed and sent back to the school the parents' evaluation package. The teacher's package consisted of the Child Symptom Inventory-4 teachers' version (Gadow & Sprafkin, 2002), and Achenbach's Teacher Report Form (Achenbach & Rescorla, 2001). Teachers completed the packages during class hours, while the researchers (all PhD students) substitute for them during lessons. Some schools that agreed to participate did not ask for the parent meetings or for the substitution of teachers during school hours. For these schools, the parent and teacher packages were sent through the mail and then picked up at the school when completed; a written transcript of the oral presentation given at the parent meeting was also included in the packages.

Questionnaires were double-checked for missing items or inconsistent data before introducing them into a data matrix (SPSS). To complete the missing items in the questionnaires, the parents were contacted by telephone and the teachers were visited at the school. If a parent evaluation package had more than 25 items missing or inconsistent data, the teachers of that participant were contacted to examine the family situation and the possibility of the parents not understanding the questionnaires due to language or

educational level. Questionnaires were re-sent for completion only for the participants that the school and research team considered had understood the questionnaires.

5.4. Instruments

Instruments were selected based on their psychometric characteristics and the ability to produce measures that would be comparable to cross-cultural studies in parenting.

5.4.1. Sociodemographic characteristics

We used the self-report Parent Questionnaire, (*Questionari Per Els Pares*, (Doménech et al., 1999), to assess the sociodemographic characteristic in our sample. It is made up of several questions that provide information about the child and the child's family sociodemographic characteristics, including child sex and age, family composition, child and parents' country of origin, years living in Spain, stressful life event experienced by the child.

To measure caregivers' socioeconomic status, we used *Hollingshead Socio Economic Status Index* (Hollingshead, 2011). This index assesses parents' socioeconomic status and it is widely used in research, which ensures a possible comparison of our sample and results with other research (Cirino et al., 2002). It rates the parents' socioeconomic status (SES) using an average between their educational and professional level. The educational level is graded from 1 (no studies) to 7 (University Diploma) and the profession from 1 (unemployed, home maker, temporal workers) to 8 (Executive, Lawyer, owners of a large business, etc.). This measurement provides a socioeconomic status index for the family composed of five categories: High, Medium-high, Medium, Medium-Low, Low. This index can also be regrouped intro three categories: Medium-High, Medium-Low and Low.

5.4.2. Parenting Styles

To assess parenting styles, we used the complete version of the EMBU-P, developed by Castro et al. (1997). The EMBU-P is a self-report questionnaire in which parents assess their own child rearing parental styles. It stems from the *Egna Minnen Beträffande Uppfostran* [EMBU] questionnaire (translated to My Own Memories of Upbringing), developed by (Perris et al., 1980) as a standardized measure to assess parenting styles retrospectively.

The EMBU-P was created as the parent version of the EMBU. The questions were translated from past to present and past perfect while trying to keep the meaning of each item. Twenty-nine items were not included in the EMBU-P because they lacked substantial loading on their theoretical relevant scale. The final EMBU-P contains 81 items answered in a 1-4 Likert-type scale.

The EMBU-P has four scales that measure four rearing behaviour patterns: Rejection, Emotional Warmth, Control Attempts and Favouring Subject. Rejection consists of 13 items that reflect verbal and physical parental hostility, indifference and neglect; Emotional Warmth consists of 17 items reflecting physical and verbal demonstrations of affection and parental acceptance; Control Attempts (also labelled overprotection in the EMBU child and adolescent versions), possesses 19 items that indicate parents' overinvolvement and attempts at dominating and directing their children's decisions; and Favouring Subject, which consists of 3 items reflecting parents' preference of one child in front of others.

Each scale contains items about parenting attitudes and behaviour scored in a Likert scale (1= never, 2 = sometimes, 3 = often, 4 = always). The items corresponding to the scale are added up to give scores on the different dimensions. Two items in the Control Attempts scale need to be recoded as they are written in an inverted format. The possible

score range for Emotional Warmth is 17 to 68, for Rejection 13 to 52, for Control Attempts 19 to 76, for Favouring Subject 3 to 12.

The EMBU-P has been adapted to the Spanish population and has shown an adequate internal consistency for each scale: Rejection α= 0.75, Emotional Warmth α=0.84, Control Attempts α= 0.76 (Castro et al., 1997). The Favouring Subject showed a lack of consistency with α =0.66, and thus it was dropped from the analyses (for more detail on the criteria used for including items and accepting factors for the EMBU-P see, Castro et al., 1997).

In our sample, the EMBU-P also showed an adequate internal consistency. In Table 2, we present the psychometric properties of each scale in our sample and their comparison to those found by Castro et al. (1997). As we can see in Table 2, the EMBU-P maintained the same internal consistency for the scales Emotional Warmth and Rejection. For the scale Control Attempts, the internal consistency is considered adequate although it was lower than the one found by Castro et al. Favouring Subject was the only scale which showed a low internal consistency, even much lower than in the original study by Castro et al. Consequently, the Favouring Subject scale will not be used for the analyses in this study.

Table 2

Comparison of EMBU-P Cronbach's Alphas

Parenting Scales	Nº of items	Present Study	Castro et al. (1997)
Emotional Warmth	17	0.84	0.84
Rejection	13	0.75	0.75
Control Attempts	19	0.62	0.76
Favouring Subject	3	0.53	0.66

5.4.3. Children's Symptomatology

We used the Child Behavior Checklist for Parents (CBCL 6-18; Achenbach & Rescorla, 2001; Achenbach et al., 2001) to assess children's symptomatology dimensionally. The CBCL is a parent-report checklist that assesses children's behavioural and emotional problems, made up by 138 items. The first 20 of those items are questions that provide qualitative information on children's competencies, activities, social relationships and school achievement. Its other 118 items are descriptions of problem behaviours which are likely to occur in children aged six to 18 years. Parents are asked to respond by rating each item from not true (0) to very true (2) based on the previous 6 months. The CBCL is one of the most widely used assessments both in clinical and research settings (Costello et al., 2005). They are screening instruments with solid psychometric qualities that aid in replicability of research. They have shown good test/re-test reliability and internal consistency, and predictive validity with childhood disorders (Achenbach et al., 2001).

The CBCL provides eight empirically based syndrome scales: Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behavior and Aggressive Behavior; as well as DSM oriented scales: Depressive Problems, Anxiety Problems, Somatic Problems, Attention Deficit/Hyperactivity Problems, Oppositional Defiant Problems, Conduct Problems. For this study we will use the eight empirically-based syndrome scales. For each scale, items are added up and then converted to a standardized score, where the higher scores indicate more severe difficulty. Scores between 65 and 69 are considered borderline, and scores of 70 or above are considered clinical.

The eight syndrome scales in the CBCL have shown ecological and statistical validity. Research across 30 countries showed a good-fit model and the eight-syndrome structure to fit well in the 30 countries it was tested (Ivanova et al., 2007). In research aimed at the general population where the prevalence of clinical disorders may be lower, and with an age group where we may have syndromes but not fully established disorders, it makes sense to use these empirically derived syndromes.

The CBCL – Dysregulation Profile is measured by extreme values on the three syndrome scales: Anxious/Depressed, Attention Problems, and Aggressive Behavior. The operativization of the dysregulation profile has sometimes differ ins tudies. Some authors have used values that are two standard deviations above the mean (scores of 69 or above) while others have considered the cut-off point of one standard deviation (scores of 60 or above). Following (Biederman et al., 2013) proposal in general population samples, we will use scores of 60 or above as the cut-off points for the dysregulation profile.

5.4.4. Primary Caregivers Mental Health

To assess caregiver's mental health we used the 28-items General Health Questionnaire (GHQ-28) by Lobo et al. (1986). The GHQ-28 is the validated Spanish version of the General Health Questionnaire, which was originally made up of 60 questions. The GHQ-28 is a self-report questionnaire that assesses self-perceived mental health in adults. It consists of 28 items and four scales that address major psychopathological areas: depression, anxiety, social inadequacy and hypochondria. For this study we used the *depression* and *anxiety* scales to measure primary caregiver's self-perceived severity of depression and anxiety.

Each of the scales is made up of 7 items with four possible responses each: Not at all, Not more than usual, More than usual, Much more than usual. The fourth and seventh question in each of the scales had a different response set: Clearly not, I think not, It has crossed my mind, Clearly I have thought about it. Item responses were coded as scoring 0 or 1 (the first two options were given a 0 and the second two options a 1). Each scale could have a total possible score ranging between 0 and 7. For the depression scale, the range will go between 0 = non depressive symptoms, to 7 = severe depressed mood. The range for the anxiety scale is the same, 0 = non anxiety symptoms to 7 = severe anxiety.

The GHQ-28 is widely used in epidemiological studies with general population samples and has demonstrated good internal and external validity (García Viniegras, 1999; Lobo et al., 1986). In our sample the GHQ-28 showed an excellent internal consistency with a Cronbach's Alpha of 0.87.

5.5. Data Management

To verify the data, we conducted an exhaustive review of the questionnaires to diminish missing values and to check the reliability of the answers. We also used random data verification. Through the SPSS program, several cases were randomly chosen to be double entered, allowing us to compare the proportion of discrepancies made, and examine the residual percentage of error in the database. This method is as reliable as the double entry of the database and is more efficacious as our database has a very large volume (Doménech Massons et al., 1998; Granero et al., 2001).

The percentage of cases to be reintroduced was determined through the macro "Simple size: estimation of population proportion" (Bonillo, A., Doménech & Granero, 2000) and crossing of the double entered data was done automatically (SPSS-Entry 4).

Approximately 20% of the database was selected for double entry (140 randomly selected cases of 703 total cases). Discrepancy proportions were 1.02%. The informed discrepancy in our sample falls below the one detected in the literature by 2.5 (Granero et al., 2001).

5.6. Data Analytic Plan

Data was analysed using the SPSS v27 statistical package. We conducted a missing items analysis and decided to exclude from our data analysis cases which had missing items from any of the scales. This assures the reliability and validity of the data.

Our study focuses on evaluating the impact of Emotional Warmth, Rejection and Control Attempts in childhood syndromes, measuring for specific vs diffuse effects as well as the differential susceptibility hypothesis. For this purpose, we planned to conduct a linear regression model with a stepwise model for each of the CBCL eight syndrome scales and a logistic regression model with a stepwise model for the CBCL-DP.

First we created regression models without interaction to see the specific and unique association between parenting variables and outcomes. Then we created the models with the interactions using PROCESS V 3.5 for SPSS (Hayes, 2013) to measure the interactive effects between parenting styles and the moderating effects of caregiver's mental health and the differential susceptibility hypothesis for children's sex. For the models with significant interaction PROCESS V 3.5 produces a data list set which explores the moderating effect.

Dependent Variables

Our dependent variables were children's outcomes measured by the CBCL syndrome scales and the Dysregulation Profile.

The CBCL syndromes are standardized scales; the higher the score the higher the problems the child is experiencing in that specific scale:

1. Anxious/Depressed,
2. Withdrawn/Depressed,
3. Somatic Complaints,
4. Social Problems,
5. Thought Problems,
6. Attention Problems,
7. Rule Breaking Behaviour
8. Aggressive Behaviour

The CBCL- Dysregulation Profile (DP) is a categorical variable where we have assigned children to the category of either the present or absent. Children with scores above 60 in each of the CBCL syndrome scales of Aggression, Attention and Anxiety/Depression will be assigned to the CBCL-DP present group.

Independent Variables

Our independent variables are the parenting variables. These variables are quantitative discrete variables.

- Emotional Warmth (level of Emotional Warmth)
- Rejection (level of Rejection)
- Control Attempts (level of Control Attempts)

Moderator Variables

Child sex and caregiver's health are included in the models as covariates to address the specificity and susceptibility theories through their role as possible mediator and moderator variables.

- Child's sex (boys vs girls)
- Caregiver depression levels (level of depressive mood ranging between 0 and 7)
- Caregiver anxiety levels (level of anxiety ranging between 0 and 7)

Moderation effects are be measured by including 2-way interaction between the independent variable and the moderator variable (i.e. Child sex*Emotional Warmth).

Control variables

There is extensive research which addresses different sociodemographic variables associated with children's negative outcomes. The following variables are included as control variables in this study:

- Socioeconomic status Level (three categories, High, Medium, Low)
- Stressful life events (number of parent-reported life events in the child's life)
- Parents Country of Origin (two possible categories: Spanish – both parents from Spain vs Other - one or both parents from other country).
- Child Country of Origin (two categories: Spanish vs Other country)
- Family structure (two categories: Nuclear Traditional – both biological parents with or without siblings vs. Blended family)
- Child's age.
- Caregiver (made up of four categories: informant mother, informant father, informant mother + father, other)

6. Results

6.1. Preliminary Analyses

6.1.1. Parenting dimensions

We assessed the distribution of our parenting variables (Table 3). Control Attempts was the only normally distributed variable with a *M* = 37.81, SD = 5.35. In our sample parents reported a higher frequency of elevated scores in the Emotional Warmth scale (*M* = 59.49, SD = 6.38) and a tendency towards lower scores for Rejection (*M* = 17.32, SD = 6.38).

We conducted analyses between the independent variables (Emotional Warmth, Control Attempts and Rejection) and our covariates, moderator variables and dependent variables, to evaluate if the relationship between these variables in our sample was in line with previous studies.

Table 3

Parenting Variables Distribution

	N	Min	Max	Mean	SD	Skewness		Kurtosis	
						Statistic	SE	Statistic	SE
Emotional Warmth	688	27	68	59.49	6.376	-1.477	.093	2.974	.186
Rejection	692	13	35	17.32	3.059	1.182	.093	3.159	.186
Control Attempts	689	25	57	37.81	5.347	.404	.093	.321	.186

In Table 4 we present the results for the correlations between the continuous variables and the parenting styles. As expected, parenting variables were significantly correlated to each of the different childhood syndrome scales. In regards to covariates, Stressful Life Events was significantly correlated to Emotional Warmth only, although the strength of the

correlation was very small (r =.091, p =.017), and not to the other parenting variables. Age was not significantly associated with any variable. Regarding moderator variables, caregivers' anxiety and caregivers' depression levels they were significantly correlated to each parenting dimension. They were both negatively correlated to Emotional Warmth and positively correlated with Rejection and Control Attempts. Parenting variables were also significantly associated with each other. Rejection and Control Attempts were positively correlated, while Emotional Warmth was negatively correlated with Rejection and with Control Attempts. Rejection and Control Attempts had a stronger correlation between them than with Emotional Warmth.

