Year: 2013

Mom and Dad are arguing again: parental conflict and its implications for children

Zemp, Martina

Posted at the Zurich Open Repository and Archive, University of Zurich
ZORA URL: [http://www.zora.uzh.ch/101646](http://www.zora.uzh.ch/101646)
Published Version

Originally published at:
Zemp, Martina. Mom and Dad are arguing again: parental conflict and its implications for children. 2013, Zürich, Faculty of Arts.
“MOM AND DAD ARE ARGUING AGAIN” –
PARENTAL CONFLICT AND ITS IMPLICATIONS FOR CHILDREN

Thesis (Cumulative Thesis)

Presented to the Faculty of Arts and Social Sciences
of the University of Zurich
for the Degree of Doctor of Philosophy

by Martina Zemp

Accepted in the Spring Term 2014
on the Recommendation of the Doctoral Committee:
Prof. Dr. Guy Bodenmann
Prof. Dr. Nina Heinrichs

Zurich, 2013
ACKNOWLEDGMENT

First and foremost, I would like to thank Guy Bodenmann for giving me the opportunity to write this thesis. I am very grateful for our productive conversations leading to new research questions. Working with you has not only given me advice and support, but has also been a steady source of inspiration and encouragement. My cordial thanks!

A special thank goes to Professor Nina Heinrichs, who agreed to be the second reviewer of this thesis. I very much appreciate your flying to Switzerland for my thesis defense, and I look forward to having your professional feedback.

I feel very privileged to have had the possibility to spend some weeks at Professor Mark Cummings’s lab at the University of Notre Dame. My fascination with interparental conflict has increased substantially due to the valuable insight into your expertise. Your emotional security theory has had a major impact on my understanding of this topic, and your excellent inputs were of greatest value for the current work.

I thank Christine Merrilees, again, for her warm and generous hospitality during my stay in Indiana. Your enthusiasm for research was inspiring and contagious and your feedback, especially on the third paper, was very helpful.

Many thanks go to Professor Steven Beach for providing his support to the first paper.

My colleagues deserve my deepest gratitude for supporting me throughout my PhD in countless ways. Mirjam, let me say again that you are simply the best! Mirjam, Anne, Monika, and Nico, my warmest thanks for your offer to proofread, which I appreciate a lot.

My sincere thanks go to Adrian for his relieving eye on formatting. Thank you so much!

I would also like to thank my students for their profound dedication in helping with data collection and study conduct.

And my family: Thank you for believing in me.
ABSTRACT

Overwhelming evidence has accumulated over the past several years that witnessing destructive interparental conflict is one of the most influential factors in children’s development of adjustment problems. Recently, growing concerns have been discussed about the harmful effects parental conflict might have on children’s cognitive functioning, but very little is yet known about its role in causing attention difficulties in children. We addressed this paucity of research by examining the impact of marital discord on children’s attention performance in a community sample of overall $N = 94$ children, aged 11-13 years, and their mothers using an analogue design in an experimental approach. Results suggest that a 1-min simulation of a couple conflict detrimentally interfered with children’s attention performance (Study I), and that highly physiologically responsive children from high-conflict homes might be at elevated risk in this association (Study II). In broadening the scope of this area of research, a further study was conducted to examine the effects of interparental negativity on children, weighed in terms of the parents’ counterbalancing positivity in an online sample of $N = 375$ mothers and fathers. Study III established that parental conflict is unavoidable in family life; what matters may be that it is buffered by at least twice the amount of positive interparental interaction for the children’s sake. This thesis contributes to the pertinent literature by providing, to the best of our knowledge, (1) the first empirical test of marital conflict as potential cause for attention problems in early adolescents and (2) the innovative adoption of Gottman’s balance theory of marriage to the children’s welfare in an European sample. If replicated elsewhere, the current findings are of particular practical significance and raise important clinical implications.
ZUSAMMENFASSUNG

# TABLE OF CONTENTS

ACKNOWLEDGMENT ........................................................................................................... I
ABSTRACT ............................................................................................................................ II
ZUSAMMENFASSUNG .......................................................................................................... III
TABLE OF CONTENTS ........................................................................................................ IV
LIST OF TABLES ...................................................................................................................... VI
LIST OF FIGURES .................................................................................................................. VII
PREFACE ............................................................................................................................... VIII

INTRODUCTION AND LITERATURE REVIEW ................................................................. 1

1. About the burden of parental conflict on children: A general overview .................. 1

2. The emotional security hypothesis ............................................................................ 8
   2.1. Emotional security versus attachment ................................................................. 10
   2.2. Emotional security versus cognitive appraisals ..................................................... 11
   2.3. Emotional security versus social learning .............................................................. 12
   2.4. Emotional security versus indirect effects ............................................................. 13

3. The impact of parental conflict on child attention resources ................................. 16

4. Beyond parental conflict: The role of counterbalancing positivity ...................... 23

5. Research questions and study objectives ................................................................. 30
   5.1. Does interparental conflict harm child attention performance and which children are at elevated risk? .................................................................................................................... 30
   5.2. Adopting Gottman’s balance theory to the family context: How much positivity is needed for the children’s sake? ................................................................................................................. 33

EMPIRICAL CONTRIBUTIONS ......................................................................................... 35

   6.1. Abstract .................................................................................................................... 35
   6.2. Introduction ............................................................................................................. 35
   6.3. Method .................................................................................................................... 41
   6.4. Results ..................................................................................................................... 44
   6.5. Discussion .............................................................................................................. 46
7. Study II: The role of skin conductance level reactivity in the impact of children’s exposure to interparental conflict on their attention performance ................................................................. 51
   7.1. Abstract ......................................................................................................................... 51
   7.2. Introduction .................................................................................................................... 51
   7.3. Method .......................................................................................................................... 58
   7.4. Results .......................................................................................................................... 62
   7.5. Discussion ...................................................................................................................... 65

