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Getting to the heart of child maltreatment : a multidimensional investigation using an extended family design

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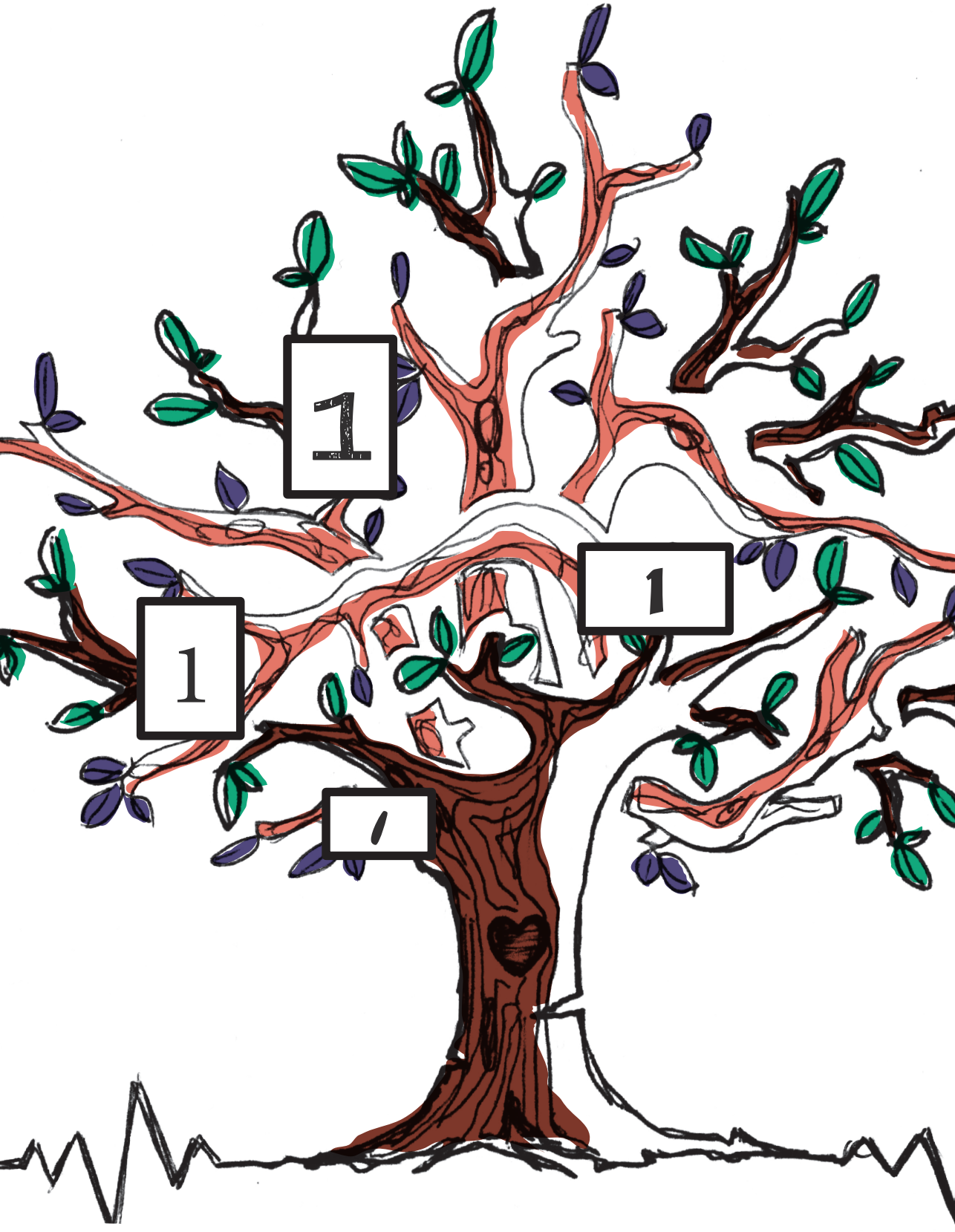
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Chapter 1

General introduction

General introduction

Maltreatment of children by their parents or other caregivers is a global phenomenon, touching the lives of millions of children (Stoltenborgh, Bakermans-Kranenburg, Alink, & Van IJzendoorn, 2015). Child maltreatment encompasses all forms of physical and/or emotional abuse, sexual abuse or neglect, resulting in actual or potential harm to the child's health, survival or development (WHO, 1999). In the Netherlands, between 90,000 and 127,000 children were estimated to have experienced at least one type of child maltreatment in 2017, some 3% of all children aged 0-17 (Alink et al., 2018).