For the categorical covariates we conducted T-tests and ANOVAs. T-tests showed no mean difference for Family Structure or Child's sex for any of the parenting variables. Table 5 presents the T-tests results for the significant mean differences only. Emotional Warmth had a lower mean score for children whose caregivers' were not from Spain and for children who were not originally from Spain. Control Attempts had a significantly higher mean score for children whose caregivers' were originally from Spain.

The ANOVA tests showed Emotional Warmth mean scores differed significantly by Informant and by SES level, however the models did not pass the Levene test for homogeneity of variance. Control Attempts mean differences did differ significantly in the Informant category ($F(3,685)= 3.027$, $p= 0.029$), showing significantly higher levels for caregivers that were not the parents. Rejection levels, on the other hand, did not differ by any of the sociodemographic categories.

Table 4

Correlations between Parenting, Caregiver's Mental Health, Stressful Life Events and Children Syndrome Scales.

	n	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Total Stressful Life Events	697	.82	1.125	1	-	-	-	-	-	-	-	-	-	-	-	-	-
2.Caregiver Depression levels	695	.15	.712	.093*	-	-	-	-	-	-	-	-	-	-	-	-	-
3.Caregiver Anxiety levels	696	.70	1.474	.241**	.391**	-	-	-	-	-	-	-	-	-	-	-	-
4.Emotional Warmth	688	59.49	6.376	-.091*	-.149**	-.087*	-	-	-	-	-	-	-	-	-	-	-
5.Rejection	692	17.32	3.059	.028	.150**	.123**	-.205**	-	-	-	-	-	-	-	-	-	-
6.Control Attempts	689	37.81	5.347	.064	.201**	.195**	.093*	.355**	-	-	-	-	-	-	-	-	-
7.CBCL_1 Anxious/ Depressed	697	54.59	6.082	.159**	.287**	.255**	-.176**	.332**	.311**	-	-	-	-	-	-	-	-
8.CBCL_2 Withdrawn/ Depressed	697	54.70	5.991	.124**	.195**	.168**	-.235**	.246**	.254**	.487**	-	-	-	-	-	-	-
9.CBCL_3 Somatic Complaints	697	55.41	6.130	.142**	.240**	.279**	-.196**	.325**	.242**	.520**	.354**	-	-	-	-	-	-
10.CBCL_4 Social Problems	697	54.10	5.095	.204**	.219**	.227**	-.227**	.349**	.333**	.647**	.455**	.453**	-	-	-	-	-
11.CBCL_5 Thought Problems	697	53.27	5.437	.182**	.239**	.230**	-.223**	.341**	.269**	.572**	.417**	.480**	.565**	-	-	-	-
12.CBCL_6 Attention Problems	697	55.08	5.982	.107**	.176**	.154**	-.205**	.279**	.293**	.474**	.399**	.330**	.540**	.480**	-	-	-

Table 4

Correlations between Parenting, Caregiver's Mental Health, Stressful Life Events and Children Syndrome Scales.

	n	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
13.CBCL_7 Rule Breaking Behaviour	697	53.72	5.140	.092*	.260**	.190**	-.255**	.377**	.280**	.486**	.399**	.434**	.534**	.557**	.522**	-	-
14.CBCL_8 Aggressive Behavior	697	55.51	6.382	.058	.249**	.260**	-.194**	.392**	.382**	.546**	.362**	.436**	.608**	.561**	.605**	.666**	-

* p<0.05 (Correlation is significant at the 0.05 level, 2-tailed).

**p<0.01 (Correlation is significant at the 0.01 level, 2-tailed).

Table 5

T-test for parenting dimension by covariates with significant mean differences

	Caregivers country of origin						
	Spanish		Other				
	M	SD	M	SD	t	df	p
Emotional Warmth	60.15	5.460	55.33	9.485	4.804	102.964	.000
Control Attempts	37.61	5.118	17.54	4.121	-2.108	116.512	.037
	Child country of origin						
	Spanish		Other				
	M	SD	M	SD	t	df	p
Emotional Warmth	59.84	5.872	55.63	9.872	3.171	58.562	.002

6.1.2. CBCL children problem scales

The mean scores for each of the 8 CBCL problems scales are presented in Table 6.

Table 6

Descriptive Statistics for CBCL Scales

CBCL Scales	N	Min	Max	Mean	SD	Skewness	Kurtosis
CBCL_1 Anxious/ Depressed	697	50	86	54.59	6.082	1.653	2.740
CBCL_2 Withdrawn/ Depressed	697	50	87	54.70	5.991	1.558	2.737
CBCL_3 Somatic Complaints	697	50	82	55.41	6.130	1.275	1.404
CBCL_4 Social Problems	697	50	84	54.10	5.095	2.135	5.942
CBCL_5 Thought Problems	697	50	83	53.27	5.437	2.339	5.844
CBCL_6 Attention Problems	697	50	93	55.08	5.982	2.048	5.846
CBCL_7 Rule Breaking Behavior Problems	697	50	89	53.72	5.140	2.238	6.779
CBCL_8 Aggressive Behavior	697	50	86	55.51	6.382	1.471	2.274

To assess the association between the 8 problem scales and the independent variables and covariates, ANOVAs and T-tests were conducted. The ANOVA for family structure

showed that none of the eight problem scales differed in score means by Family Structure. The ANOVA for socioeconomic level and each CBCL scale showed all problems scales seemed to differ by SES category, with higher levels of CBCL problems in the Low SES category in comparison to Medium High and Medium. However the Levene test was significant indicating the model didn't have a homogeneity of variance. Only CBCL-Attention Problems ($F(2,690) = 3.767$, $p = .024$) and CBCL-Aggressive Behaviours ($F(2,690) = 4.931$, $p = .007$) scales met the assumption of homogeneity of variances. Tukey Post Hoc tests showed that the Low SES differ significantly with higher mean scores than the Medium High ($p = 0.002$) and Medium Low ($p= 0.006$) groups. There was no significant difference between The Medium High and Medium Low groups ($p = 0.686$).

There was a significant difference between the mean scores for the Informant categories, for five of the CBCL scales (i.e. Anxious/ Depressed, Somatic Complaints, Attention Problems, Rule Breaking Behaviour, and Aggressive Behaviour). However the Levene Test showed the model did not possess homogeneity of variance.

CBCL mean scores in each scale also differ by Child Sex. In Table 7 the CBCL scales that had a significant mean difference by boy vs girl category are presented. The CBCL Withdrawn/ Depressed and Aggressive Behaviour scales differed significantly by Child Sex. Boys had higher scores than girls in Aggressive behaviour and girls had higher scores in Withdrawn/ Depressed problems.

Table 8 and 9 show CBCL scales that showed a significant mean difference by Caregiver and child country of origin. Except for CBCL Aggressive Behavior, all scales differ by caregivers' country of origin. The mean score was significantly higher for caregivers who reported being from another country of origin vs Spain. The CBCL scales

Withdrawn/Depressed, Social Problems and Rule Breaking Behavior also differed significantly by child country of origin. The mean scores were statistically significantly higher for children whose country of origin was not Spain.

Table 7
Mean differences in CBCL scales by boy vs girl categories

	Boys		Girls				
	M	SD	M	SD	t	df	p
CBCL_2 Withdrawn/ Depressed	55.15	6.069	54.22	5.879	2.040	695	.042
CBCL_8 Aggressive Behavior	56	6.647	54.99	6.055	2.109	693.962	.035

Table 8
Mean differences in CBCL scales by caregiver country of origin category

	Spain		Other				
	M	SD	M	SD	t	df	p
CBCL_1 Anxious/ Depressed	54.08	5.896	57.25	8.534	-3.527	111.280	.001
CBCL_2 Withdrawn/ Depressed	54.21	5.626	57.72	7.208	-4.583	115.661	.000
CBCL_3 Somatic Complaints	55.17	5.770	56.92	7.876	-2.100	113.242	.038
CBCL_4 Social Problems	53.71	4.533	56.48	7.299	-3.641	108.281	.000
CBCL_5 Thought Problems	52.95	4.873	52.22	7.854	-2.755	108.254	.007
CBCL_6 Attention Problems	54.85	6.032	56.56	5.466	-2.626	695	.009
CBCL_7 Rule Breaking Behavior	53.44	4.628	55.47	7.638	-2.643	108.565	.006 .009

Table 9
Mean differences in CBCL scales by child's country of origin category

	Spain		Other				
	M	SD	M	SD	t	df	p
CBCL_1 Anxious/Depressed	54.33	6.124	56.71	8.899	-1.969	59.637	.054
CBCL_2 Withdrawn/Depressed	54.45	5.807	57.54	7.264	-3.096	61.298	.003
CBCL_4 Social Problems	53.88	4.748	56.61	7.698	-2.607	58.711	.012
CBCL_5 Thought Problems	53.11	5.119	55.04	8.111	-1.745	58.888	.086
CBCL_7 Rule Breaking Behavior	53.52	4.737	55.96	8.224	-2.190	58.230	.033

6.1.3. CBCL Dysregulation Profile

43 children (6.2%) in our sample fulfilled the CBCL-DP category. Our preliminary analyses regarding CBCL-DP showed there was no significant association between the CBCL-DP and Child's Sex, Family Structure, SES, Child's or Parents' Country of Origin. It also didn't have a significant association with Emotional Warmth.

In Table 10 we present the results of the significant associations between CBCL-DP and the independent and covariate variables only. The CBCL-DP presence category was associated with Rejection ($t= -5.2$, $p<0.001$) and Control Attempts ($t= -6.1$, $p<0.001$). Regarding its relationship with other sociodemographic and family variables it showed a significant association with Caregiver's Depression ($t = -2.2$, $p<0.05$), Caregiver's anxiety ($t =-3.3$, $P<0.05$) and total number of stressful life events ($t= -2.3$, $p<0.05$). Children in the category of CBCL-DP had higher levels of Rejection, Control Attempts, Caregivers' anxiety and depressive symptoms and a higher number of Stressful Life Events.

Furthermore, the presence of CBCL-DP was associated with which caregiver completed the questionnaire (chi square = 20.2, $p < 0.001$). There were proportionally more CBCL-DP present cases in the category of Other Informants.

Table 10

Parental Variables with Significant Mean Differences by CBCL-DP Category

	N	Mean	Std. Deviation	Std. Error Mean
Rejection[1]				
CBCL DP- Absent	649	17.16	2.894	.114
CBCL-DP Present	43	19.63	4.348	.663
Control attempts[2]				
CBCL DP- Absent	647	37.50	5.181	.204
CBCL-DP Present	42	42.57	5.675	.876
Caregiver depression levels[3]				
CBCL DP- Absent	652	.12	.589	.023
CBCL-DP Present	43	.67	1.643	.251
Caregiver anxiety levels[4]				
CBCL DP- Absent	653	.64	1.418	.055
CBCL-DP Present	43	1.63	1.952	.298
Stressful life events[5]				
CBCL DP- Absent	654	.79	1.097	.043
CBCL-DP Present	43	1.30	1.423	.217

[1] $t= -5.2$, $p<0.001$; [2] $t= -6.1$, $p<0.001$; [3] $t= -2.2$, $p<0.05$; [4] $t= -3.3$, $p<0.05$; [5] $t= -2.3$, $p<0.05$.

6.1.4. Moderator Variables

Table 11 presents the distribution of caregiver's anxiety and depression. Our sample scored low levels of depression and anxiety levels, with the majority of caregiver's in our

sample scoring 0 for depressive mood. Caregiver's Anxiety and Depression were also significantly correlated to every childhood syndrome scale.

Table 11

Caregiver's Mental Health Variables Distribution

						Skewness		Kurtosis	
	N	Min	Max	Mean	SD	Statistic	SE	Statistic	SE
Caregiver Depression levels	695	0	7	.15	.712	6.304	.093	46.016	.185
Caregiver Anxiety levels	696	0	7	.70	1.474	2.362	.093	5.117	.185

The role of the child's sex in regards to parenting dimensions, child problems scales and CBCL-DP has been explained in the previous sections.

6.2. Primary Analyses

6.2.1. Objective 1: Individual and unique effects of warmth, rejection, control.

To assess our first objective, the specificity of parenting styles, linear regression models were constructed for each of the eight CBCL syndromes and logistic regression analyses for the CBCL-DP. In each model we can evaluate the association between each parenting style dimension to childhood problem scales while controlling for co-occurring parenting dimensions and contextual factors. This provides the information on the specific and unique relationships. Tables 12 to 19 present the multiple regression models for each CBCL problem behaviour scales. Each model was assessed for collinearity, normality and outliers. The VIF was <10 for all models and the tolerance >0.10. P-plots showed a good fit for the models as well as the MAHS and COOKS statistics.

In the models we can see all three parenting styles were uniquely and statistically significantly associated with all childhood problem scales. Emotional Warmth had a negative association with each of the CBCL syndrome scales, while Control Attempts and Rejection had a positive association to the increase in problem behaviour for all the CBCL scales. However, the strength of the association did differ by parenting style and by childhood outcome. Overall Emotional Warmth had a weaker association when compared to Rejection and Control Attempts. Specifically, Emotional Warmth had a stronger association to Withdrawn/Depressed and Attention Problems scales, while Control Attempts had the strongest association to Aggressive Behavior scale, and Rejection to Somatic Complaints and to Aggressive Behavior scales.