8. Study III: How much positivity is needed to buffer the impact of parental negativity on children? ........................................................................................................................................................................ 71
   8.1. Abstract .......................................................................................................................... 71
   8.2. Introduction .................................................................................................................... 71
   8.3. Method .......................................................................................................................... 76
   8.4. Results .......................................................................................................................... 81
   8.5. Discussion ...................................................................................................................... 91

GENERAL DISCUSSION AND CONCLUSIONS ........................................................................... 97

A WORD TO PARENTS ............................................................................................................. 112

CLOSING REMARK ................................................................................................................ 113

REFERENCES .......................................................................................................................... 114

APPENDIX .................................................................................................................................. 135

CURRICULUM VITAE .............................................................................................................. 147
LIST OF TABLES

Table 1. Means, standard deviations, correlations, and t-tests for comparing group means among variables of Study I ................................................................. 45

Table 2. Means, standard deviations, correlations, and t-tests for comparing group means among variables of Study II ............................................................ 62

Table 3. SCLR and frequency of interparental conflict as moderators of the impact of experimental condition on post-stimulus performed errors of omission ............... 63

Table 4. Means, standard deviations, and correlations among variables of Study III .......... 81

Table 5. Parameter estimates of latent classes of interparental negative and positive interactions ......................................................................................................... 83

Table 6. Classes in parental interactivity as predictors of children’s internalizing and externalizing problems .................................................................................. 85

Table 7. Classes in parental interactivity as predictors of children’s prosocial behavior ...... 86

Table 8. Impact of parental negativity on children’s internalizing and externalizing problems moderated by positivity.................................................................................. 87

Table 9. Impact of parental negativity on children’s prosocial behavior moderated by positivity ........................................................................................................... 90
LIST OF FIGURES

Figure 1. Design of the experimental study. ................................................................. 31

Figure 2. The effect of experimental condition on post-stimulus performed errors of omission
moderated by skin conductance level reactivity (SCLR) and frequency of interparental
conflict (IPC), controlled for pre-stimulus performed errors of omission....................... 64

Figure 3. The effect of parental negativity on children’s externalizing problems moderated by
positive everyday interaction of the partner. ................................................................. 89

Figure 4. The effect of parental negativity on children’s prosocial behavior moderated by
parents’ common dyadic coping.................................................................................... 91
PREFACE

Parental conflict is now well-established as a key predictor of child maladjustment. The present thesis addresses marital discord as a fundamental threat to which children are exposed in everyday family life. A general overview in Chapter 1 summarizes sources of evidence which emphasize that destructive interparental conflict deserves particular consideration with respect to children’s development of a wide range of maladjustment. Chapter 2 takes account of the inherent complexity of the link between marital conflict and children’s welfare, which requires theoretical background to guide and discuss research. The emotional security theory (EST) is primarily discussed as one of the leading theories in this field and the main theoretical framework in the current thesis; it also constitutes a reference point to illustrate other prominent theories. While EST is emphasized, this should not be taken to imply any endorsement of this theory as superior to others. Only the integration of theories, which each provides important insights into the impact of interparental distress on children, can enhance a deeper understanding in this context. In Chapter 3, emerging evidence in terms of the cognitive burden that marital conflict might signify for children is outlined. Chapter 4 discusses the circumstance that parental conflict does not occur in isolation from other aspects of marital functioning, with positive interaction as potential buffers regarding child adjustment. Our own research objectives and empirical contributions are described in Chapters 5 to 8, and findings are discussed with regard to limitations and practical implications within the general discussion.
INTRODUCTION AND LITERATURE REVIEW

1. About the burden of parental conflict on children: A general overview

The notion that the marital relationship of the parents is pivotal to children’s welfare has been a cornerstone of clinical and scientific literature in family psychology throughout the past several decades, up to most contemporary contributions (Bodenmann, 2013). A vast corpus of research has expressed increasing concern that children who witness destructive parental conflict may suffer substantial damage (see for an overview Barletta & O’Mara, 2006; Buehler et al., 1997; Cummings & Davies, 2010). Although internalizing and externalizing symptoms were the primary foci of early research (Fincham, Grych, & Osborne, 1994), examined child outcomes in the context of marital conflict have expanded in new directions, including physical health (Troxel & Matthews, 2004), self-esteem (Amato, 1986), sleep (El-Sheikh, Buckhalt, Mize, & Acebo, 2006), school performance (Ghazarian & Buehler, 2010), and building and remaining sibling, peer and romantic relationships (Kinsfogel & Grych, 2004; Stocker & Youngblade, 1999). As discussed in the following, various sources of evidence emphasize that destructive interparental interaction is a form of stress that deserves substantial consideration in the context of children’s development.

First, marital conflict seems to be a stronger predictor of children’s adjustment than is family intactness. Studies of links between marital conflict and child development did not begin until they were stimulated by research on the impact of parental divorce on children (Cowan & Cowan, 2002). The event and process of divorce has traditionally been considered as the main predictor of child maladjustment, but upsurge in more recent family research