Child maltreatment has detrimental consequences, short- and long-term, on a range of levels of functioning, including mental health functioning, stress and emotion dysregulation, and parenting of one's own children (Norman, Byambaa, Butchart, Scott, & Vos, 2012; Pears & Capaldi, 2001). Risk factors for child maltreatment have been identified at the level of the parent, child, and family, including parents' level of stress, child externalizing problems and family cohesion (Stith et al., 2009). However, precisely the involvement of processes on different levels (e.g., biology, behavior, the family environment) complicates understanding the etiology and sequelae of child maltreatment. The current dissertation, therefore, is comprised of a multidimensional multi-method investigation of child maltreatment using an extended family design. A better understanding of the processes on different levels that play a role in child maltreatment may yield innovative methods for prevention and intervention.

Methodological challenges in child maltreatment research

Research addressing the scope, antecedents and consequences of child maltreatment is useful to the extent that it is based on sound methodology. However, reliable measurement of the frequency and severity of child maltreatment is not straightforward due to ethical and legal difficulties (Mash & Wolfe, 1991). In addition, maltreatment might be ambiguous and often occurs behind closed doors (Smith, Ireland, Thornberry, & Elwyn, 2008). Hence, different methods and research designs can be considered.

Measurement

Studies about child maltreatment generally have used two approaches to measure child maltreatment. The first approach involves the use of reports from professionals working with children (i.e., sentinels), such as Child Protective Services (CPS) records. The use of sentinel-reports has the advantage of relying on observations of professionals in the field rather than relying on self- or family-report, thereby obtaining a more "objective" rating of a sensitive issue. A disadvantage of this approach, however, is that a large portion of maltreatment goes unnoticed by professionals and only the most severe cases are usually substantiated by CPS (Smith et al., 2008). Sentinel-reports are, therefore, generally assumed to capture only the top of the proverbial iceberg.

The second approach involves the use of parental or child self-report of child maltreatment, usually based on retrospective recollection of events. Parental and child self-report of child maltreatment are more likely to capture the whole range of maltreatment experiences. However, self-reports may be biased due to distorted memories (Edwards et al., 2001), cognitive appraisals of the experience (Smith et al., 2008), social stigma (Knight, Runyan, Dubowitz, Brandford, & Kotch, 2000), and loyalty of children towards their parents (Della Femina, Yeager, & Lewis, 1990). Estimates of child maltreatment prevalence depend heavily on the measurement approach being used, with rates of sentinel-reports being a fraction of self-reported rates (Euser et al., 2013; Stoltenborgh, Bakermans-Kranenburg, Alink, & van IJzendoorn, 2012).

Individual bias and error that go hand in hand with the use of single source approaches can be alleviated by applying a multisource approach to assessing child maltreatment (Kraemer et al., 2003). The implications of such an approach are discussed in Chapter 2, where we use a factor-analytic approach to combine the perspectives of father, mother and child on child maltreatment. In doing so, we aimed to establish components reflecting the convergent as well as the unique (discordant) reports of father, mother, and child on the occurrence of maltreatment. In the other studies (Chapter 3-5) of this dissertation, parent and child reports of maltreatment were combined – when feasible – to minimize the influence of individual reporter bias.