Table 12

Multiple Regression Model for CBCL Anxious/Depressed scale

	B	SE	95.0% CI for B		Sig
			Lower	Upper	
(Constant)	42.200	3.032	36.247	48.154	0.000
Rejection	.426	.079	.270	.582	0.000
Caregiver Depression Levels	1.198	.342	.527	1.888	0.000
Control Attempts	.215	.046	.125	0.035	0.000
Emotional Warmth	-.096	.037	-.169	-0.022	0.011
Caregiver Anxiety Levels	.520	.162	.201	-0.839	0.001
Parents Country of Origin	1.737	.663	.434	3.039	0.009

R^2 0.218, p = 0.009

F (6, 675) 31.406, p < 0.001

Table 13

Multiple Regression Model for CBCL Withdrawn/Depressed scale

	B	SE	95.0% CI for B		Sig.
			Lower	Upper	
(Constant)	50.038	2.922	44.300	55.776	.000
Control Attempts	.222	.044	.136	.308	.000
Emotional Warmth	-.173	.036	-.244	-.102	.000
Parents Country of Origin	2.059	.639	.804	3.314	.001
Rejection	.237	.076	.087	.387	.002
Caregiver Depression Levels	.770	.308	.165	1.375	.013

R^2 0.165, p = 0.013

F (5, 576) 26.803, p <0.001

Table 14

Multiple Regression Analyses for CBCL Somatic Complaints scale

	B	Std. Error	95% CI for B		Sig.
			Lower	Upper	
(Constant)	49.467	2.671	44.222	54.713	.000
Rejection	.437	.076	.287	.587	.000
Caregiver Anxiety Levels	.749	.157	.441	1.057	.000
Emotional Warmth	-.128	.035	-.197	-.060	.000
Control Attempts	.142	.044	.056	.228	.001
Caregiver Depression Levels	.795	.329	.150	1.440	.016

R^2 0.2, p = 0.016

F (5, 570) 33.714, p <0.001

Table 15

Multiple Regression Analyses for CBCL Social Problems scale

	B	SE	95% CI for B		Sig
			LB	UB	
(Constant)	43.145	2.388	38.457	47.834	.000
Rejection	.371	.061	.251	.491	.000
Control Attempts	.217	.035	.148	.286	.000
Emotional Warmth	-.124	.029	-.180	-.067	.000
Total Stressful Life Events	.587	.156	.281	.892	.000
Socioeconomic Level Range	.843	.269	.315	1.372	.002
Caregiver Anxiety Levels	.338	.120	.102	.574	.005
Informant	.658	.301	.066	1.249	.029

R^2 0.266, p = 0.029
F (7, 674) 34.937, p <0.001

Table 16

Multiple Regression Analyses for CBCL Thought Problems scale

	B	SE	95% CI for B		Sig.
			Lower	Upper	
(Constant)	47.506	2.352	42.887	52.125	.000
Rejection	.395	.067	.264	.526	.000
Caregiver Depression Levels	.800	.288	.235	1.365	.006
Total Stressful Life Events	.581	.170	.247	.914	.001
Control Attempts	.162	.039	.086	.238	.000
Emotional Warmth	-.135	.031	-.195	-.075	.000
Caregiver Anxiety Levels	.323	.141	.047	.600	.022

R^2 0.221, p = 0.022
F (6, 675) 31.906, p <0.001

Table 17

Multiple Regression Analyses for CBCL Attention Problems scale

	B	SE	95% CI for B		Sig
			Lower	Upper	
(Constant)	48.778	2.755	43.370	54.187	.000
Control Attempts	.264	.044	.178	.350	.000
Emotional Warmth	-.174	.035	-.242	-.106	.000
Rejection	.289	.076	.140	.438	.000
Caregiver Depression Levels	.630	.306	.030	1.231	.040
Informant	.756	.375	.019	1.493	.044

R^2 0.168, p = 0.044

F (5, 676) 27.328, p <0.001

Table 18

Multiple Regression Analyses for CBCL Rule Breaking Behaviour Problems scale

			95% CI for B		Sig.
	B	Std. Error	Lower	Upper	
(Constant)	49.248	2.187	44.953	53.542	.000
Rejection	.421	.063	.298	.543	.000
Caregiver Depression Levels	1.138	.252	.644	1.632	.000
Emotional Warmth	-.159	.028	-.215	-.103	.000
Control Attempts	.171	.036	.101	.241	.000

R^2 0.236, p < 0.001

F (4, 677) 52.156, p <0.001

Table 19

Multiple Regression Analyses for CBCL Aggressive Behavior scale

	B	SE	95% CI for B		Sig.
			Lower	Upper	
(Constant)	40.888	2.719	35.550	46.226	.000
Rejection	.508	.075	.361	.656	.000
Control Attempts	.307	.043	.222	.392	.000
Caregiver Anxiety Levels	.587	.154	.284	.890	.000
Emotional Warmth	-.144	.034	-.211	-.077	.000
Informant	1.098	.371	.371	1.826	.003
Caregiver Depression Levels	.734	.323	.100	1.368	.023

R^2 0.289, p = 0.023
F (6, 675) 45.737, p <0.001

For the CBCL-DP we carried out binary logistic regressions. The final model is presented in Table 20. We can see in the model that only Emotional Warmth and Control Attempts are significantly associated with the presence of CBCL-DP. Emotional Warmth is associated with the absence of CBCL-DP while Control attempts are associated with the presence of CBCL-DP. Rejection was not significantly associated with the presence of CBCL-DP.

In line with our hypotheses regarding the unique effect of parenting styles, Emotional Warmth, Rejection and Control Attempts have shown significant association with childhood problems even when controlling for other variable effects. Emotional Warmth, Rejection and Control were directly and significantly associated with all eight CBCL syndrome scales and the CBCL-DP. However, Rejection was not significantly associated with the presence of CBCL-DP.

Table 20

Binary Logistic Regression Model for CBCL-DP

	B	S.E.	Wald	df	Sig.	Exp(B)	Exp (B) 95% C.I.	
							Lower	Upper
Emotional Warmth	-.069	.023	9.187	1	.002	.934	.893	.976
Control Attempts	.175	.032	30.254	1	.000	1.191	1.119	1.267
Caregiver Anxiety Levels	.229	.086	7.166	1	.007	1.258	1.063	1.488
Informant	.639	.291	4.805	1	.028	1.894	1.070	3.354
Constant	-7.342	1.845	15.836	1	.000	.001		

Nagelkerke R^2 0.245

Objective 1 hypotheses

We accept our working *Hypothesis 1.1*- Emotional Warmth was significantly and inversely associated with high levels for each CBCL syndrome scale (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour Aggressive Behaviour) and with the presence of CBCL-DP.

We partially accept our working *Hypothesis 1.2*- Rejection was significantly and directly associated with higher levels of CBCL syndromes (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour Aggressive Behaviour). However, contrary to expectations Rejection was not uniquely associated with the presence of the CBCL-DP.

We accept our working *Hypothesis 1.3*- Control attempts were significantly and directly associated with higher levels of childhood syndromes (Anxious/Depressed,

Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour Aggressive Behaviour) and with the presence of CBCL-DP.

6.2.2. Objective 2: Moderating effect of parenting styles variables.

Linear and logistic regression models were created to assess our second objective- the moderating effect of each parenting variable on the associations between Warmth, Rejection and Control Attempts, and the eight CBCL syndrome scales and the CBCL-DP. Moderation effects were assessed by including the two-way interactions between the three parenting variables in each mode. Table 21 summarizes the two-way interactions that were statistically significant for each model. The Warmth*Rejection interaction was significant for the CBCL scales, Anxious/Depressed, Social Problems, Thought Problems and Rule Breaking Behaviour. The interaction between Warmth*Control Attempts showed to be significantly associated only to the CBCL Rule Breaking Behavior scale. The interaction Rejection*Control Attempts was statistically significant for Social Problems, Thought Problems, Attention Problems and Rule Breaking Behavior scales. It was also noteworthy that there were no significant interactions between parenting dimensions in the CBCL-DP models.

The final regression models for the CBCL scales that had a significant 2-way interaction between the parenting styles dimensions are included in Appendix A (Tables A1 to A9). The models show the significant effect of the interaction as well as other covariates that had a significant effect. Emotional Warmth significantly moderated the effect of Rejection on many of the CBCL scales (i.e. Anxious/ Depression; Social Problems; Thought Problems; Rule Breaking Behavior), indicating that Warmth is a significant

moderator of the effect of Rejection. In the models Warmth and Rejection continued to be significantly associated with the outcome in each model even when including the interactions. Emotional Warmth was expected to moderate the effect of Control on all of the CBCL scales, however the results show that it only moderated the effect for CBCL Rule Breaking Behaviour Scale.

Rejection did moderate the effect of Control Attempts on many of the CBCL scales: Social Problems, Thought Problems, Attention Problems and Rule Breaking Problems; indicating the effect of Control Attempts is conditional on Rejection. Rejection and Control Attempts remained significant in all models showing a unique effect.

Table 21

Statistically significant interactions between parenting variables for each CBCL syndrome scale and CBCL-DP

Interactions	Anxious	Withdrawn	Somatic	Social	Thought	Attention	Rule Breaking	Aggressive	CBCL-DP
W x R	**Y**	N	N	**Y**	**Y**	N	**Y**	N	N
W x C	N	N	N	N	N	N	**Y**	N	N
R x C	N	N	N	**Y**	**Y**	**Y**	**Y**	N	N

W x R = Warmth x Rejection interaction; W x C = Warmth x Control interaction; R x C = Rejection x Control interaction; Y = Significant interaction; N = Not significant interaction

Moderating role of warmth on rejection effects on children problem scales

To explore all statistically significant interactions and the effects of the moderation we used the data list produced by PROCESS V 3.5. For each regression model (Appendix A) variables were centred to understand the effect of the moderations. The results of the moderating role of warmth is explored in Tables 22 to 26.

A similar pattern is observed for all the models evaluating Emotional Warmth effect on Rejection (Tables 22 to 25). Emotional warmth weakens the effect of Rejection on children's outcomes. The effect of Rejection on the dependent variable is positive in directionality, and significant. However when Emotional Warmth is high (+1 s.d) the relationship, though still significant, was weaker for Anxious/ Depressed, Social Problems and Rule Breaking Behaviors. The moderating role of Emotional Warmth was even stronger for Thought Problems (Table 24); when levels of Warmth were low Rejection had a significant positive effect on Thought Problems (b= 0.53, S.E.= .07, p<.001) but when levels of Warmth were high, the effect was no longer significant (b=.15, S.E.=.09, p = .10).

Table 22

Moderating effects of Warmth on Rejection's effect on CBCL Anxious Depressed scale

Warmth		Effect	S.E	p
- 1 s.d.	-6.38	.50	.08	.00
Mean	.00	.39	.08	.00
+ 1 s.d.	6.38	.27	.11	.01

Table 23

Moderating effects of Warmth on Rejection's effect on CBCL Social Problems scale

Warmth		Effect	S.E	p
- 1 s.d.	-6.38	.44	.06	.00
Mean	.00	.33	.06	.00
+ 1 s.d.	6.38	.22	.08	.01

Table 24

Moderating effects of Warmth on Rejection's effect on CBCL Thought Problem scale

Warmth		Effect	S.E	p
- 1 s.d.	-6.38	.53	.07	.00
Mean	.00	.34	.07	.00
+ 1 s.d.	6.38	.15	.09	.10

Table 25
Moderating effects of Warmth on Rejection's effect on CBCL Rule Breaking Behaviors scale

Warmth		Effect	S.E	p
- 1 s.d.	-6.40	.53	.06	.00
Mean	.00	.36	.06	.00
+ 1 s.d.	6.40	.19	.08	.02

Moderating role of warmth on control attempts effect on children problem scales

Emotional Warmth had a moderating role on Control Attempts effect for Rule Breaking Behavior only, shown in Table 26. Control Attempts has significant positive effect on rule breaking behaviour, however when the levels of Warmth are high (+ 1 s.d.) this effect is weaker (b=.11, S.E.= .05, $p < .001$) than when levels of Emotional Warmth are moderate or low.

Table 26
Moderating effects of Warmth on Control's effect on CBCL Rule Breaking Behavior

Warmth		Effect	S.E	p
- 1 s.d.	-6.40	.25	.05	.00
Mean	.00	.18	.04	.00
+ 1 s.d.	6.40	.11	.05	.02

Moderating role of rejection on control attempts effects on children problem scales

Tables 27 and 28 show the moderation effects of Rejection on Control Attempts' association to Social Problems and Thought Problems. Both for Social Problems and Thought Problems, when Rejection levels are high (+1 s.d.) Control Attempts has a positive significant effect (CBCL Social Problems b=.26, S.E.= .04, $p< .001$ and CBCL Though

Problems b=.22, S.E.= .05, p<= .001) but when Rejection levels are low (-1 s.d.) the effect is no longer significant.

Table 27
Moderating effects of Rejection on Control's effect on CBCL Social Problems Scale

Rejection		Effect	S.E	p
- 1 s.d.	-3.06	.08	.05	.08
Mean	.00	.17	.04	.00
+ 1 s.d.	3.06	.26	.04	.00

Table 28
Moderating effects of Rejection on Control's effect on CBCL Thought Problem Scale

Rejection		Effect	S.E	p
- 1 s.d.	-3.06	.10	.05	.05
Mean	.00	.16	.04	.00
+ 1 s.d.	3.06	.22	.05	.01

The moderating effect of Rejection on Control shows a different pattern for Attention Problems (shown in Table 29) and Rule Breaking Behaviors (Table 30). The effect of Control on CBCL Attention Problems is stronger when the levels of Rejection are higher, in comparison to lower levels. However, the effect of Control continues to be significant across Rejection levels. A similar trend is seen with Rule Breaking Behaviors. When Rejection is high (+1 s.d.) the relationship between Control and Rule Breaking Behaviors is positive and significant. When Rejection's level is low the relationship is still significant and positive but the effect size is less (b=.09, S.E.= .05, p=.04).

Table 29
Moderating effects of Rejection on Control's effect on CBCL Attention Problems Scale

Rejection		Effect	S.E	p
- 1 s.d.	-3.06	.21	.05	.00
Mean	.00	.28	.04	.00
+ 1 s.d.	3.06	.35	.05	.00

Table 30

Moderating effects of Rejection on Control Attempts effect on CBCL Rule Breaking Behavior Problems

Rejection		Effect	S.E	p
- 1 s.d.	-3.06	.09	.05	.04
Mean	.00	.17	.04	.00
+ 1 s.d.	3.06	.25	.04	.00

Objective 2 hypotheses

We expected for Emotional Warmth to moderate Control Attempts effect across all CBCL scales and the CBCL-DP profile. We hypothesised that when Warmth is higher Control Attempts levels will not have an association with the CBCL syndrome scales nor with the presence of CBCL-DP (*Hypothesis 2.1*). Warmth only moderated the effect of Control for Rule Breaking Behavior, therefore we reject our working hypothesis.

It was also expected that Rejection would moderate Control Attempts' effect on all CBCL scales and CBCL-DP. The working *Hypothesis 2.2* expected Rejection to interact significantly with Control. Rejection was expected to moderate the relationship: specifically, when Rejection levels were low Control would not have a significant association with any of the CBCL syndrome scales nor with the presence of CBCL-DP. However, Rejection only moderated the effect of Control for 4 of the CBCL scales; and only for Though Problems and Attention Problems when Rejection levels were low the effect of Control was no longer significant. Therefore we partially accept the working hypothesis.