---

¹For reasons of simplicity, unless indicated otherwise, the current thesis covers the topic of destructive interparental conflict, also in cases where only interparental/marital conflict is written. The topic of constructive conflict is discussed in Chapter 4. Interpartner violence as most severe form of marital conflict will not be treated in this work.
provides us with a more complex understanding; marital discord (in divorced as well as intact families) may be more significant to child wellbeing than the actual break-up of the marriage (see Emery, 1982 or Kelly, 2000 for an overview). According to the meta-analysis by Amato and Keith (1991), interparental conflict surrounding divorce explains a greater amount of variance in children’s maladjustment than either parental absence or economic disadvantage. Correspondingly, it was found that the deleterious impact of divorce on children was statistically reduced when predivorce functioning, including marital conflict, was taken into consideration (Cherlin et al., 1991). In a prospective study, problems in the parent-child relationship were significantly elevated as early as 8 to 12 years prior to divorce and marital distress largely accounted for these findings (Amato & Booth, 1996). Hence, process dimensions (i.e., negative parental interaction), rather than structural dimensions (i.e., intact vs. non-intact families), seem to be the principal explanation for the association found between marital dissolution and childhood problems (Cummings & Cummings, 1988). Grych and Fincham (2001) concluded that the magnitude of risk for children related to interparental conflict is nearly twice the amount of the risk caused by divorce. Strikingly, there is increasing evidence that children whose high-conflict parents divorced may be better adjusted than offspring from intact high-conflict families (Amato, Loomis, & Booth, 1995; Booth & Amato, 2001; Jekielek, 1998; Morrison & Coiro, 1999). However, Amato, Kane, and James (2011, p. 13) explicitly warn against considering the good divorce (i.e., high cooperative parents) as a “panacea for improving children’s well-being in postdivorce families”.

Second, the notion that “conflict is king” (Bradbury, Rogge, & Lawrence, 2001, p. 62) appears not only to be valid when it comes to investigating marriages but also child’s welfare related to the parental relationship. Marital conflict, rather than a global measure of general marital distress, has emerged as the primary predictor of a wide range of child maladjustment.

---

Footnotes:

1In fact, in their meta-analysis about interparental conflict and youth problem behaviors, Buehler et al. (1997) reported an average effect size which was about twice as large as the mean effect of associations between parental divorce and child adjustment found by Amato and Keith (1991).
(e.g., Emery & O’Leary, 1984; Porter & O’Leary, 1980). Furthermore, adjustment problems in children are more accurately predicted by interparental conflict than by other specific aspects of marital functioning (Jenkins & Smith, 1991). And according to Fincham and Osborne (1993), links between marital conflict and child outcomes are not an artifact of disturbances in the parent-child relationship or parental depression. In sum, empirical evidence has provided considerable support for the assumption that conflict is the element in disharmonious marriages which is most detrimental to children.

Third, parental conflict as precursor of child maladaptation is a significant public health concern by virtue of its ubiquitous nature. Spousal disagreements are a common occurrence, even in generally harmonious couples, and marriages are typically most discordant during the childrearing years (e.g., Belsky & Pensky, 1988). Lewis, Siegel, and Lewis (1984) have reported that children rated “having parents argue in front of you” as the third worst event in a list of 20 events that made them feel bad, and it even ranked second taking into consideration both mean ratings of valence and frequency in everyday life. Marital conflict is estimated to rise by a factor of 9 after transition to parenthood (Gottman & Notarius, 2002), with reports of marital conflict increasing by more than 50% from the antenatal to the postnatal period (Hanington, Heron, Stein, & Ramchandani, 2012). Papp, Cummings, and Goeke-Morey (2002) found that parents strive to shield children from interparental distress; marital arguments were about twice as likely when children were absent as when they were present. Alarmingly, however, conflicts in the presence of the children emerged as especially dysfunctional (i.e., parents were more emotionally negative and less positive, and destructive conflict behaviors were more likely). Moreover, arguments had a higher incidence of child-related topics when occurring in front of the children. This is a discouraging finding since such topics have been demonstrated to be particularly distressing for children to observe (e.g., Grych & Fincham, 1993; D. K. Snyder, Klein, Gdowski, Faulstich, & LaCombe, 1988).
Fourth, children are highly sensitive – “almost like emotional Geiger counters” (Cummings & Davies, 2010, p. 180) – to interparental conflict, even if they are not physically present in the same room. Remarkably, this sensitivity also concerns nonverbal anger (Cummings, Vogel, Cummings, & El-Sheikh, 1989) and covert conflict styles (e.g., withdrawal from or avoidance of conflict). In a study by Sturge-Apple, Davies, and Cummings (2006b), interparental withdrawal was a more powerful predictor of children’s maladjustment than hostility. Studies on the long-term stability of marriage indicated that partners’ withdrawal may reflect a more disruptive pattern of couple conflict than anger expression, since it impedes conflict resolution and represents spousal disengagement (e.g., Gottman & Krokoff, 1989); a process that might be especially adverse for children too. Interestingly, different conflict patterns are discriminatively associated with indicators of child maladjustment. Katz and Gottman (1993) found that mutual (both husband’s and wife’s) hostility longitudinally predicted children’s externalizing behaviors, whereas the often observed wife-demand – husband-angry/withdrawn pattern predicted children’s internalizing problems. Three years later, these authors reported that different spillover effects of marital conflict to the parent-child interaction may lay the foundation for this finding (Katz & Gottman, 1996). Marital hostility (wife’s contempt and husband’s belligerence) was associated with the fathers’ rejecting parenting, leading to children’s externalizing problems. On the contrast, the husbands’ withdrawal from the marriage was related to maternal rejection of the children, which predicted their internalizing behavior. Along similar lines, parents’ use of an overt conflict style was uniquely associated with youth externalizing symptoms, while covert conflict was uniquely linked with their internalizing problems (Buehler et al., 1998). In a nutshell, to simply avoid conflict for the children’s sake does not seem to be an effective means of protecting them.
Fifth, another source of evidence stems from experimental studies designed to measure children’s immediate responses to analogue marital conflict (Cummings, 1995), that is, simulated, audiotaped or videotaped samples of interadult arguments (see Appendix 3). Children respond emotionally, cognitively, behaviorally, and physiologically to analogue couple conflict, which is indicative for their long-term developmental outcomes (see for an overview Rhoades, 2008). Early studies using this experimental design have impressively demonstrated that children’s exposure to adult background anger, that is, an angry interaction of two female actors in the background of the experimental room, increased their behavioral and emotional distress and heightened aggression toward peers (Cummings, Iannotti, & Zahn-Waxler, 1985; Cummings, 1987). Similarly, exposure to videotaped couple arguments increased the likelihood of aggressive behavior in children, and these immediate responses enhanced the odds of scoring within the clinical range of externalizing problems by a factor of 3 (Cummings, Goeke-Morey, & Papp, 2004). If marital conflict induces such marked reactions in children even in this benign (experimental) situation, it is conceivable to assume a much more salient impact of the affective environment characterized by pervasive, chronic conditions of parental turmoil at home.