Maltreatment as a heterogeneous phenomenon

Along with the heterogeneity in sources used to identify child maltreatment, maltreatment itself is a heterogeneous phenomenon. Maltreatment encompasses both abuse and neglect. Child neglect implies an act of *omission* and is related to the failure to meet the child's physical (i.e., food, shelter) and emotional needs (i.e., attention, affection), whereas child abuse implies acts of *commission* which can be emotional (i.e., threatening, humiliating) or physical (i.e., burning, kicking). Abuse is therefore more easily traced back to specific incidents, whereas the absence of care or responsiveness that defines neglect may be harder to assess (Compier-de Block et al., 2016). Empirical findings indicate that abuse and neglect often co-occur (Alink et al., 2018; Herrenkohl & Herrenkohl, 2009). Because multiple forms of maltreatment in the same family are common, understanding the unique effects of abuse and neglect has proven to be difficult in research to date, and conclusions concerning abuse or neglect are frequently confounded by the other type of maltreatment. Therefore, in all studies in this dissertation (Chapters 2-5) it was examined whether abuse and neglect were uniquely associated with the variable of interest.

Research designs used to study child maltreatment

All four basic study designs – cross-sectional, retrospective cohort, case-control and prospective cohort studies – have been used in child maltreatment research. Most research

in child maltreatment involves naturalistic correlational field research that does not permit to experimentally manipulate the variables of interest and to randomly assign subjects to conditions. Although prospective designs are considered to be more rigorous with less biased sample selection and better measurement of the natural history of a phenomenon (Sedgwick, 2013), much of what we know about the long-term effects of childhood maltreatment comes from retrospective studies (Norman et al., 2012). Retrospective studies are less expensive and more time-efficient than prospective studies (Sedgwick, 2013). In addition, in the most ethical way, studying maltreatment prospectively will require intervention, which will influence the outcome of interest. The current dissertation comprises a multigenerational family study with a retrospective design. Although this design did not allow to study child maltreatment longitudinally, it enabled us to examine the effects of maltreatment across three generations and over the course of decades of development.

Intergenerational transmission of child maltreatment

Although child maltreatment is multiply determined (e.g., Stith et al., 2009), parents' own history of child maltreatment is widely discussed as a key risk factor for maltreatment of one's own children. Recent meta-analytical evidence indeed demonstrates that child maltreatment is transmitted across generations (Madigan et al., 2019). Nevertheless, estimates of intergenerational transmission of child maltreatment (ITCM) vary widely between studies likely due to sampling strategy, variations in design (e.g., retrospective vs. prospective), source of maltreatment reports (e.g., official records vs. parent or child reports) and type of maltreatment under investigation (e.g., abuse vs. neglect). In Chapter 2, we address one methodological aspect of ITCM which has not received much attention: the use of single-informant vs. multi-informant approaches. The aim of this study was to empirically test ITCM using multiple sources of information, i.e., mothers, fathers and children. In addition, we compared this multi-informant approach to two common approaches: ITCM using the perspective of one reporter and ITCM using the perspectives of different reporters from each generation.

Mechanisms of ITCM

Even when rates of ITCM can be more rigorously estimated, what is arguably most important are the mechanisms involved in ITCM (Alink, Cyr, & Madigan, 2019; Egeland et al., 2002). Better understanding of such mechanisms can inform interventions designed to break the cycle of abuse and neglect. One mechanism that might play a role in ITCM is the ability to process social information effectively. Dykas and Cassidy (2011) propose that individuals process social information in accordance with their attachment- related experiences. Secure individuals draw on their positive attachment-related experiences and process social information in a positively biased manner, whereas insecure individuals process attachment-relevant social information in a negatively biased manner. Indeed, empirical

findings reveal that parents who received harsh parenting and emotional rejection during their childhood make more negative attitudes about their child's behavior (Daggett, O'Brien, Zanolli, & Peyton, 2000; Leerkes & Siepak, 2006). Negative and hostile interpretations of child signals, in turn, have been associated with maltreating behavior of parents towards their children (Bauer & Twentyman, 1985; Crouch, Skowronski, Milner, & Harris, 2008).

In addition to cognitive-affective processes, the ability to regulate behavior has been examined in relation to experienced and perpetrated maltreatment. For example, a handgrip dynamometer has been used to assess the use of excessive force in pseudo-parenting contexts. One study found that maltreating mothers used excessive force more often while listening to infant cry and laughter sounds than non-maltreating mothers (Compier-de Block et al., 2015), indicating that an inability to modulate behavioral responses to infant emotional signals puts parents at risk for maltreating their children. Although the use of excessive force has not yet been investigated as a function of parents' childhood maltreatment history, it has been shown that adults with insecure attachment representations used more excessive force when listening to infant crying than individuals with secure representations (Riem, Bakermans-Kranenburg, van IJzendoorn, Out, & Rombouts, 2012). This suggests that negative attachment experiences pose a risk factor for the modulation of handgrip force. We examine this proposition in Chapter 3, were we investigate the associations between parents' experiences of childhood maltreatment and their handgrip force when exposed to infant cry and laughter sounds.