6.2.3. Objective 3: Moderating effect of child's sex.

To test the differential exposure through the moderation of child's sex, linear and logistic regression models were carried out with the program PROCESS v3 for SPSS.

Twenty-seven linear regression models and three binary logistic regression models were created to explore the moderating effect of child's sex. In Table 31 we present the summary of the models that showed a significant interaction between child's sex and the Emotional Warmth, Rejection and Control Attempts.

Table 31

Statistically significant interactions between child's sex and parenting variables for each CBCL syndrome scale

	CBCL syndrome scales								
Interactions	Anxious	Withdrawn	Somatic	Social	Thought	Attention	Rule Breaking	Aggressive	CBCL-DP
S x W	N	**Y**	**Y**	**Y**	N	N	**Y**	N	N
S x R	N	N	N	N	N	**Y**	N	**Y**	N
S x C	N	N	N	N	N	N	N	N	N

S x W = Child's sex * Warmth interaction
S x R = Child's Sex * Rejection interaction
S x C = Child's Sex * Control interaction
Y = Significant interaction
N = Not significant interaction

The final regression models for the CBCL scales that had statistically significant interaction between parenting variables and child sex are presented in Appendix B (Tables B1 to B6). The models show Emotional Warmth was moderated by the child's sex across many of the childhood scales, showing the effect of emotional Warmth varies contingent on the child's sex category. The final models also show that when the interaction between child sex and emotional Warmth was included in the model, Warmth was no longer significantly associated to the dependent variable (Tables B2, B3, B4). Only for the model for the Withdrawn/Depressed scale did Warmth continue to be significantly associated in

the final model (Table B1). For CBCL Social Problems, neither Warmth nor Child Sex were significantly associated to CBCL Social Problems, although the interaction between Emotional Warmth and Child Sex was significant (Table B2).

The interaction terms between Rejection and child sex was significant only for Attention Problems and Aggressive Behavior, indicating Rejection effect is conditional on the categories of boys vs. girls for this scales (Tables B5 and B6). The models showed that child sex was not significantly associated to the dependent variables although Rejection and the interaction term were for all the models.

Child sex moderating effect on emotional warmth

Tables 31 to 34 present the moderating effects of child's sex in the association between emotional Warmth and the CBCL scales, Withdrawn/ Depressed, Somatic Complaints, Thought Problems and Social Problems. A similar trend is observed for all moderation effects. The direction of the effect of Emotional Warmth on the CBCL scales is negative both for boys and for girls. However, this effect is stronger and significant only for girls.

Table 31
Moderating effects of Child Sex on Emotional Warmth's effect on CBCL Withdrawn Depressed scale

Child Sex	Effect	S.E	p
Boy	-.10	.05	.05
Girl	-.26	.05	.00

Table 32
Moderating effects of Child Sex on Emotional Warmth's effect on CBCL Somatic Complaints scale

Child Sex	Effect	S.E	p
Boy	-.04	.05	.46
Girl	-.20	.05	.00

Table 33
Moderating effects of Child Sex on Emotional Warmth's effect on CBCL Somatic Complaints scale

Child Sex	Effect	S.E	p
Boy	-.05	.04	.19
Girl	-.19	.04	.00

Table 34
Moderating effects of Child Sex on Emotional Warmth's effect on CBCL Rule Breaking Behaviors scale

Child Sex	Effect	S.E	p
Boy	-.07	.04	.07
Girl	-.25	.04	.00

Child sex moderating effect on Rejection

The exploration of the moderating effect of child sex in the effect of parenting are presented in Tables 35 and 36. The effect of Rejection on CBCL Attention Problems has a positive direction, with higher levels of Rejection associated to higher levels of attention problems. However, this effect is only significant for boys (Table 35). For CBCL Aggressive Behaviors (Table 36) the effect of Rejection is positive and significant both for boys and girls. However, the effect is stronger for boys (b=.68, S.E.= .10, p< .001).

Table 35
Moderating effects of Child Sex on Rejection's effect on CBCL Attention Problems scale

Child Sex	Effect	S.E	p
Boy	.51	.10	.00
Girl	.10	.10	.33

Table 36
Moderating effects of Child Sex on Rejection's effect on CBCL Aggressive Behaviors scale

Child Sex	Effect	S.E	p
Boy	.68	.10	.00
Girl	.37	.10	.00

Objective 3 Hypothesis

The third objective of this study is to examine the differential exposure and differential susceptibility theories in relation to the child's sex. Preliminary analyses showed that Withdrawn/ Depressed problems and Aggressive Behaviour did differ significantly by the child's sex (see Table 4). However, preliminary ANOVA tests showed that there was no significant difference in the levels of Emotional Warmth, Control Attempts or Rejection that parents report using with boys vs girl. Therefore we reject our differential exposure hypothesis (*Hypothesis 3.1)* and accept the null hypothesis, that there is no significant difference in the level of caregivers' parental Warmth, Rejection and Control Attempts, between boys and girls. There is no differential exposure in our sample.

The child's sex didn't moderate the impact of Control Attempt on any of the CBCL scales nor on the CBCL-DP. Therefore *Hypothesis 3.2* is rejected and the null hypothesis accepted. The effect of Control on CBCL Anxious/Depressed problems is not moderated by a child's sex.

Hypothesis 3.3 is also rejected. It was expected that the effect of Control on the CBCL syndromes of Rule Breaking Behavior and Aggressive Behavior would be stronger for boys than for girls. However, in our sample, the association of Control to CBCL scales of Rule Breaking Behavior and Aggressive Behavior did not differ significantly between girls and boys.

Regarding the moderating effect of the Child Sex on Rejection association to the CBCL scales, the analyses showed that the child's sex did moderate the relationship of Rejection to the CBCL scales of Attention Problems and Aggressive Behaviour. This partially confirms *Hypothesis 3.4*. The relationship between Rejection and the CBCL Rule

Breaking Behaviour Problems is not moderated by a child's sex. However the effect of Rejection on CBCL Aggressive Behavior is moderated by the child's sex, having a stronger effect on boys than on girls.

For the category of CBCL-DP there were no significant interactions between the child's sex and either Warmth, Control Attempts or Rejection. Thus there was no indication that the child's sex moderated the relationship between this parenting styles and the presence of CBCL-DP.

6.2.4. Objective 4: Moderating effect of caregivers depression

The preliminary analysis showed that caregivers' depressive symptoms are significantly correlated to all parenting styles, to all CBCL scales (Table 4) and with the presence of CBCL-DP (Caregiver's Depression, $t = 2.2$, $p<0.05$ and Caregiver's anxiety $t =-3.3$, $P<0.05$). Caregivers' depression levels were correlated to Rejection and Control Attempts (respectively, $r = 0.150$, $r= 0.201$, $p< 0.001$) and negatively correlated to Emotional Warmth ($r= -0.149$).

To evaluate the moderating role of caregiver depression symptomatology twenty-seven models were created using PROCESS v3. Each model evaluated if there was a moderating effect of caregivers' depression on parenting styles, and of caregivers' anxiety on parenting styles, by evaluating if the interactions were statistically significant. Only nine models showed a significant interaction between caregivers' depression and parenting variables. Table 37 presents the summary of the interactions between caregiver depression and parenting styles that were significant for each CBCL scale and the CBCL-DP.

Table 37

Statistically significant interactions between caregivers' depression levels and parenting variables for each CBCL syndrome scale and CBCL-DP

	CBCL syndrome scales								
Interactions	Anxious/ Depressed	Withdrawn / Depressed	Somatic Complaints	Social	Thought problems	Attention problems	Rule Breaking Behavior	Aggressive Behavior	CBCL-DP
Dep x W	N	**N**	**Y**	**Y**	**Y**	N	**Y**	N	N
Dep x R	N	N	**Y**	**Y**	**Y**	N	**Y**	**Y**	N
Dep x C	N	N	N	N	N	N	N	N	N

Dep x W = Caregiver Depressive symptoms * Warmth interaction
Dep x R = Caregiver Depressive symptoms * Rejection interaction
Dep x C = Caregiver Depressive symptoms * Control interaction
Y = Significant interaction
N = Not significant interaction

The nine final regression models containing the significant interaction terms between caregivers' depression and parenting dimensions are presented in Appendix C (Tables C1 to C9). Caregivers' depression level moderated the relationship of Emotional Warmth and Somatic Complaints, Social Problems, Thought Problems and Rule Breaking Behavior; and the effect of Rejection on Somatic Complaints, Social Problems, Thought Problems, Rule Breaking Behavior and Aggressive Behavior. Caregivers' depression did not moderate the effect of Control Attempts on any of the CBCL scales. Caregiver's depression levels were not associated with the presence of CBCL-DP either and did not moderate the effect of any of the three parenting variables on CBCL-DP.

Moderating effect of caregivers' depression on emotional warmth effect

For the models with significant interaction the data list set which explores the moderating effect of caregiver's depression levels on emotional Warmth relationship to the CBCL scales (Somatic Complaints, Social Problems, Rule Breaking Behavior, Aggressive Behavior) is presented on Tables 38 to 41. The same pattern was seen for all the models. Emotional Warmth association to the four problems scales was negative and significant and when depression levels were high (+1 S.D.) the effect was stronger than when the effects were low or moderate.

Table 38
Moderating effects of Caregiver Depressive Symptoms on Emotional Warmth's effect on CBCL Somatic Complaints scale

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	-.08	.04	.03
Mean	.00	-.10	.04	.00
+1 s.d.	.72	-.20	.04	.00

Table 39
Moderating effects of Caregiver Depressive Symptoms on Emotional Warmth's effect on CBCL Social Problems scale

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	-.10	.03	.00
Mean	.00	-.11	.03	.00
+1 s.d.	.71	-.26	.04	.00

Table 40
Moderating effects of Caregiver Depressive Symptoms on Emotional Warmth's effect on CBCL Thought Problems scale

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	-.11	.03	.00
Mean	.00	-.12	.03	.00
+1 s.d.	.71	-.19	.04	.00

Table 41
Moderating effects of Caregiver Depressive Symptoms on Emotional Warmth's effect on CBCL Rule Breaking Behaviors

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	-.12	.03	.00
Mean	.00	-.14	.03	.00
+1 s.d.	.71	-.24	.03	.00

Moderating effect of caregivers' depression on rejection

The moderating effect of caregiver's depression on Rejection is presented in Tables 42 to 45. The same moderating pattern was seen for all the interactions for CBCL Somatic Complaints, Social Problems, Thought Problems and Rule Breaking Behviors. The effect of Rejection on the different CBCL scales mentioned above was positive and significant. When Caregiver depression level was higher (1 s.d. above the mean) the effect was stronger compared to when the level was moderate (mean) or low (1. s.d. below the mean).

Table 42
Moderating effects of Caregiver Depressive Symptoms on Rejection's effect on CBCL Somatic Complaints scale.

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	.36	.08	.00
Mean	.00	.40	.08	.00
+1 s.d.	.72	.56	.08	.00

Table 43
Moderating effects of Caregiver Depressive Symptoms on Rejection's effect on CBCL Social Problems scale.

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	.32	.06	.00
Mean	.00	.34	.06	.00
+1 s.d.	.72	.45	.07	.00

Table 44
Moderating effects of Caregiver Depressive Symptoms on Rejection's effect on CBCL Thought Problems scale.

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	.34	.07	.00
Mean	.00	.37	.07	.00
+1 s.d.	.72	.52	.07	.00

Table 45
Moderating effects of Caregiver Depressive Symptoms on Rejection's effect on CBCL Rule Breaking Behaviors scale

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	.40	.06	.00
Mean	.00	.41	.06	.00
+1 s.d.	.72	.50	.07	.00

Moderating effect of caregivers' depression on control attempts effect

There was only one significant moderating effect regarding Control Attempts, shown in Table 46. Control Attempts had a positive statistically significant effect on Aggressive problems and this effect was stronger when the level of caregiver's depression was high (b=0.42, p= 0.001) in comparison to then caregivers' depression levels were low.

Table 46
Moderating effects of Caregiver Depressive Symptoms on Control's effect on CBCL Aggressive Behavior scale

Depressive Symptoms		Effect	S.E	p
-1 s.d.	-.15	.27	.04	.00
Mean	.00	.30	.04	.00
+1 s.d.	.72	.42	.05	.00

Objective 4 (Hypothesis 4.1)

The fourth objective of this study was to examine if the caregiver's mental health plays a moderating role on the effect of Warmth, Rejection and Control Attempts on the

eight CBCL syndrome scales (Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule Breaking Behaviour, Aggressive Behaviour) and the CBCL-Dysregulation Profile.

Specifically regarding caregivers' depression levels it was hypothesised that higher levels of caregivers' depression will increase the effect of emotional Warmth, Rejection and Control Attempts on children's outcomes *(Hypothesis 4.1)*. The regression analyses showed that the caregiver's depression levels does moderate the effect of Warmth, Rejection and Control Attempts, although not for all the CBCL scales. Therefore our working hypothesis was partially confirmed: *Hypothesis 4.1 – Higher levels of caregivers' depression will increase the effect of emotional Warmth, Rejection and Control Attempts on children's outcomes.*

6.2.5. Objective 4: Moderating effect of caregivers anxiety.

Caregivers' anxiety levels had a negative correlation with Emotional Warmth ($r = -.087$, $p < 0.05$) and a positive one with Rejection ($r = 0.123$, $p < 0.05$) and Control Attempts ($r = 0.195$ $p < 0.01$). Caregivers' anxiety levels did not moderate the relationship between Emotional Warmth and any of the CBCL scales. However it did moderate the effect of Rejection and Control attempts for some childhood problems. Table 47 presents the summary of which models had significant two-way interactions.