Analogue studies have also revealed that frequent (chronic), high-intensity, unresolved, and child-related arguments are the types of conflicts that are most distressing to children (see for an overview Davies & Cummings, 1994; Grych & Fincham, 1990). Fortunately, a long series of experimental studies has established that children’s distress reactions are significantly diminished when disagreements are resolved (e.g., Cummings et al., 1989; El-Sheikh & Cummings, 1995). Notably, research has indicated that children benefit from any progress toward resolution; that is, distress is also reduced when conflicts are not fully resolved, proportional to the degree of resolution (Cummings, Ballard, El-Sheikh, & Lake,

---

3As central to the current thesis, all analogue studies assessing children’s immediate responding to analogue conflict stimuli as main study outcome, which are mentioned throughout the entire manuscript, are listed in Table A in the Appendix.
1991; Goeke-Morey, Cummings, & Papp, 2007). Even “resolution behind closed doors” appears to have ameliorative effects, merely indicating problem solving by changed affect of the actors after a 15s absence in a separate room, and children seem to benefit yet from hearing that conflicts have been resolved (Cummings, Simpson, & Wilson, 1993).

Sixth, interparental conflict is a cause for substantial concerns since children do not habituate to chronic conflict. On the contrary, the sensitization hypothesis (which is shared by multiple theorists in this field) designates the robustly replicated finding that children’s negative reactions become progressively amplified by repeated exposure to marital conflict. A cumulative impact on children has been confirmed within experimental designs regarding the emotional and physiological regulatory systems (Davies, Myers, Cummings, & Heindel, 1999; El-Sheikh, 1994), in the natural setting based on diary records (O’Hearn, Margolin, & John, 1997), and in longitudinal research (Davies, Sturge-Apple, Winter, Cummings, & Farrell, 2006; Goeke-Morey, Papp, & Cummings, 2013). In the short term, sensitization effects may represent an adaptive response, as they pool psychobiological resources to lower the threshold of threat perception and to quickly mount coping efforts. Over the longer term, however, sensitization leads to profound interference in psychological functioning which may create a cascade of risk towards youth maladjustment (Cummings & Davies, 2010).

Seventh, most recent reviews have concluded that neither gender is immune to the effects of parental discord. For a long period, the male vulnerability model was presumed, positing boys to be more susceptible to the adverse effects of marital strife (Davies & Lindsay, 2001). However, the majority of studies documenting stronger associations between interparental conflict and adjustment problems in boys than girls (a) were conducted with clinical samples, (b) assessed conflict including some form of aggressiveness, and (c) relied exclusively on family members as informants (Purcell & Kaslow, 1994). When these variables have been controlled for, studies predominantly failed to find gender differences in the magnitude of
associations between parental conflict and child adaptation, a result that provides support for the differential reactivity model (Davies & Lindsay, 2001). It is widely agreed nowadays that boys and girls experience comparable levels of distress but that effects are likely to show up on different indices of functioning and that some of the discussed underlying mechanisms may not be equally applicable to both genders (J. R. Snyder, 1998). More precisely, girls’ tendency to take more responsibility for problems in their parents’ marriages and thus to self-blame coincides with their greater risk to develop internalizing symptoms; in contrast, boys are more prone to appraise greater threat in the face of destructive marital conflict which is associated with enhanced risk for externalizing symptoms (e.g., Cummings, Davies, & Simpson, 1994; Kerig, 1998).

Last, a rich fundus of literature suggests that children of all ages exhibit some type of negative reactivity to interparental disputes, from toddlerhood onwards. That is, by approximately one year of age, infants were observed to be emotionally responsive to interadult anger and even made efforts to actively intervene in conflicts (Cummings, Zahn-Waxler, & Radke-Yarrow, 1981). On the other hand, how parents handle conflict has abiding impact; over many years, spousal hostility is likely to spill over into the next generation’s intimate relationships (Stocker & Richmond, 2007; Whitton et al., 2008).
2. **The emotional security hypothesis**

The emotional security theory (EST; Cummings & Davies, 2010; Davies & Cummings, 1994) holds that maintaining felt security and safety is a primary goal for children in the family setting. Children’s responses to parental conflict are thus flanked by the implication for their emotional security in the interparental relationship, that is, children’s confidence in parents’ abilities to manage difficulties for the purpose of preserving family stability. Rooted in the functionalist perspective, EST conceives emotion as *functional* in the sense that it is captured by how individuals energize regulatory mechanisms to achieve proximate goals of significance to them (Davies, Winter, & Cicchetti, 2006). Accordingly, emotional security is conceptualized as a latent goal system of children which is posited to activate three regulatory response patterns in the face of threats to this goal (Davies & Cummings, 1998): (i) *Emotional reactivity* refers to the children’s negative emotional arousal and distress (e.g., sadness, anger), hence, the psychological energy required to generate and sustain a vigilant state which may serve to prime children’s rapid mobilization of coping resources. (ii) *Internal representations* of the interparental relationship, by providing children with cognitive maps as monitoring systems, assist children in scanning the family environment in order to proactively detect and quickly respond to potential danger cues. (iii) *Regulation of conflict exposure* implies attempts to avoid (e.g., flight responses, freezing) or intervene in conflict (e.g., as a mediator, consoler, or co-combatant).