Evidence so far of the role of parents' childhood maltreatment history in their behavioral responses comes from studies observing real-time parent-infant interactions. Findings of a systematic review of observational studies on childhood abuse history and mother-infant interactions, revealed that childhood abuse experiences were associated with maternal hostile, intrusive, and inconsistent behavior towards infants (Vaillancourt, Pawlby, & Fearon, 2017). Similar conclusions have been reached in studies including parent-offspring interactions with offspring during later developmental stages (toddlerhood and middle childhood, e.g., Bailey et al., 2007) but studies with offspring beyond middle childhood are – to our knowledge – lacking. With regard to perpetrated child maltreatment, observational studies found that maltreating parents showed more aversive and less positive behavior than non-maltreating parents during interactions with their children (Wilson et al., 2008), indicative of behavioral regulation problems in maltreating parents. Yet, again, studies including parent-offspring interactions with offspring beyond middle-childhood are scarce or even lacking. In Chapters 4 and 5 we, therefore, examined the associations between maltreatment (experienced and perpetrated) and parent-offspring interactions with offspring across a wide developmental age range.

On a psychophysiological level, dysregulation of the autonomic nervous system (ANS) has been posited as a mechanism of ITCM. A history of child maltreatment may cause lasting disruptions of the ANS, which in turn may serve as a risk factor for maltreating one's own

offspring. When it comes to responding to infant crying, parents from the general population have been found to respond with increased ANS activity (e.g., Del Vecchio, Walter, & O'leary, 2009). This response is functional because ANS activation facilitates a behavioral caregiving response by mobilizing the body. However, it has been hypothesized that when the ANS response is too strong, i.e., *hyper*-reactivity, or too weak or even absent, i.e., *hypo*-reactivity, it may lead to abusive and neglectful caregiving, respectively (Reijman et al., 2014). A review concluded that autonomic reactivity is, indeed, a risk factor for child (physical) malreatment (McCanne & Hagstrom, 1996). Because only a few samples included neglectful parents, subgroups might have been too small to detect differential autonomic reactivity patterns in abusive and neglectful parents. A recent meta-analysis, however, found no differences between maltreating/at risk and non-maltreating/low risk parents in terms of autonomic *reactivity*, but (risk for) child maltreatment was found to be associated with higher baseline autonomic *activity*, indicative of chronic cardiovascular *hyper-* arousal (Reijman et al., 2016). Contrary to ANS reactivity to stressful stimuli, chronic ANS activation may more generally represent the capacity to regulate emotions (Appelhans & Luecken, 2006).

To date, only two studies have examined parents' childhood maltreatment experiences in relation to their ANS reactivity to child emotional signals (Casanova et al., 1994; Reijman et al., 2014). Both studies found differential ANS reactivity to infant emotional signals depending on childhood maltreatment history. Yet, empirical research on the link between parents' childhood maltreatment history and their ANS reactivity in the context of real-time parent-offspring interactions with offspring beyond infancy is lacking. This represents a research gap, because measuring ANS activity during real-time parent-offspring interactions may provide insight into the mechanisms underlying the effects of childhood maltreatment experiences on parenting behavior. In Chapter 4 we address this gap by exploring whether the association between parents' childhood maltreatment experiences and their parental behavior is mediated by their autonomic reactivity.

Finally, besides processes on the individual level, processes on the family level may play a role in ITCM. The majority of research on child maltreatment is guided by the idea that maltreatment stems from individual pathology (Stith et al., 2009). Nonetheless, child maltreatment occurs in a family context, hence, family-level factors should also be taken into account. Belsky's ecological framework (1980) conceptualizes child maltreatment as multiply determined by factors at the level of the parent (ontogenic development), the family (the microsystem), the community (the exosystem), and the cultural environment (the macrosystem) in which the individual and the family are embedded. The interactions of factors within and across ecological systems determine whether child maltreatment occurs. Family conflict and low family cohesion have been shown to be risk factors for child maltreatment (Stith et al., 2009), and therefore may also play a role in ITCM. In Chapter 5 of the current dissertation, family cohesion was observed to examine the role of the family system in child maltreatment.