Table 47

Statistically significant interactions between caregivers' anxiety levels and parenting variables for each CBCL syndrome scale

	CBCL syndrome scales								
Interactions	Anxious/ Depressed	Withdrawn/ Depressed	Somatic Complaints	Social	Thought problems	Attention problems	Rule Breaking Behavior	Aggressive Behavior	CBCL-DP
Anx x W	N	N	N	N	N	N	N	N	N
Anx x R	N	N	**Y**	**Y**	N	N	**Y**	**Y**	N
Anx x C	N	N	**Y**	**Y**	N	N	**Y**	**Y**	N

Anx x W= Caregiver Anxiety * Warmth interaction
Anx x R = Caregiver Anxiety * Rejection interaction
Anx x C = Caregiver Anxiety * Control interaction
Y = Significant interaction
N = Not significant interaction

Caregivers' anxiety moderated the effect of Rejection on Somatic Complaints, Social Problems, Rule Breaking Behavior and Aggressive Behavior. Caregivers' anxiety also moderated the relationship between Control and CBCL Somatic Complaints, Social Problems, Thought Problems, Rule Breaking Behavior and Aggressive Behavior. The regression models that had statistically significant effects between caregivers' anxiety and parenting dimensions are included in Appendix D (Tables D1 through D9). This regression models showed that Rejection maintained a significant and unique association with the scales. Caregivers' anxiety also maintained a significant association with the CBCL scales, except for Aggressive Behavior. For the models with significant interactions between caregivers anxiety and Control Attempts (Appendix D, Tables D1 through D9), Control

Attempts remained significantly associated to all CBCL scales (Somatic, Social Problems and Rule Breaking Behavior). There was no moderating effect for CBCL-DP.

Moderating effect of caregivers anxiety levels on rejection effect

The moderating effect (presented in Tables 48 to 51) was similar across the four CBCL scales. The effect of Rejection on Somatic Complaints, Social Problems, Rule Breaking Behavior and Aggressive Behavior, was positive and significant. The effect was stronger when the levels of the caregivers' anxiety was high in comparison to moderate and low levels.

Table 48
Moderating effects of Caregiver Anxiety on Rejection's effect on CBCL Somatic Complaints scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.71	.32	.09	.00
Mean	.00	.41	.08	.00
+1 s.d.	1.49	.60	.08	.00

Table 49
Moderating effects of Caregiver Anxiety on Rejection's effect on CBCL Social Problems scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.70	.31	.07	.00
Mean	.00	.36	.06	.00
+1 s.d.	1.48	.47	.07	.00

Table 50
Moderating effects of Caregiver Anxiety on Rejection's effect on CBCL Rule Breaking Behavior Problems scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.70	.36	.07	.00
Mean	.00	.42	.06	.00
+1 s.d.	1.48	.53	.07	.00

Table 51
Moderating effects of Caregiver Anxiety on Rejection's effect on CBCL Aggressive Problems scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.71	.42	.08	.00
Mean	.00	.51	.07	.00
+1 s.d.	1.49	.69	.08	.00

Caregivers' anxiety moderating role for Control Attempts

The moderating effect of caregiver depression level on Control Attempts effect is presented in tables 52 through 56. The same trend could be observed for all the interactions for each of the five CBCL scales. The effect of Control was positive and significant in the five CBCL scale problems. The effect was moderated by the caregivers' depression levels, making it stronger when caregiver anxiety levels were high (+1 S.D.)

Table 52
Moderating effects of Caregiver Anxiety on Control's effect on CBCL Somatic Complaints scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.71	.10	.05	.03
Mean	.00	.15	.04	.00
+1 s.d.	1.49	.26	.06	.00

Table 53
Moderating effects of Caregiver Anxiety on Control's effect on CBCL Social Problems scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.70	.18	.04	.00
Mean	.00	.22	.04	.00
+1 s.d.	1.48	.32	.05	.00

Table 54
Moderating effects of Caregiver Anxiety on Control's effect on CBCL Thought Problems scale.

Anxiety		Effect	S.E	p
-1 s.d.	-.71	.13	.04	.00
Mean	.00	.17	.04	.00
+1 s.d.	1.49	.26	.05	.00

Table 55
Moderating effects of Caregiver Anxiety on Control's effect on CBCL Rule Breaking Behavior scale

Anxiety		Effect	S.E	p
-1 s.d.	-.70	.13	.04	.00
Mean	.00	.17	.04	.00
+1 s.d.	1.48	.25	.05	.00

Table 56
Moderating effects of Caregiver Anxiety on Control's effect on CBCL Attention Problems scale

Anxiety		Effect	S.E	p
-1 s.d.	-.71	.22	.05	.00
Mean	.00	.30	.04	.00
+1 s.d.	1.49	.46	.05	.00

Objective 4 (Hypothesis 4.2)

Parting from the fourth objective of this study we evaluated if caregivers' anxiety levels moderated the effect of the three parenting styles on children's outcomes, as measured by the eight CBCL syndrome scales and the CBCL-DP.

Contrary to our hypothesis, the regression analyses showed that the caregivers' anxiety levels do moderate the effect of Warmth, Rejection and Control Attempts for some of the CBCL scales. Therefore, we reject our working *Hypothesis 4.2* - Caregivers' anxiety

levels do not moderate the relationship between Warmth, Rejection and Control Attempts, and children's outcomes.

7. Discussion

The specificity of the association between parenting styles and childhood problem outcomes is essential both to understand the aetiology of children syndromes and for the implementation of effective components in interventions and prevention efforts. Parenting styles' association to childhood psychological outcomes has been well-established in the literature regarding developmental psychopathology (Eun et al., 2018; Kopala-Sibley et al., 2017; Lei et al., 2018; Mckee, Forehand, et al., 2008; Pinquart, 2017; Trenas et al., 2013). This investigation provides new insight into the unpacking of these associations, providing evidence for the notion of existing universal patterns for parenting styles (Smetana, 2017; Weitkamp & Seiffge-Krenke, 2019), and confirmation for the specificity of parenting and childhood outcomes.

The results indicate unique and differential effects for each parenting style. In the models we can see that parenting styles' effects change for the different problem behaviour scales. It was interesting to note that in the models without interactions all parenting styles were significantly associated with the 8 CBCL childhood problem scales. This relationship changed however, in the models with the parenting interactions included. This not only shows the specificity of parenting but highlights the importance of studying these effects from a specificity model. Emotional Warmth, Rejection and Control Attempts contributed significantly to different childhood syndromes and to the infantile dysregulation profile. The results add to previous studies' findings demonstrating each of the parenting variables' relationships to children's problems was significant and unique. Emotional Warmth was

inversely related to all childhood problems while Rejection and Control attempts effects had a positive association with all childhood syndromes. Rejection was the only of the three parenting variables that was not significantly associated with the presence of the CBCL-DP.

Emotional Warmth was associated with all types of problems measured by the CBCL scales and the absence of CBLC-DP. However, when interactions were included in the model, increments in Emotional Warmth were associated with decreases in levels, only for three CBCL scales: Somatic Complaints, Thought Problems and Rule Breaking Behaviors. Emotional Warmth was no longer associated with the other 5 CBCL scales (Anxious/Depressed, Withdrawn/Depressed, Social Problems, Attention Problems, and Aggressive Behaviour) nor with the presence of CBCL-DP. Likewise, Control Attempts and Rejection had a significant association to every childhood problem scale when no interactions were added to the model. However, when interactions were added to the models, Rejection no longer had significant associations to any of the problem behaviors nor with the CBCL-DP. Control Attempts was only associated with CBCL Social Problems scales and not with the CBCL-DP. Rejection was not associated with any problem behaviour scale nor the presence of CBCL-DP either.

The results also propose going beyond Caron et al (2016) specificity model. This model argues that to be labelled *specific* the effects needs to be differential contingent on the outcome (eg. internalizing vs. externalizing problems). However the analyses in this study have broadened this definition. The analyses have gone beyond comparing two types of problem outcomes, but comparing multiple outcomes and specific contexts. This is significant because there are important differences in how warmth impacts specific childhood problems (i.e. Withdrawn/Depressed problems vs Rule Breaking Behavior), and

how this differs between boys vs girls and in the presence of caregiver's anxiety and depression. What is exciting about these results is that although parenting can be considered diffuse in the sense that is related across multiple and different childhood syndromes, when studying each interaction independently the underpinning blocks of these associations can be extracted to incorporate this into interventions and research.

It appears that parenting dimensions indeed have a specific effect, based on the context; even though the effect of parenting styles on children's outcomes is diffused across different child problem outcomes. Parenting styles have differential and specific association between parenting and problem behaviours not based on the type of problem but based on the context (i.e. child's sex and caregivers' mental health). Even when controlling for co-founding variables and interactions they were significantly associated with some of the childhood problem scales. Furthermore, the analysis of the moderating effect of parenting dimensions on each parenting variable effect, provides a more cohesive picture of how parenting is related to childhood outcomes.

7.1. Emotional warmth specificity: unique and differential relationship

Warmth was significantly associated to the eight childhood syndromes studied and to the CBCL-DP, substantiating a *diffuse* association, albeit unique and differential contingent on the specific context of the child. This adds to the evidence that shows parental warmth is a key factor in developing regulation for children (Jones et al., 2008; Mckee, Colletti, et al., 2008), that can affect a wide array of childhood syndromes related to regulation.

Of particular importance is the moderating effect Emotional Warmth has on the other parenting variables. Warmth buffers the effect of Rejection for four CBCL scales: Withdrawn/ Depressed, Social Problems, Thought Problems and Rule Breaking Behavior.

When levels of Emotional Warmth are high, the effect of Rejection is almost half the size for Withdrawn/ Depressed, Social Problems and Rule Breaking Behavior. For Thought Problems, the effect of Rejection becomes non-significant when levels of Emotional Warmth are high. Likewise, Emotional Warmth also moderated the effect of Control for Rule Breaking Behavior. Control attempts were associated with all problem scales, having a positive and significant effect on higher levels of childhood symptomatology. However for Rule Breaking Behavior, when levels of Emotional Warmth were high, the effect of Control on Rule Breaking Behavior was weaker. This shows the importance of considering Emotional Warmth as a key variable to be addressed both in research, clinical practice and prevention programs. Parental warmth can be considered a diffuse and possible universal protective factor it needs to be explicitly incorporated into intervention programs. Programs could train parents in expressing and demonstrating warmth. The explicit demonstration of warmth could aid children in learning to self-regulate (Ullsperger et al., 2016).

Another important result to note, is that SES was not related to childhood problem scales, but it was related to Emotional Warmth. The lower the SES the less Emotional Warmth reported by parents. As Emotional Warmth is a key variable to address in support programs, intervention in populations with low SES will need to place significant importance on levels of Emotional Warmth. The stressors related to lower socio-economic means could indicate less ability to engage in warm parenting practices. There could be an increased need to tackle warmth parenting practices in low SES populations.

The context in which the association between parenting and child outcomes are measured is crucial to understand the unique and differential effects. The results of this study showed that child sex did moderate the effect of Emotional Warmth on different childhood problems. The relationship between Emotional Warmth and

Withdrawn/Depressed, Somatic Complaints, Social Problems and Rule Breaking Behavior was negative both for boys and girls, but it was only statistically significant for girls. The levels of Emotional Warmth did not differ by child sex but the effect of Emotional warmth on some specific childhood outcomes did differ by child sex, thus indicating that there is evidence for a differential susceptibility for parenting styles. For boys Emotional Warmth may not act as a buffer for some types of problems, while for girls Emotional Warmth does for specific syndromes (Withdrawn/Depressed, Somatic Complaints, Social Problems and Rule Breaking Behavior). Although previous results are inconsistent regarding a child's gender or sex as moderators in the association between parenting and children outcomes (Demmer et al., 2018; Kopala-Sibley et al., 2017; Lei et al., 2018; Liu et al., 2018; Pereira et al., 2009) our results do support a possible differential susceptibility for girls. Our results indicate that there is susceptibility depending on the sex of the child, with the impact of parenting being different contingent on it (Barnett & Scaramella, 2013). Girls appear to be more susceptible to the impact of parental emotional warmth. This could be explained by a range of factors from coping processes or even hormonal development (Gruhn et al., 2016). If a differential susceptibility exists contingent on child sex and gender it can also be a result of cultural norms (Barnett & Scaramella, 2013). Few studies have explored this area and further investigation of these mechanisms is needed. A suggestion is to carry out longitudinal studies that simultaneously measure both biological and environmental factors for boys and girls when assessing parenting and outcomes.

Considering caregiver's mental health, anxiety did not moderate the effect of Emotional Warmth but caregiver levels of depression did. Higher depression levels decreased the effect of Emotional Warmth on Somatic Complaints, Social Problems, Thought Problems and Rule Breaking Behavior. Higher levels of emotional Warmth were

associated with lower levels of these CBCL syndromes. However when caregivers presented high levels of depression then the effect was weaker. Consistent with other studies with early school aged children (Kopala-Sibley et al., 2017) caregiver depression sets an important high-risk context. Depression could prevent caregivers from being able to demonstrate warmth, compounding the risk factors in children's development.

7.2. Parental rejection: unique and differential relationship

Rejection appears to be a stable parenting measure. Parents reported on average, low levels of Rejection and the preliminary analysis showed Rejection levels didn't differ by any of the sociodemographic categories. Our findings seem to corroborate previous studies pointing towards a diffuse association between Rejection and childhood outcomes (Pereira et al., 2009; Petersen et al., 2015). Rejection was significantly associated with increments in all childhood syndromes, except to the presence of CBCL-DP; and in line with other studies (Pereira et al., 2009; Petersen et al., 2015) the effect did not change contingent on the type of problem. Parenting that consists of hostile and rejecting attitudes and behaviours is considered to undermine the child's self-esteem, promote helplessness and negative schemas, undermine the ability of children to regulate emotion and increase their sensitivity to anxiety as well as their ability to regulate aggressive responses (McLeod, Weisz, et al., 2007; McLeod, Wood, et al., 2007).

It is important to consider that from the three parenting styles assessed, Rejection, was the only one not significantly associated with the dysregulation profile. The fact that Rejection was not significantly associated with the dysregulation profile needs further exploration. The CBCL-DP consists of attention, aggression and anxiety and in the first regression models without interactions, Rejection, although associated to all problem

scales, had weaker association to anxiety and attention problems than to aggression. It could be possible that Rejection is related more to self-esteem and heightened reactivity which could explain behaviours related to avoidance, breaking rules and aggression, rather than to core processes related to severe dysregulation.