The adaptive value inherent in the third regulatory pattern might be most apparent since it reflects efforts to regain security by increasing control over or reducing exposure to threatening parental interaction (Davies & Cummings, 1998). Seventy-one percent of the 9-to 12-year old children studied by Jenkins, Smith and Graham (1989) reported to directly intervene in parental arguments, the most frequently reported coping strategy notably. Previous findings suggest that children’s conflict history and their cognitive development
moderate the disposition to conflict mediation, with older children and children raised in high-conflict homes being most likely to intervene (Cummings et al., 1989, 1981). In line with the notion that children are exceptionally sensitive to interparental tensions, children distinguished “mixed message resolution” (inconsistent in content and emotion, e.g., an angry apology) from consistently positive conflict endings when responding to analogue unresolved conflicts (Shifflett-Simpson & Cummings, 1996). They were sensitive to the adults’ emotion expressions and the degree of conflict resolution in their tendency to intervene. Children reported to mediate more likely in marital conflicts when high levels of negative emotions were expressed, or in cases of unresolved rather than partially resolved conflicts. Furthermore, the degree to which children were blamed for couple arguments proportionally predicted children’s likelihood of endorsing intervention (Grych & Fincham, 1993). Schermerhorn and colleagues (2007) found that children’s agentic behavior (i.e., getting directly involved in the argument), as opposed to behavioral dysregulation (e.g., yelling at family members), was prospectively associated with reduced marital discord three years later. What appears as a highly effective regulatory strategy in this study, however, emerged as a sound predictor of maladjustment in children (e.g., O’Brien, Margolin, & John, 1995).

Each of the three regulatory response patterns offered by EST is assumed to represent an accurate and distinct barometer of insecurity. However, there should be some degree of interdependency (Davies, Harold, et al., 2002). For instance, specific emotional responses to conflict were predictive of children’s behavioral regulation strategies; scared and angry feelings were related to involvement intervention strategies to regulate conflict, whereas children’s sadness was associated with children’s use of avoidance strategies (Koss et al., 2011). Emotional security was empirically supported in a number of longitudinal tests as an explanatory mechanism linking interparental conflict and children’s internalizing and externalizing symptoms from early childhood through adolescence (e.g., Cummings, George, McCoy, & Davies, 2012; Harold, Shelton, Goeke-Morey, & Cummings, 2004). Emotional
Emotional security can be assessed by means of questionnaires (child as well as parent report; see Davies, Forman, Rasi, & Stevens, 2002), by a narrative storytelling technique (e.g., Davies, Woitach, Winter, & Cummings, 2008), or by measuring children’s immediate responses to marital conflict exposure, either as they react in real conflict situations or in analogue studies using simulations. In the majority of studies, the child’s reactivity is assessed by self-reported ratings of emotional and behavioral responses (cf. Table A) or by observational coding (see for instance Davies & Forman, 2002).

2.1. Emotional security versus attachment

Drawing from attachment theory (Bowlby, 1969, 1973, 1980), EST places the child’s goal of preserving felt security at the foundation of understanding child development within the family. Hence, EST and attachment theory share a central assumption; secure-base conceptions are pivotal to both theories (Davies & Forman, 2002). Within attachment theory, emotional bonds between parents and children are considered as sources of security for children in times of distress (Bowlby, 1969). Guided by principles of family systems theory, EST differs from traditional attachment theory by placing an emphasis on the role of multiple family relationships in contributing to children’s security. Thus, by extension, EST postulates that children also develop a sense of safety in family relationships other than the parent-child relation, namely, in the interparental relationship (Cummings & Davies, 2010).

In a rare attempt to examine the incremental validity of EST over attachment theory, Davies, Harold, and colleagues (2002) found that parent-child insecurity and insecurity in the interparental relationship were each unique risk mechanisms predicting children’s internalizing and externalizing problems. Child emotional security remained a robust mediator in the association between interparental conflict and child functioning, even after controlling for parenting and parent-child attachment insecurity. These findings corroborate EST as a goal system that (a) is independent from attachment security and (b) derives primarily from the child’s experiences of the interparental relationship. Nevertheless, it has also been
documented that exposure to destructive marital conflict may spill over to the attachment system (Owen & Cox, 1997); higher levels of marital conflict prior to and after the child’s birth predicted infant attachment insecurity mediated by reduced sensitive parenting (see Chapter 2.4 for further discussion of this pathway). Most strikingly, attachment disorganization was explained by marital discord over and above sensitive parenting. The authors stated that children in high-conflict homes face a paradoxical problem – specifically, an attachment figure who is at once “the source and the solution to their alarm” (Owen & Cox, 1997, p. 159) – adding destructive parental conflict to risk conditions for disorganized attachment in childhood.

2.2. Emotional security versus cognitive appraisals

EST and the cognitive-contextual framework (Grych & Fincham, 1990), as alternative leading theories in the field, correspond in the basic conjecture that the impact of family adversity is best understood by taking the child’s interpretation into consideration. As supported by a large body of literature, what the children perceive parents do is more significant to their welfare than what they actually do (e.g., Wierson, Forehand, & McCombs, 1988). Both theories posit that children do not merely react to the fact of conflict but more importantly to its meaning for them, with EST stressing the emotional and the cognitive-contextual framework more the cognitive aspects in evaluating the meaning (Fincham, 1998).

In the cognitive-contextual model (Grych & Fincham, 1990), particular emphasis is placed on children’s appraisals which mediate the effects of interparental conflict on children. Following the work of Lazarus and Folkman (1984) on human stress responses, children’s reactivity when faced with parental disputes is presumed to follow a two-stage process: (1) they first become aware of the event and evaluate whether it is relevant or threatening to them (primary processing), and if so, (2) they engage in further elaborating the cause and implications of it (secondary processing). Two dimensions of appraisals, perceived threat and self-blame, have received considerable attention in explaining the link between marital
conflict and child problems (e.g., Grych, Fincham, Jouriles, & McDonald, 2000; Grych, Harold, & Miles, 2003).