In conclusion, several mechanism of ITCM have been proposed and examined in relation to either experienced or perpetrated maltreatment. Nonetheless, few studies have examined mechanisms at multiple levels of functioning at the same time, limiting our understanding of how these mechanisms are interrelated. Moreover, both abuse and neglect have been shown to compromise adaptive development, but up to now it remains unclear whether abuse and neglect differentially affect behavioral and biological systems (Gunnar & Quevedo, 2007). Finally, few studies have included fathers, despite the fact that fathers' involvement in childcare has continuously increased the past few decades (Jones & Mosher, 2013; World Health Organization, 2007), or examined parenting behavior in the context of the family and across a wide developmental age range. The current dissertation addresses these gaps in the literature, and comprises three studies (Chapter 3-5) aimed at improving our understanding of the mechanisms of ITCM. To do so, we zoomed in on essential aspects of these mechanisms, that is, we examined whether processes at multiple levels of functioning are either associated with experienced or perpetrated maltreatment (abuse and neglect). In Chapter 3, we examine whether parents' experiences of childhood maltreatment are associated with their cognitive-affective, behavioral and autonomic responses to infant emotional signals. In Chapter 4, we investigate the associations between parents' history of childhood maltreatment and their behavioral and autonomic responses while discussing conflict with their offspring. Finally, in Chapter 5, the associations between child maltreatment, dyadic parent-offspring interactions and family cohesion are examined.

The 3-Generation Parenting Study

The current dissertation is based on an empirical study with an extended family design: The 3-Generation (3G) Parenting Study (see also Compier-de Block et al., 2017). The 3G Parenting Study is a cross-sectional three-generational extended family study examining the interplay of methodological (e.g., reporter effects), genetic, and environmental factors involved in the intergenerational transmission of parenting styles, stress and emotion regulation. Mechanisms of (intergenerational transmission of) child maltreatment were operationalized at multiple levels: genetic, neurological (brain morphology and activity), physiological (autonomic and hormonal), behavioral and the level of family environment.

In order to increase power, we oversampled individuals with experienced maltreatment by recruiting target participants from three participant pools: (1) The Netherlands Study of Depression and Anxiety (NESDA; Penninx et al., 2008), (2) the Longitudinal Internet Studies for the Social Sciences (LISS panel; Scherpenzeel & Toepoel, 2012) and (3) a study on parenting (Joosen, Mesman, Bakermans-Kranenburg, & van IJzendoorn, 2013). From two of these studies, maltreatment information was available and only participants with a known history of maltreatment were asked to participate in the 3G Parenting Study. From the third study, all participants were invited. Participants were sent a flyer about the study, and were

subsequently contacted by phone. If a participant (target) agreed to take part in the study, and gave permission to approach family members, then family members of this target participant and their partner were also invited to participate (parents, children, siblings (and their partners), nieces, and nephews). Figure 1.1 depicts a family tree of participants from three generations (F1, F2 and F3) invited around the target participant. Family members had to be at least 7.5 years of age to be included. Families were included if at least two first-degree relatives from two generations agreed to participate. In advance, participants were informed about the general aim of the study (which was formulated as the role of genes and parenting in the intergenerational transmission of stress-related traits) and about the procedure of a lab visit. Data was collected between March 2013 and May 2016.