Although regression can be considered to be consistent and diffusely associated with children's problems, the result also showed that it has a differential effect moderated by the child's sex for specific childhood conditions. Although previous literature has not found the child's sex as a moderator of harsh and punitive parenting, the results in this study indicate it may be the case. The child's sex moderated the effect of Rejection on specific syndromes: Attention Problems and Aggressive Behavior. The effect of Rejection on Aggressive Behavior is stronger for boys than girls and the effect of Rejection on Attention Problems is only significant for boys. Hutchison et al. (2016), found different results, higher levels of authoritative parenting were associated with lower levels of executive functions difficulties and no interaction with the child's gender. Our sample indicates boys experiencing higher levels of rejection had higher levels of attention problems, in contrast with the girls where the association was not significant. The discrepancy in results could be the different measures used (i.e. attention behaviours vs more specific executive function measures). Studies need to explore this association, including different populations to see if the results are replicated. Nonetheless the results in this study are robust enough to warrant that in programs that support families of boys with aggressive and attention problems, it is even more pressing to address parental levels of rejection for boys.

Rejection's effect was also moderated by the caregivers' mental health. Caregivers' depressive and anxiety symptoms impact the same childhood syndromes except for Thought Problems (only related to depression) and Aggressive problems (only related to

caregiver's anxiety). The effect of Rejection on Somatic Complaints, Social Problems and Rule Breaking Behavior was stronger when caregivers' depression and anxiety levels were higher. Children having to cope with Rejection as well as parents with anxiety and depression symptoms could find themselves more subjected to stress and inconsistent parenting. It could be that somatic complaints, social problems and rule breaking behaviour is more associated to inconsistent parenting than specifically to parental anxiety or depression.

Parents with depression tend to be withdrawn and have difficulties showing reciprocity. Parents could oscillate between rejecting, punishing, and hard and withdrawn parenting practices; this combination could be extremely harmful for children. Children not knowing what to expect when parents oscillate between those opposing behaviours may develop specific thought related problems. They may have difficulty interpreting social situations, explaining why parental depression and not parental anxiety was associated to Thought Problems.

Parents with anxiety are considered to heighten children's insecurity and anxiety, the combination with Rejection may put children at a higher risk of developing problems. Parent with anxiety may withhold children from certain experiences and also model cognitive schemas about danger in their environment, this in combination with harsh and rejection parental practices would impact children's sense of security, developing coercive and aggressive ways to interact with their environment using aggressive behaviour.

7.3. Parental control attempts: unique and differential relationships

In this study higher levels of Control Attempts were significantly associated with higher levels in all eight childhood syndromes and to the presence of the CBCL-DP,

indicating a diffuse effect. Control is one of the most studied parental variables with some research pointing to specific effects and differential regarding the context (Aunola & Nurmi, 2005; Caron et al., 2006; Pederson et al., 2016) and others to diffuse associations (Mesman & Koot, 2000). The results in this study point toward diffuse effects where higher levels of control contribute to a wide range of negative outcomes.

Bruggen et al. (2008) considered that high levels of parental control enhances child anxiety by three mechanisms. In first place, when parent exhibit high levels of control children perceive it as signal of threat in the environment; in second place it also leads children to perceive they do not have control over the threat; and thirdly high levels of control hinder children's ability to interact and explore their environment and thus they do not develop coping skills. This can be seen in children with parents reporting higher levels of control also having higher levels of Thought Problems, Depressed and Anxious/Withdrawn problems and Somatic Problems. It may be that these mechanisms are also present in problems related to aggression. Perceiving the world as insecure and not feeling control can also lead to aggressive and rule-breaking behaviours.

Child sex did not moderate the relationship between Control and childhood problems. Contrary to the results found by Eun et al. (2018), in our results there was no variation in the level of control by a child's sex. The difference could be explained by the age of the participants. The participants on the study by Eun et al. (2018), where adolescents that completed self-reports, whilst this study used parent-reports for young school-aged children. How children react to control and monitoring used by parents is considered contextually sensitive (Smetana, 2017). For younger children the effect of control on childhood problems may not differ between boys and girls the way it does for adolescents.

Adolescents are in a different developmental stage where the social sphere of influence is extremely important and cultural norms may plan a bigger impact.

Caregiver depression and anxiety levels did moderate the effects of Control. Control Attempts' effect on Aggressive Behavior were stronger when depression levels were higher. Similarly, the effect of Control Attempts on Somatic Complaints, Social Problems, Thought Problems, Rule Breaking Behaviour and Aggressive Behaviour were stronger when anxiety levels were higher for caregivers. Parents' own anxiety may impact the levels of control they exercise (Bruggen et al., 2008). If parents are experiencing high levels of anxiety they may try to avoid any situation they interpret as dangerous for them or their children, therefore they will exercise more control over their children than parents without anxiety.

Control Attempts also interacted with Rejection. The combination of high levels of these two parenting styles increased the size of the effect of Control Attempts on Social Problems, Thought Problems, Attention Problems and Rule Breaking Behavior. The higher levels of both parenting variables increases the effect of Control Attempts.

7.4. Childhood dysregulation profile

Our sample did have a higher prevalence of CBCL-DP than reported in other studies (6% vs 1-5%). However this could be explained by the cut-off score we used of 60 (1 s.d.) instead of 70 for the AAA scales. Overall the results show that Emotional Warmth and Control Attempts showed a significant and unique association to CBCL-DP, even when controlling for interactions and co-variates. There were no interactions between parenting variables, child's sex or caregiver's mental health, indicating that each of the parenting

variables has a direct effect not moderated by the other parenting, sociodemographic or family variables.

Emotional Warmth was inversely related to the presence of CBCL-DP, indicating it can be a possible protective factor important to address in interventions with parents of children with CBCL-DP. Emotional Warmth seems to have a diffuse association among disorders, generally associated with lower levels of disruptive behaviours and clinical symptomatology. Lack of parental warmth is thought to interfere with a child's capacity to modulate and regulate arousal which might result in internalizing or externalizing problems (Mckee, Forehand, et al., 2008; Ullsperger et al., 2016). Our results suggest this same pattern may be present for CBCL-DP and it is especially important as the CBCL-DP phenotype has at its core the dysregulation across cognitive, affective and behavioural areas.

Control attempts also show a specific association to the presence of CBCL-DP. In line with previous research with other psychopathologies in childhood, higher levels of control are associated with the presence of CBCL-DP. Coercive parenting is thought to reduce the child's perceived sense of mastery and perceived personal control leading to less self-efficacy. Coercive parenting can also elicit more disruptive behaviours. For example, when children react with defiance or aggression, parents tend to use more coercive methods such as hostile parenting and harsh discipline, which exacerbate children's disruptive behaviours (i.e. Patterson et al., 1990; Reid & Patterson, 1989). Likewise, children who are socialized to use coercive behaviours in the family also tend to use them outside of the family (Mckee, Colletti, et al., 2008). The results from our sample show that Control attempts is an important variable to consider not only for childhood problem behaviour but also for CBCL-DP. The nature of CBCL-DP may place more demands on parents and elicit

more controlling parenting behaviours, iatrogenically leading to more anxiety and aggression. Supporting families in using more appropriate parenting could provide interventions that are more effective in reducing family stress.

Contrary to our hypothesis, Rejection was not significantly associated with the CBCL-DP. We had expected, as previous studies had found an association with hostile and punitive parenting, Rejection to be associated with the presence of CBCL-DP (Basten et al., 2013; Geeraerts et al., 2015). This could be due to a difference in the age of the children in the different samples, as studies have been done with pre-schoolers and older children, but not with young school-aged children. With children aged 6 to 8 the effect of parenting may have a weaker association. Another possible explanation is that although we can find higher levels of rejection in parents of children with CBCL-DP this is more a result of the functional impairment of the profile and not a risk factor. In our preliminary analyses, we had significantly higher levels of Rejection in the category of present CBCL-DP, however, in the regression analyses Rejection did not predict the presence of CBCL-DP. More studies are needed, to be able to confirm these results.

Evaluating caregivers' mental health, the caregivers' anxiety was associated with the presence of CBCL-DP but the caregivers' depression was not. Although maternal depression has been linked consistently to childhood psychopathology, it may be working through a different mechanism for CBCL-DP or being mediated by other factors. Caregiver anxiety, on the other hand, does seem to play a direct role in CBLC-DP. Maternal anxiety is considered to interfere with children's ability to regulate arousal. With dysregulation at the core of CBCL-DP, caregiver anxiety may be a key mechanism at play. This would be important to address in other studies as parental depression and anxiety may have specific associations to the type of syndrome.

Our results didn't replicate other findings where SES, family structure and maternal depression was associated to the presence of CBCL-DP (Nobile et al., 2016). The only socio-demographic variable that was significant in the regression model was informant and stressful life events. There was a significantly higher number of stressful life events for children with present CBCL-DP vs absent CBCL-DP, although this association was non-significant in the regression model. Stressful life events were associated to the category of present CBCL-DP, however there was no significant effect of higher number of stressful life events on the presence of CBCL-DP. This suggests that, although considering that this study is transversal in nature, in line with other longitudinal research that CBCL-DP places children at risk of more stressful life events contributing to a negative life prognosis.

It is noteworthy also that Informant was the only sociodemographic variable significant in the model. The category of Other Informant consisted of caregiver's who were not the parents of the children and it had a proportionally higher number of DP cases. There was no significant difference in proportion of cases between categories of, mothers vs. fathers vs. mothers+fathers combined. It is important for future research to investigate if living with other family member or carers that are not the children's parents, places children at-risk for CBCL-DP specifically.

7.5. Future directions

The results corroborate the importance of assessing the context in which the relationships between parenting styles and childhood outcomes are studied. Although Emotional Warmth, Rejection and Control Attempts all demonstrated diffuse effect on children syndromes their effect was unique and differential regarding the context in which it was measured. The negative impact of Rejection and Control Attempts on children's

mental health problems seems stronger when caregivers have higher levels of depression while the protective effect of Emotional Warmth is weaker. This means that in populations where children's parents have depression, addressing parenting skills as part of treatment could be a prevention option. Parental anxiety needs to be considered as important as parental depression in its impact on parenting. Although the meta-analysis by Bruggen et al. (2008) did not find maternal anxiety to moderate the relationship between parental and childhood outcomes, the results in this study show that caregiver level of anxiety does moderate the effect of parenting on different childhood outcomes

Likewise, the unique and differential effect of parenting styles depending on a child's sex were seen only for some specific childhood syndromes. This opens the potential for tailoring programs for girls and boys with specific difficulties in community and clinical settings. Furthermore, it underlines the importance of research not only including child sex as a covariate but assessing it as a moderator variable.

Regarding the moderating effect of child sex, there wasn't a difference in the levels of Emotional Warmth, Rejection or Control Attempts contingent on the sex of the child. This was surprising as previous research has found that parental levels of warmth, control and rejection vary according to the child's gender (Demmer et al., 2018; Liu et al., 2018). In the study by Demmer et al. (2018), although boys received lower levels of warmth and higher levels of rejection, gender didn't moderate the relationship between parenting and ADHD symptomatology; that is to say the association between authoritarian parenting (harsh, punitive parenting) and ADHD symptomatology didn't differ by gender. In the study by Liu et al. (2018), there was also a significant difference in the levels of parenting between boys vs. girls. In their study, boys received higher levels of harsh parenting from mothers and fathers than girls. Kopala-Sibley et al. (2017), however didn't find gender

differences in their study regarding childhood depression. The results of this study support Kopala-Sibley et al. (2017) results. The studies by Demmer et al. and Liu et al. were done in inner city African American populations in the United States. It could be the case that cultural and age differences may account for this divergence in results. Gender norms and expectations could account for a differential level and type of parenting practices.

Considering the context of parenting as an intricate aspect of specificity, it will be important for studies to not only address factors related to a potential differential susceptibility, but to also address the concept of *vantage susceptibility*. Vantage susceptibility explains that just as individuals can have specific vulnerability to negative environments, individuals can also be more sensitive to the positive effects of enriched environments. Studying the impact that some environmental variables may have on positive childhood outcomes can provide exciting information for prevention efforts such as socio-emotional learning programs in school settings. Furthermore, understanding what child characteristics will allow for enriched environments to provide a more accelerated impact is an exciting area of research.

Our results show that in our population there was a tendency to report higher levels of Emotional Warmth and lower levels of Rejection. These skewed distributions didn't impact our statistical analyses; however, it needs to be considered for studies in other populations and cultures. Cultural norms and expectations may skew the use of parenting styles in certain contexts, which studies need to measure and assess in studies.

Furthermore, our study did not include any variables that could address the genetic risk factors, especially for CBCL-DP, considering the likelihood of CBCL-DP heritability (Marino et al., 2019; Poustka et al., 2015) and sharing of a familial profile (Biederman et

al., 2013, 2018). Although it was not the focus of this study, including measurement of parents' clinical syndromes, dysregulation profiles and genetic markers could provide more clear answers on risk factors.

7.6. Limitations

This study has some limitations that can be addressed in other studies going forward. The first limitation concerns the measurement of parenting styles. Firstly, we were not able to use mother vs father data for parenting styles. To be able to access a larger population and make the filling of questionnaires more accessible to parents we allowed them to complete them together as a couple or only for one parent to complete it. Having mothers and fathers individually completing the parenting questionnaire would provide more data regarding the specificity of parenting styles. Likewise we did not include children's perception of parenting styles. Studies show that children's and parents' perception may differ. As the age range was between 6 and 8 years old, it was considered the reading ability level would require for an interviewer to be with every child to be able to complete the parenting style questionnaires and that was out of the scope of this research. Future studies should try to use both self and parent reports.

Likewise, another limitation was not evaluating solely mother's vs father's parenting, anxiety or depression. The way the data was collected allowed parents to complete questionnaires jointly or separately, therefore providing the four categories for Informant, using only mother vs only father would have reduced the sample significantly. Future research in this area could strive to collect both mother and father's separate reports.

Furthermore our study did not include any variables that could address the genetic risk-factors, especially considering that CBCL-DP is likely heritable (Marino et al., 2019;

Poustka et al., 2015) and shares a familial profile (Biederman et al., 2013, 2018). Although it was not the focus of this study, including measurement of parents' dysregulation profiles and genetic markers could provide more clear answers on the risk-factors.