Providing the first test, to the author’s knowledge, of the relative roles of emotional security and cognitive-contextual processes as longitudinal mediators in the same analytic model, Davies, Harold, and others (2002) concluded that both theories play a unique and mutually informative part in understanding increased psychological vulnerability in children facing interparental conflict. Emotional security remained a key intervening process that links parental strife with subsequent children’s internalizing and externalizing symptoms when self-blame and threat appraisals were taken into account. Similarly, a prospective investigation of 416 families endorsed an integrative perspective in which cognitive and emotional response systems substantially overlap. Both were relevant to predicting early adolescents’ perception of and adjustment to marital hostility once this overlap was statistically controlled for (Buehler, Lange, & Franck, 2007).

2.3. Emotional security versus social learning

Children may learn new ways of social interaction by observing parents engage in marital conflict. In light of aggressive or hostile conflict tactics, the child may act out greater aggression itself through imitation of displayed behaviors, acquisition of generalized scripts for hostility, and reduction of aggression inhibition (Bandura, 1977). That is, conflict behaviors vicariously exhibited by parents serve as models which children tend to imitate, predominantly the behavior of the same-gender parent as being more congruent to incorporated gender-relevant scripts (Bandura, 1973). Supporting this gender-differentiated assumption, the empirical test of the specific emotions model (Crockenberg & Langrock, 2001) revealed that maternal aggression predicted girls’ externalizing behaviors while fathers’ marital aggression was exclusively linked with boys’ externalizing symptoms. Interestingly, however, boys’ specific emotional reactions to paternal aggression were crucial, with fear leading to internalizing and anger to externalizing behaviors.
Testing the discriminant validity of EST and social learning theory, the results reported by Davies, Harold, et al. (2002) provide some conceptual superiority of EST predictions in terms of (i) *conflict topic* (i.e., children were more negatively responsive to conflict topics related to emotional security, such as threats to family intactness, than to more general expressions of verbal hostility), (ii) *child responses to conflict* (i.e., more destructive conflict induced children to exhibit greater distress, and intervention in or avoiding conflict rather than to show more aggressive behaviors), and (iii) *gender effects* (i.e., negligible evidence emerged to indicate that children disproportionately imitate their same-gender parents). Likewise, in another study (McHale, Freitag, Crouter, & Bartko, 1991) the modeling hypothesis was not supported since simple exposure to conflict was not associated with child outcomes. Instead, they found that the content of the conflict, specifically disagreements about child-rearing strategies, was related to boys’ conduct problems. Taken together, without detracting from the importance of the observational learning paradigm in this field (e.g., Emery & O’Leary, 1982), other mechanisms also seem to be involved.

2.4. Emotional security versus indirect effects

Through this chapter, exposure-related hypotheses have been discussed given the fact that one of the strongest pathways of the impact of parental conflict on children is probably the simplest one: through their exposure to it. As the experience of seeing or hearing displays of anger between parents is itself aversive to children, EST, the cognitive-contextual framework, and the social learning theory share the view that repeated exposure to interparental hostility takes a *direct* toll on children (Zimet & Jacob, 2001). That said, other mechanisms must also be at work, as conflicts occurring in children’s absence have shown to be damaging too; hence, the burden experienced by children does not necessarily require their actual observation of conflict (Heinrichs, Cronrath, Degen, & Snyder, 2010). Inspired by the pivotal assumption of interdependency between family subsystems among system theorists (Cox & Paley, 2003), many authors have demonstrated that marital conflict may also increase
child vulnerability to maladjustment indirectly (e.g., Buehler, Benson, & Gerard, 2006; Gerard, Krishnakumar, & Buehler, 2006). A large body of evidence supports the spillover hypothesis, which proposes a positive relation between the quality of the parental relationship and the parent-child relation (see Erel & Burman, 1995 for an overview). Marital conflict might harm children’s wellbeing by disrupting childrearing practices or interfering with sensitive parenting (Engfer, 1988). A meta-analysis found a robust association between interparental conflict and dysfunctional parenting behaviors ($d = .62$), with strongest effect sizes regarding harsh discipline and parental acceptance (Krishnakumar & Buehler, 2000).

A number of experimental studies give compelling examples of spillover processes in this context. For instance, fathers who had just engaged in conflict with their spouses exhibited significantly more nondemocratic parenting, lower support and engagement (Kitzmann, 2000), and used more confusing or threatening commands in a subsequent interaction with their sons (Jouriles & Farris, 1992). In a similar vein, marital conflict correlated positively with maternal statements of disapproval toward their sons’ misbehaviors, i.e., attempts of toddlers to leave the observation area which mothers were instructed to prevent (Jouriles, Pfiffner, & O’Leary, 1988). Sequential analyses of parent-child interactions revealed that maritally less satisfied mothers were more negatively responding to daughters’ assertive statements and more likely to reciprocate their sons’ negative affect (to respond negatively contingent on their negative verbalizations) than mothers in satisfied marriages (Kerig, Cowan, & Cowan, 1993). Margolin, Christensen, and John (1996) reported that distressed families, in contrast to nondistressed, experienced highly pervasive continuance of tension between family members increasingly up to 24 hours, and interparental tension was particularly likely to spill over to the parent-child relation. Correspondingly, it was found that marital disagreement enhanced the likelihood of parent-child tension the following day by 41% – 60% (Almeida, Wethington, & Chandler, 1999). One possible explanatory mechanism for this finding might be mood erosion due to parental disagreements leading to parenting
disruptions, as an experimental study using musical mood induction in mothers indicated (Jouriles, Murphy, & O’Leary, 1989).