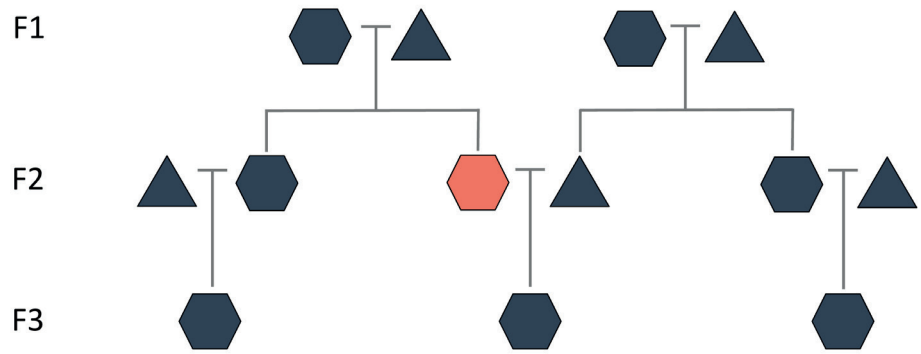

Figure 1.1

Family tree of participants invited around target (in red).

Focus and outline of the dissertation

The overall aim of the current dissertation is to gain more insight into the etiology and sequelae of child maltreatment by using a multidimensional multi-method investigation in extended families. A graphic representation of the topics discussed in this dissertation is presented in Figure 1.2. In the first part of this dissertation, Chapter 2, we examine if child maltreatment is transmitted across generations (ITCM), with a central focus on the role of reporter effects in this transmission. In Chapters 3-5 we zoom in on antecedents and consequences of child maltreatment that might play a role in ITCM, and examine these in several (pseudo-)parenting contexts. In Chapter 3, we investigate whether parents' childhood maltreatment experiences are associated with their cognitive, behavioral and autonomic responses to infant emotional signals, using a standardized infant vocalizations paradigm (see Compier-de Block et al., 2015). In Chapter 4, we focus on parents' childhood maltreatment experiences and their behavioral and autonomic responses during a parent-offspring conflict interaction task (See Strodtbeck, 1951). Finally, in Chapter 5, we present a

study in which we investigate the associations between child maltreatment, family cohesion (observed during a playful tower building game) and dyadic parent-offspring interactions.

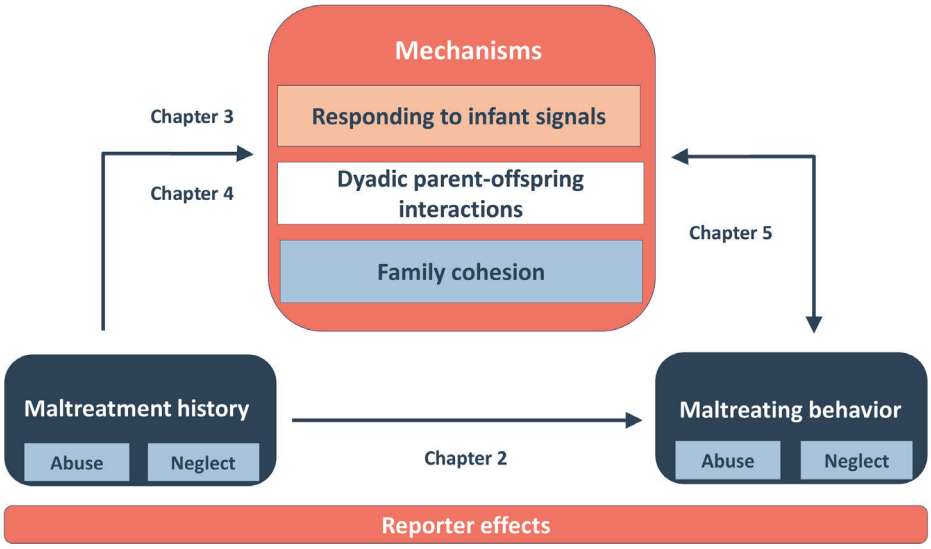

Figure 1.2

Graphic representation of the topics discussed in the current dissertation. Note that not the overall model is tested, rather we examined its parts. In Chapter 2, we examine the role of reporter effects in the intergenerational transmission of child maltreatment. In Chapter 3, we investigate the associations between parents' experiences of childhood maltreatment and their perceptual, behavioral and autonomic responses to infant emotional signals. Chapter 4 focuses on parents' childhood maltreatment experiences and their behavioral and autonomic responses while discussing conflict with their offspring. Chapter 5 presents a study in which we investigate the associations between child maltreatment, dyadic parent-offspring interactions and family cohesion.

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