As a transactional study the causality of the relationship between parenting and children outcomes cannot be established; using a longitudinal study will provide a more robust understanding of this effect. Longitudinal research into the relationship between parenting and childhood outcomes can measure effect and directionality of variables associated to, not only a differential susceptibility but a vantage one. An example of this is the longitudinal study carried by East et al. (2019) in Chile. Their results indicated that more difficult behavior at 5.5 years of age predicted less nurturing and more punitive parenting at age 10. And less nurturing parenting at age 10 then predicted higher behavioral difficulties in adolescence. It appeared that the stress of parenting a child with overt symptoms appeared to negatively impact mothers' ability to praise and show affection toward their child. Furthermore, mothers' lower nurturing of a child at 10 years was related to more substance use and more frequent deviant behaviors at adolescence, and mothers' higher levels of punitive parenting was related to adolescents' aggression and delinquency. Longitudinal studies can provide data and guide research not only on identification of risk factors but of protective factors that can be addressed in communities and the general population (Smetana, 2017). One of the biggest limitations of this study is that it is transversal in nature. Although parenting variables are associated with the presence of CBCL-DP, longitudinal studies would be able to answer how this relationship develops.

8. Conclusion

In spite of the limitations in our study, our results offer important information to further the understanding of parenting and childhood outcomes. Emotional Warmth, Control Attempts and Rejection are universal parenting dimensions that are associated uniquely to childhood outcomes. Their effect was significant and, beyond the impact of other family and sociodemographic variables, shows similar patterns to other studies across different cultures.

Warmth, rejection and control do have a unique association not based on the childhood problem itself but by how they interact with one another and with other family correlates, like parental anxiety and depression. Furthermore, being a boy or a girl will differentiate the effect parenting will have on problem child outcomes. The level of parenting didn't differ by child sex but the effect parenting dimensions had, was moderated by it. Warmth had stronger significant effects for girls, Rejection had stronger significant effects for boys and Control effects didn't differ by child's sex. These data can guide future interventions to tailor interventions more effectively.

Regarding the CBCL-DP. The relationship between Emotional Warmth and Control Attempts was significant and beyond the impact of other family and sociodemographic variables. Within the other family correlates, only parental anxiety was significantly associated with the presence of the dysregulation profile. As there is little information on differentiating different components of treatment for children with CBCL-DP, family variables associated with CBCL-DP can start providing some insight into treatment for children as well as aiding in efforts of prevention.

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10. Appendix A

Regression models with the Moderating Effect of Parenting Styles

Regression models were created to evaluate if one of the three parenting styles moderated the effect of the other parenting styles on children's outcomes. This appendix consists of the regression models that have a two-term significant interaction between two of the parenting variables. Tables A1 to A9 present the final model that contained a significant two-way interaction between parenting styles.

Table A1
Multiple regression model including Emotional Warmth and Rejection for CBCL Social Problems Scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	41.98	1.45	29.00	.00	39.13	44.82
Warmth	-.11	.03	-3.91	.00	-.17	-.06
Rejection	.33	.06	5.24	.00	.21	.45
WxR*	-.02	.01	-2.91	.00	-.03	-.01
Control	.23	.04	6.42	.00	.16	.29
Caregiver Anx	.31	.12	2.61	.01	.08	.54
Stressful life events	.63	.15	4.12	.00	.33	.94
Caregiver category	.61	.31	1.99	.05	.01	1.21
SES	.78	.27	2.92	.00	.26	1.31

*Interaction term Warmth*Rejection
R^2= .28
F= 32.04, p<.01

Table A2

Multiple regression model including Emotional Warmth and Rejection for CBCL Thought Problems Scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	45.98	1.44	31.92	.00	43.15	48.80
Warmth	-.12	.03	-3.85	.00	-.18	-.06
Rejection	.34	.07	4.96	.00	.20	.47
WxR*	-.03	.01	-4.51	.00	-.04	-.02
Control	.17	.04	4.41	.00	.09	.24
Caregiver Anx	.31	.14	2.27	.02	.04	.58
Caregiver Dep	.70	.28	2.48	.01	.15	1.25
Stressful life events	.62	.17	3.71	.00	.29	.94

*Interaction term Warmth*Rejection

R^2= .25

F= 31.70, p<.01

Table A3

Multiple regression model including Emotional Warmth and Rejection for CBCL Rule Breaking Problems scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	47.83	1.46	32.87	.00	44.97	50.69
Warmth	-.15	.03	-5.23	.00	-.20	-.09
Rejection	.36	.06	5.72	.00	.24	.48
WxR*	-.03	.01	-4.38	.00	-.04	-.01
Control	.18	.04	5.17	.00	.11	.25
Caregivers' Dep	1.10	.25	4.48	.00	.62	1.58
Family Structure	-1.43	.61	-2.35	.02	-2.63	-.23

*Interaction term Warmth*Rejection

R^2= .28

F= 42.63, p<.01

Table A4

Multiple regression model including Emotional Warmth and Rejection interaction for the CBCL Anxious/Depressed scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	45.42	1.74	26.05	.00	41.99	48.84
Warmth	-.11	.04	-3.02	.00	-.18	-.04
Rejection	.36	.08	4.45	.00	.20	.53
WxR	-.02	.01	-2.42	.02	-.03	.00
Caregiver Dep	1.26	.34	3.68	.02	.59	1.93
Caregiver Anx	.49	.16	3.03	.00	.17	.81
Control	.23	.05	4.89	.00	.13	.32

*Interaction term Warmth*Rejection

R^2= .21

F= 30.23, p<.01

Table A5

Multiple regression model including warmth and control interaction for CBCL Rule Breaking Problems scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	45.92	1.43	32.21	.00	43.12	48.72
Warmth	-.16	.03	-5.59	.00	-.21	-.10
Control	.18	.04	5.00	.00	.11	.25
WxC*	-.01	.01	-2.10	.04	.02	.00
Rejection	.43	.06	6.93	.00	.31	.55
Caregivers'Dep	1.03	.25	4.10	.00	.54	1.52
Family Structure	-1.42	.61	-2.31	.02	-2.63	-.22
Child's country of origin	1.43	.64	2.25	.02	.18	2.68

*Interaction term Warmth*Control

R^2= .27

F= 34.60, p<.01

Table A6

Multiple regression model including Rejection and Control Attempts interaction for CBCL Social Problems Scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	56.65	2.09	27.09	.00	52.54	60.75
Rejection	.31	.06	4.91	.00	.18	.44
Control	.21	.04	6.10	.00	.15	.28
RxC*	.03	.01	3.38	.00	.01	.05
Warmth	-.11	.03	-3.83	.00	-.17	-.05
Caregiver Dep	.30	.26	1.14	.26	-.22	.82
Caregiver Anx	.26	.13	2.03	.04	.01	.51
Stressful life events	.52	.16	3.37	.00	.22	.83
SES	.81	.27	3.03	.00	.28	1.34
Caregivers'country of origin	1.45	.64	2.27	.02	.19	2.71

*Interaction term Rejection*Control

R^2= .29

F= 29.41, p<.01

Table A7

Multiple regression model including Rejection and control interaction for CBCL Thought Problems Scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	60.51	1.83	33.02	.00	56.91	64.11
Rejection	.37	.07	5.35	.00	.23	.51
Control	.16	.04	4.17	.00	.08	.24
RxC*	.02	.01	2.15	.03	.00	.04
Warmth	-.14	.03	-4.52	.00	-.20	-.08
Caregiver Anx	.71	.29	2.50	.01	.15	1.28
Caregiver Dep	.30	.14	2.18	.03	.03	.58
Stressful life events	.56	.17	3.31	.00	.23	.89

*Interaction term Rejection*Control

R^2= .23

F= 28.80, p<.01

Table A8

Multiple regression model including Rejection and control interaction for CBCL Attention Problems scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	64.38	2.18	29.58	.00	60.11	68.65
Rejection	.27	.08	3.38	.00	.11	.42
Control	.28	.04	6.53	.00	.19	.36
RxC*	.02	.01	2.15	.03	.00	.05
Warmth	-.19	.03	-5.51	.00	-.25	-.12
Informant	.79	.37	2.11	.04	.06	1.52

*Interaction term Rejection*Control

R^2= .18

F= 28.78, p<.01

Table A9

Multiple regression model including Rejection and control interaction for CBCL Rule Breaking Problems scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	62.15	2.01	30.92	.00	58.20	66.09
Rejection	.39	.06	6.05	.00	.26	.51
Control	.17	.04	4.80	.00	.10	.24
RxC*	.03	.01	2.80	.01	.01	.04
Warmth	-.15	.03	-5.43	.00	-.21	-.10
Caregivers' Dep	.00	.25	3.96	.00	.50	1.49
Family Structure	-1.35	.61	-2.20	.03	-2.55	-.14
Child's country of origin	1.45	.63	2.28	.02	.20	2.69

*Interaction term Rejection*Control

R^2= .27

F= 35.26, p<.01

11. Appendix B

Regression Models with the Moderating Effect of Child's Sex

This appendix consists of the regression models assessing the moderating role of the sex of the child in the relationship between parenting styles and children's outcomes. Tables B1 to B6 present the final regression model that contained a significant two-way interaction between child's sex and Emotional Warmth, Rejection and Control Attempts.

Table B1
Multiple regression model including Child's Sex and Emotional Warmth interaction for CBCL Withdrawn/ Depressed problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	45.59	2.96	15.40	.00	39.78	51.40
Warmth	-.18	.04	-4.88	.00	-.25	-.10
Child Sex	-.67	.42	-1.58	.11	-1.50	.16
Interaction term[1]	-.17	.07	-2.50	.01	-.30	-.04
Rejection	.23	.08	2.99	.00	.08	.38
Control	.21	.04	4.66	.00	.12	.29
Caregiver Depressive symptoms	.83	.31	2.70	.01	.23	1.44
Child's Age	-.68	.32	-2.15	.03	-1.30	-.06
Caregivers' Country of Origin	1.90	.64	2.97	.00	.64	3.17

[1] Interaction term between child's sex*Emotional Warmth
R^2= .18
F= 18.14, p<.01

Table B2

Multiple regression model including Child's Sex and Emotional Warmth interaction for CBCL Somatic Complaints

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	41.12	1.76	23.34	.00	37.66	44.58
Warmth	-.04	-.05	-.74	.46	-.13	.06
Child Sex	.96	.42	2.27	.02	.13	1.79
Interaction term[1]	-.16	.07	-2.48	.01	-.29	-.03
Rejection	.44	.08	5.84	.00	.29	.59
Control	.14	.33	2.43	.02	.15	1.44
Caregivers Anxiety Symptoms	.80	.33	2.43	.02	.15	1.44
Caregivers' Country of Origin	.65	.16	4.08	.00	.34	.97
Stressful life events	.41	.19	2.10	.04	.03	.78

[1] Interaction term between child's sex*Emotional Warmth

R^2= .21

F= 22.82, p<.01

Table B3

Multiple regression model including Child's Sex and Emotional Warmth interaction for CBCL Social Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	53.83	1.54	23.21	.00	32.80	38.86
Warmth	-.05	.04	-1.31	.10	-.13	.03
Child Sex	.04	.34	.13	.90	-.62	.70
Interaction term[1]	-.14	.05	2.70	.01	-.25	-.04
Rejection	.38	.06	6.22	.00	.26	.50
Control	.22	.04	6.15	.00	.15	.29
Caregivers Anxiety Symptoms	.30	.12	2.49	.01	.06	.53
Stressful Life Events	.61	.15	3.94	.00	.30	.91
Informant	.59	.31	1.93	.05	.-01	1.19
SES	.80	.27	2.97	.00	.27	1.11

[1] Interaction term between child's sex*Emotional Warmth

R^2= .28

F= 28.26, p<.01

Table B4

Multiple regression model including Child's Sex and Emotional Warmth interaction for CBCL Rule Breaking Behaviors

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	40.99	1.52	26.95	.00	38.00	43.98
Warmth	-.07	.04	-1.85	.07	-.15	.00
Child Sex	.05	.34	.15	.88	-.61	.72
Interaction term[1]	-.18	.05	-3.36	.00	-.28	-.07
Rejection	.43	.06	7.06	.00	.31	.55
Control	.17	.04	4.73	.00	.10	.24
Caregivers Drepssive Symptoms	1.13	.25	4.56	.00	.64	1.61
Family Stucture	-1.45	.61	-2.36	.02	-2.65	-.25

[1] Interaction term between child's sex*Emotional Warmth

R^2= .27

F= 34.98, p<.01

Table B5

Multiple regression model including Child's Sex and Rejection interaction for CBCL Attention Problems scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	53.42	2.45	21.77	.00	48.60	58.24
Rejection	.51	.10	5.27	.00	.3	.71
Child Sex	.26	.42	.62	.53	-.56	1.07
Interaction term[1]	-.41	.14	-3.03	.00	-.68	-.14
Warmth	-.18	.03	-5.46	.00	-.25	-.12
Control	.27	.04	6.45	.00	.19	.36
Stressful Life Events	.40	.18	2.18	.03	.04	.76
Informant	.86	.37	2.30	.02	.13	1.59

[1] Interaction term between child's sex*Rejection

R^2= .19

F= 22.15, p<.01

Table B6

Multiple regression model including Child's Sex and Rejection interaction for CBCL Aggressive Behaviors scale

					95% CI	
	Coeff	SE	t	p	LL	UL
Constant	50.88	2.39	21.30	.00	46.19	55.57
Rejection	.68	.10	7.14	.00	.49	.87
Child Sex	-.79	.41	-1.94	.05	-1.58	.01
Interaction term[1]	-.31	.13	-2.34	.02	-.57	-.05
Warmth	-.15	.03	-4.40	.00	-.21	-.08
Control	.29	.04	6.77	.00	.20	.37
Caregivers Depressive symptoms	.78	.31	2.47	.01	.16	1.39
Caregivers Anxiety symptoms	.53	.15	3.53	.00	.23	.82
Informant	1.10	.36	2.04	.00	.39	1.82

[1] Interaction term between child's sex*Rejection

R^2= .30

F= 36.49, p<.01

12. Appendix C

Regression Models with the Moderating Effect of Caregivers' Depression

This appendix contains the final regression models evaluating the role of caregivers' depression in the association between parenting styles and children's outcomes. Each table (Tables C1 to C9) presents the regression model that had a significant interaction term between caregivers' depression and a parenting dimension. The models for the significant interactions between Emotional Warmth and Caregivers' depression levels are presents in tables C1 to C4. The models for Rejection and Caregivers' depression levels are presented in in tables C5 to C8. The model for the interaction between Control Attempts and depression levels is presented in Table C9.