Summarizing the pertinent literature on indirect effects models, high levels of marital conflict form the basis for a strained family climate in which parents become increasingly involved with their own problems, depleting the resources necessary to rear their children sensitively. An intriguing and well-established finding in this context is the father vulnerability hypothesis which states that paternal parenting practices are more susceptible to deterioration in the face of marital conflict compared to maternal parenting (Davies, Sturge-Apple, Woitach, & Cummings, 2009; Sturge-Apple, Davies, & Cummings, 2006a). But it should be noted, in conclusion, that many studies highlight the mutually informative role of direct and indirect pathways in unraveling the link between marital conflict and child development (e.g., Schoppe-Sullivan, Schermerhorn, & Cummings, 2007).
3. **The impact of parental conflict on child attention resources**

Sources of concern about the implications of interparental conflict for children’s academic achievement have grown substantially in recent years. Besides self-blaming appraisals (Ghazarian & Buehler, 2010; Harold, Aitken, & Shelton, 2007) and sleep disruptions (El-Sheikh, Buckhalt, Keller, Cummings, & Acebo, 2007), attention performance has been discussed as one of the major underlying mechanisms that may account for the detrimental impact of marital discord on children’s school adjustment (Davies et al., 2008). Regulation of attention is a pivotal skill for children to develop; it involves the capability to focus on relevant information whilst ignoring irrelevant cues and to sustain attention over time (Ruff & Rothbart, 1996). When children experience interparental conflict, their school matters are often not prioritized; rather, they may ruminate about the family situation which impairs their concentration and attention performance. A recently proposed ethological reformulation of the emotional security hypothesis (EST-R; Davies & Sturge-Apple, 2007) may help to explain why interparental conflict is likely to harm child attention. EST-R shares with the original theory the premise of emotional security as a primary goal for children in the family, though it differs in assuming that this goal largely reflects the operation of the social defense system. This system, evolved throughout human history to defuse threat in the social group, prioritizes the processing of cues of conspecific danger. Hence, interpersonal threat cues (in particular interparental anger) are presumed to inherently assume primacy in organizing children’s distress responses (Davies & Woitach, 2008). Although preservation of psychological integrity in the threatening context of parental conflict may initially serve an adaptive function, persistent activation of children’s social defense system is theorized to deteriorate multiple levels of functioning through (1) allostatic load, (2) development of cognitive scripts, and (3) resource allocation pathways (Davies & Sturge-Apple, 2007).
(1) Allostatic load

It is tempting to adopt allostatic load frameworks, traditionally founded in neuroendocrinology (McEwen, 1998), to this field. The allostasis conception provides an useful heuristic for understanding a child’s (biological) reactivity to parental conflict (Davies, Sturge-Apple, & Cicchetti, 2011). Within this perspective, repeated exposure to marital conflict is considered to erode children’s functioning by inflicting wear and tear on psychophysiological systems. Accordingly, EST-R holds that prolonged operation of the social defense system in order to achieve homeostasis (cf. allostasis) in emotional security produces pervasive changes in endocrine and physiological systems. For instance, support was established that chronic exposure to marital conflict disturbs progressively the functional operation of the hypothalamic-pituitary-axis (HPA) system; diminished cortisol reactivity to analogue parental conflict mediated the link between parental conflict and subsequent increases in externalizing symptoms (Davies, Sturge-Apple, Cicchetti, & Cummings, 2007). Such disruptions in the efficiency of neuroendocrine systems are theorized to interfere also with psychological functioning, e.g., attention processes (Davies & Sturge-Apple, 2007). Hence, despite the proximal safeguard value of the response patterns in maintaining emotional security (see Chapter 2), these regulatory systems, when activated chronically, create deviations in homeostatic balance that may ultimately undermine children’s adjustment in the long term (Davies & Woitach, 2008).

(2) Cognitive scripts

The idea that mental representations of particularly significant experiences during childhood shape children’s long-term adjustment is prominent in developmental psychology. Cognitive schemata or scripts are conceptualized as templates that guide attention and information processing and are used to complete interpretation in social contexts when stimuli are missing (Wyer & Carlston, 1994). Studies with physically abused children, for instance, have shown conclusively that these children perceive angry facial expressions as highly
salient relative to other emotions (Pollak, Cicchetti, Hornung, & Reed, 2000), and require less visual information than non-abused children to detect angry faces (Pollak & Sinha, 2002). Additionally, assessment of reaction times and brain activity by means of EEG when exposed to facial cues supports the assumption that maltreated children devote more processing resources than controls to disengaging attention from angry, but not happy, faces (Pollak & Tolley-Schell, 2003). Using an analogue design with an auditory couple argument from the adjacent experimental room, Pollak and colleagues also found that abused children’s attentional orienting (measured by heart rate decelerations) was less elevated than that of non-abused children at the onset of each stimulus period (active anger, unresolved anger, and resolution; Pollak, Vardi, Putzer Bechner, & Curtin, 2005). However, abused children maintained a state of anticipatory monitoring of the environment that was not observed in controls. This finding is consistent with the view that these children remained on alert for a prolonged period once anger was introduced. However, the intensity of the anger did not overly concern them, perhaps reflecting that the audiotaped conflict simulation was less severe than what they experienced at home. Remarkably, what was most alarming for abused children was the adult interaction becoming quiet (when one adult leaves in the unresolved anger period), thus somewhat ambiguous. In sum, this line of research demonstrates that physically abused children cope with their stressful environments by becoming experts at threat detection. This expertise is vital to them but may evolve at a grave cost to their development.