Table C1
Multiple regression model including Caregiver Depressive Symptoms and Emotional Warmth interaction for CBCL Somatic Complaints

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	40.99	1.76	23.27	.00	37.54	44.45
Warmth	-.10	.04	-2.83	.00	-.17	-.03
Caregiver Depressive symptoms	.33	.36	.93	.53	-.37	1.04
Interaction term[1]	-.14	.04	-3.24	.00	-.23	-.06
Rejection	.43	.08	5.72	.00	.29	.58
Control	.15	.04	3.29	.00	.06	.23
Caregivers Anxiety Symptoms	.69	.16	4.32	.00	.38	1.00
Stressful life event	.45	.19	2.36	.02	.08	.83
Child Sex	.89	.42	2.10	.04	.06	1.72

[1] Interaction term between caregiver depressive symptoms*Emotional Warmth
R^2= .22
F= 23.51, p<.01

Table C2

Multiple regression model including Caregiver Depressive Symptoms and Emotional Warmth interaction for CBCL Social Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	36.94	1.47	25.21	.00	34.06	39.82
Warmth	-.11	.03	-3.68	.00	-.16	-.05
Caregiver Depressive symptoms	.39	.27	1.43	.15	-.15	.93
Interaction term[1]	-.08	.03	-2.21	.03	-.15	-.01
Rejection	.37	.06	6.02	.00	.25	.49
Control	.23	.04	6.37	.00	.16	.29
Stressful life event	.70	.15	4.62	.00	.40	1.00
SES	.82	.27	3.05	.00	.29	1.35

[1] Interaction term between caregiver depressive symptoms*Emotional Warmth

R^2= .27

F= 35.17, p<.01

Table C3

Multiple regression model including Caregiver Depressive Symptoms and Emotional Warmth interaction for CBCL Thought Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	39.26	1.51	26.03	.00	36.30	42.22
Warmth	-.12	.03	-4.00	.00	-.18	-.06
Caregiver Depressive symptoms	.46	.31	1.49	.14	-.15	1.08
Interaction term[1]	-.09	.04	-2.49	.01	-.17	-.02
Rejection	.41	.07	6.19	.00	.28	.54
Control	.16	.04	4.22	.00	.09	.24
Caregivers Anxiety Symptoms	.31	.14	2.25	.02	.04	.59
Stressful life events	.61	.17	3.63	3.63	.28	.94

[1] Interaction term between caregiver depressive symptoms*Emotional Warmth

R^2= .23

F= 29.09, p<.01

Table C4

Multiple regression model including Caregiver Depressive Symptoms and Emotional Warmth interaction for CBCL Rule Breaking Behaviors

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	40.81	1.50	27.24	.00	37.87	43.76
Warmth	-.14	.03	-5.12	.00	-.20	-.09
Caregiver Depressive symptoms	.70	.27	2.56	.01	.16	1.23
Interaction term[1]	-.14	.03	-3.94	.00	-.21	-.07
Rejection	.42	.06	6.98	.00	.31	.54
Control	.18	.04	4.98	.00	.11	.25
Family Structure	-1.36	.61	-2.22	.03	-2.56	-.16

[1] Interaction term between caregiver depressive symptoms*Emotional Warmth

R^2= .27

F= 41.81, p<.01

Table C5

Multiple regression model including Caregiver Depressive Symptoms and Rejection interaction for CBCL Somatic Complaints

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	55.51	2.42	22.98	.00	50.77	60.25
Rejection	.40	.08	5.12	.00	.24	.55
Caregiver Depressive symptoms	.40	.45	1.15	.25	-.28	1.08
Interaction term[1]	.23	.07	3.36	.00	.10	.36
Warmth	-.12	.03	-3.43	.00	-.19	-.05
Control	.15	.04	3.36	.00	.06	.24
Caregiver Anxiety symptoms	.64	.16	3.98	.00	.32	.95
Stressful life events	.41	.19	2.16	.03	.04	.79
Child sex	.98	.42	2.33	.02	16	1.81

[1] Interaction term between caregiver depressive symptoms*Rejection

R^2= .22

F= 23.64, p<.01

Table C6

Multiple regression model including Caregiver Depressive Symptoms and Rejection interaction for CBCL Social Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	50.10	2.09	23.98	.00	46.00	54.21
Rejection	.34	.06	5.52	.00	.22	.46
Caregiver Depressive symptoms	.34	.27	1.28	.20	-.18	.87
Interaction term[1]	.15	.05	2.80	.01	.05	.26
Warmth	-.12	.03	-4.03	.00	-.17	-.06
Control	.22	.04	6.37	.00	.16	.29
Stressful life events	.60	.15	4.41	.00	.37	.96
SES	.90	.27	3.33	.00	.37	1.42

[1] Interaction term between caregiver depressive symptoms*Rejection

R^2= .27

F= 35.74, p<.01

Table C7

Multiple regression model including Caregiver Depressive Symptoms and Rejection interaction for CBCL Thought Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	54.31	2.08	26.11	.00	50.22	58.39
Rejection	.37	.07	5.52	.00	.24	.50
Caregiver Depressive symptoms	.40	.30	1.31	.19	-.20	.99
Interaction term[1]	.22	.06	3.66	.00	.10	.33
Warmth	-.13	.03	-4.49	.00	-.19	-.08
Control	.17	.04	4.32	.00	.09	.24
Caregiver Anxiety symptoms	.27	.14	1.95	.05	.00	.54
Stressful life events	.58	.17	3.49	.00	.25	.91

[1] Interaction term between caregiver depressive symptoms*Rejection

R^2= .27

F= 35.74, p<.01

Table C8

Multiple regression model including Caregiver Depressive Symptoms and Rejection interaction for CBCL Rule Breaking Behaviors

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	55.94	2.22	25.22	.00	51.58	60.29
Rejection	.41	.06	6.66	.00	.29	.54
Caregiver Depressive symptoms	.84	.27	3.10	.00	.31	1.38
Interaction term[1]	.12	.06	2.22	.03	.01	.23
Warmth	-.15	.03	-5.37	.00	-.21	-.10
Control	.17	.04	4.86	.00	.10	.24
Family structure	-1.43	.61	-2.33	.02	-2.64	-.23
Parents country of origin	1.38	.64	2.17	.03	.13	2.63

[1] Interaction term between caregiver depressive symptoms*Rejection

R^2= .27

F= 34.70, p<.01

Table C9

Multiple regression model including Caregiver Depressive Symptoms and Control interaction for CBCL Aggressive Behaviors

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	55.47	3.02	18.34	.00	49.53	61.41
Control	.30	.04	6.93	.00	.21	.38
Caregiver Depressive symptoms	-.24	.43	-.56	.58	-1.07	.60
Interaction term[1]	.18	.05	3.76	.00	.08	.27
Warmth	-.17	.03	-4.94	.00	-.24	-.10
Caregiver Anxiety symptoms	.52	.07	7.17	.00	.38	.66
Rejection	.51	.15	3.41	.00	.22	.80
Child Sex	-.79	.40	-1.96	.05	-1.58	.00
Informant	1.14	.36	3.15	.00	.43	1.84
Parents country of origin	-1.19	.61	-1.95	.05	-2.40	.01

[1] Interaction term between caregiver depressive symptoms*Rejection

R^2= .32

F= 34.20, p<.01

13. Appendix D

Regression Models with the Moderating Effect of Caregivers' Anxiety

This appendix contains the tables showing the final regression models evaluating the moderating role of caregivers' anxiety in the association between parenting styles and children's outcomes. Each table (Tables D1 to D9) presents the regression model that had a significant interaction term between caregivers' depression and one of the parenting dimension. The models for the significant interactions between Rejection and Caregivers' depression levels are presents in tables D1 to D4. The models for Control Attempts and Caregivers' anxiety levels are presented in in tables D5 to D9. Emotional Warmth and caregivers' anxiety levels did not had a significant interaction in the models.

Table D1
Multiple regression model including Caregiver Anxiety Symptoms and Rejection interaction for CBCL Somatic Complaints

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	56.42	2.42	23.32	.00	51.67	61.17
Rejection	.41	.08	5.36	.00	.26	.56
Caregiver Anxiety	.73	.15	4.80	.00	.43	1.02
Interaction term[1]	.13	.04	3.23	.00	.05	.20
Warmth	-.13	.03	-3.85	.00	-.20	-.07
Control	.16	.04	3.64	.00	.07	.25
Stressful life events	.42	.19	2.19	.02	.04	.80
Child sex	.96	.42	2.27	/02	.13	1.79

[1] Interaction term between caregiver anxiety*Rejection
R^2= .21
F= 25.68, p<.01

Table D2

Multiple regression model including Caregiver Anxiety and Rejection interaction for CBCL Social Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	49.63	2.13	23.29	.00	45.45	53.82
Rejection	.36	.06	5.81	.00	.24	.48
Caregiver Anxiety	.26	.12	2.17	.03	.02	.50
Interaction term[1]	.07	.03	2.37	.02	.01	.14
Warmth	-.12	.03	-4.36	.00	-.18	-.07
Control	.22	.04	6.33	.00	.15	.29
Stressful life events	.62	.15	4.05	.00	.32	.93
Informant	.61	.31	1.99	.05	.01	1.21
SES_R	.82	.27	3.06	.00	.29	1.35

[1] Interaction term between caregiver anxiety*Rejection

R^2= .27

F= 31.56, p<.01

Table D3

Multiple regression model including Caregiver Anxiety and Rejection interaction for CBCL Rule Breaking Behavior

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	55.85	2.21	25.22	.00	51.50	60.20
Rejection	.42	.06	6.75	.00	.30	.54
Caregiver Anxiety	.16	.13	1.25	.21	-.09	.40
Interaction term[1]	.08	.03	2.32	.02	.01	.14
Warmth	-.15	.03	-5.41	.00	-.21	-.10
Control	.17	.04	4.77	.00	.10	.24
Caregiver Depression	.80	.27	2.92	.00	.26	1.34
Family Structure	-1.37	.62	-2.22	.03	-2.58	-.16
Child country of origin	1.45	.64	2.27	.02	.20	2.69

[1] Interaction term between caregiver anxiety*Rejection

R^2= .27

F= 30.73, p<.01

Table D4

Multiple regression model including Caregiver Anxiety and Rejection interaction for CBCL Agressive Behavior

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	51.07	2.38	21.47	.00	46.40	55.74
Rejection	.51	-.07	6.86	.00	.36	.65
Caregiver Anxiety	.60	.14	4.24	.00	.32	.88
Interaction term[1]	.12	.04	3.30	.00	.05	.20
Warmth	-.15	.03	-4.69	.00	-.22	-.09
Control	.31	.04	7.28	.00	.22	.39
Child Sex	-.77	.41	-1.90	.06	-1.56	.03
Informant	1.12	.36	3.10	.00	.41	1.84

[1] Interaction term between caregiver anxiety*Rejection

R^2= .27

F= 30.73, p<.01

Table D5

Multiple regression model including Caregiver Anxiety and Control interaction for CBCL Somatic Complaints

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	59.70	2.73	20.01	.00	49.34	60.07
Control	.15	.04	3.48	.00	.07	.24
Caregiver Anxiety	.66	.16	4.15	.00	.35	.97
Interaction term[1]	.07	.03	2.88	.00	.02	.12
Warmth	-.13	.03	-3.87	.00	-.20	-.07
Rejection	.45	.08	5.97	.00	.30	.60
Stressful life events	.43	.19	2.23	.03	.05	.81
Child sex	.94	.42	2.21	.03	.10	1.77

[1] Interaction term between caregiver anxiety*control

R^2= .22

F= 23.64, p<.01

Table D6

Multiple regression model including Caregiver Anxiety and Control interaction for CBCL Social Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	51.47	2.48	20.75	.00	46.60	56.34
Control	.22	.04	6.31	.00	.15	.29
Caregiver Anxiety	.18	.12	1.47	.14	-.06	.43
Interaction term[1]	.06	.02	3.12	.00	.02	.10
Warmth	-.12	.03	-4.40	.00	-.18	-.07
Rejection	.37	.06	6.13	.00	.25	.49
Stressful life events	.63	.15	4.09	.00	.33	.93
Informant	.65	.31	2.14	.03	.05	1.25
SES	.84	.27	3.15	.00	.32	1.37

[1] Interaction term between caregiver anxiety*control

R^2= .28

F= 32.26, p<.01

Table D7

Multiple regression model including Caregiver Anxiety and Control interaction for CBCL Thought Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	54.22	2.37	22.89	.00	49.57	58.87
Control	.17	.04	4.56	.00	.10	.25
Caregiver Anxiety	.31	.14	2.29	.02	.04	.58
Interaction term[1]	.06	.02	2.60	.01	.01	.10
Warmth	-.15	.03	-4.92	.00	-.21	-.09
Rejection	.42	.07	6.33	.00	.29	.55
Stressful life events	.60	.17	3.55	.00	.27	.93

[1] Interaction term between caregiver anxiety*control

R^2= .23

F= 32.61, p<.01

Table D8

Multiple regression model including Caregiver Anxiety and Control interaction for CBCL Rule Breaking Behavior Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	59.94	2.94	22.10	.00	50.06	59.82
Control	.17	.04	4.79	.00	.10	.24
Caregiver Anxiety	.12	.13	.93	.35	-.13	.37
Interaction term[1]	.05	.02	2.29	.02	.01	.10
Warmth	-.15	.03	-5.47	.00	-.21	-.10
Rejection	.43	.06	7.09	.00	.31	.55
Caregiver Depressive symptoms	.72	.29	2.50	.01	.15	1.28
Family structure	-1.46	.62	-2.36	.02	-2.67	-.24
Child country of origin	1.47	.54	2.31	.02	.22	2.72

[1] Interaction term between caregiver anxiety*control

R^2= .27

F= 30.70, p<.01

Table D9

Multiple regression model including Caregiver Anxiety and Control interaction for CBCL Agressive Behavior Problems

					95% CI	
	Coeff	SE	T	p	LL	UL
Constant	53.41	2.70	19.75	.00	48.10	58.72
Control	.30	.04	7.14	.00	.22	.38
Caregiver Anxiety	.45	.15	3.11	.00	.17	.74
Interaction term[1]	.11	.02	4.65	.00	.06	.16
Warmth	-.16	.03	-4.80	.00	-.22	-.09
Rejection	.54	.07	7.41	.00	.39	.68
Child Sex	-.80	.40	-1.99	.05	-1.59	-.01
Informant	1.14	.36	3.17	.00	.44	1.85

[1] Interaction term between caregiver anxiety*control

R^2= .31

F= 43.90, p<.01