Along similar lines, albeit less pronounced, children’s experiences with parental arguments are prime candidates for establishing cognitive schemas because such events are highly salient, arousing, and personally relevant to them (Grych & Cardoza-Fernandes, 2001). The emotional security framework takes account of this notion by proposing that children develop mental representations of the interparental relationship based on their history of parental discord (cf. page 8). Children from high-conflict homes are more likely to develop
insecure representations of the parental relation than children exposed to less destructive conflict; this may interfere with cognitive functioning outside the home too, namely in school (Davies, Winter, et al., 2006). In line with this hypothesis, children’s insecure representations of the parental relationship were identified as a primary intervening mechanism in the link between observational ratings of marital discord and child as well as teacher reports on children’s school adjustment (including attention problems) over a 2-year period (Sturge-Apple, Davies, Winter, Cummings, & Schermerhorn, 2008). The indirect pathway remained statistically robust even with the inclusion of parental emotional unavailability and insecure representations of the parent-child relationship in the structural equation model.

Children’s mental representations of the parental relation can be considered as an internal alarm system for readily perceiving and responding to cues in parents’ interaction which may pose a threat to their safety. With repeated conflict exposure, a mental schema is formed, characterized by a lower threshold for danger detection and thus biased toward potentially threatening cues (Davies & Sturge-Apple, 2007). Strong support for this view was provided by O’Brien and Chin (1998). They reported that 10- to 12-year-old children’s internal conflict representations, after being experimentally activated by audiotaped vignettes of angry couple interactions, biased their recognition memory for conflict-related words assessed by a word recognition task. Children were instructed to listen to constructive and aggressive conflict words and to report whether they had heard them previously in the vignette. It was shown that children from high-compared to low-conflict homes showed a greater tendency to false positive memory errors concerning the aggressive words (i.e., mislabeling aggressive words not already presented as having been heard) but made fewer errors in recognizing valid (presented) aggressive words. Vice versa, children from low-conflict homes identified constructive words with greater accuracy than they did the aggressive words. O’Brien and colleagues also demonstrated that children growing up in a dysfunctional conflict family environment provided fewer suggestions regarding how a vignette of destructive adult conflict
could proceed more constructively (O’Brien, Balto, Erber, & Gee, 1995), and made less optimistic evaluations of conflict stimuli in comparison to children from low-conflict homes (O’Brien, Margolin, John, & Krueger, 1991).

It has been presumed that children’s internalizations of the interparental relation might serve as analogs for identifying similar threats in other social contexts as well, hence, leading to stable templates for interpreting peer events, for instance (Davies, Winter, et al., 2006). A longitudinal study addressing this issue (Bascoe, Davies, Sturge-Apple, & Cummings, 2009) found long-term associations between children’s insecure representations of the interparental relationship, but notably not the parent-child relationship, and greater negative processing of provocative peer events (indicated by their disposition to attribute hostile intentions to peers and interpret peer emotions as reflecting negative motives). Strikingly, the biased peer information-processing patterns in turn predicted increases in school maladjustment, including attention difficulties. These findings are consistent with the hypothesis that greater allocation of attention resources toward detecting threats may undermine children’s academic functioning by disruption of children’s attentional control.

(3) Resource allocation

Attention difficulties in relation to child exposure to parental conflict are explicable in the light of resource allocation models of cognitive neuroscience which indicate that human cognitive processing is limited by a central resource pool (Kahneman, 1973). If too many distracting stimuli or tasks require resources, performance diminishes (Schneider & Fisk, 1982). Affective experiences particularly redirect humans’ attention away from task performance toward the arousing stimulus (Beal, Weiss, Barros, & MacDermid, 2005). Translated to an EST framework, one interpretation is that prolonged insecurity and vigilance due to parental conflict may deplete the common reservoir of a child’s psychological resources. That is, heightened reactivity associated with emotional insecurity requires considerable expenditure of effort to regulate attention, affect, and action (Davies & Sturge-
As a result, the energy required to regain security may absorb the resources children need to successfully pursue other significant tasks in development. Correspondingly, Davies, Manning, and Cicchetti (2013) recently reported that toddlers’ insecurity in the interparental relationship predicted subsequent behavior problems, partly mediated by their difficulties in mastering stage-salient developmental tasks (i.e., emotion regulation, autonomy, and problem-solving).

If concerns about emotional security following interparental discord deplete children’s biopsychological capacities, this depletion may also interfere with children’s attention performance, a function which requires large reservoirs of resources to operate. To the author’s knowledge, two studies have addressed this supposition to date. First, Davies and colleagues (2008) longitudinally investigated relations between children’s insecure representations of the interparental relationship (assessed by a narrative storytelling technique), attention difficulties, and school outcomes. Analyses indicated that children’s attention problems, measured by task assessment and parent reports, predicted increases in school problems one year later, accounting for 34% of the association between emotional insecurity and child’s school maladjustment. Parental discord therefore appears to have a substantial impact on children’s functioning in school, with attention difficulties as a powerful explanatory mechanism. Secondly, Medina, Margolin, and Wilcox (2000) examined the impact of children’s history of family hostility (i.e., maternal child-abuse potential and marital conflict) on their performance on a verbal attention task, measured prior to and after exposure to audiotaped simulations of couple disagreements. Counterintuitively, they found that children from high-exposure family backgrounds improved their auditory verbal attention following the conflict exposure in comparison with performance prior to the stimulus. The authors suggested that heightened reactivity to the conflict stimulus might be one underlying pathway through which these children achieved enhanced scores on the post-stimulus assessment. This finding revealed that children’s history of parental conflict affect their
reactivity to simulated parental conflict in terms of attention performance. It further encourages an assessment of physiological arousal in future studies, which we have addressed in our research (see Chapter 5.1). Limiting their implications, however, no comparison was made to a control group exposed to stimuli unrelated to adult conflict.

Taken together, there is emerging evidence to assume considerable effects of interparental conflict on a child’s attention through various pervasive mechanisms. Children’s felt threat about safety when faced with parental strife may disrupt their executive functioning by depleting the common reservoir of cognitive resources (Davies, Winter, et al., 2006). Children may suffer from distraction and loss of motivation and engagement in school because regaining emotional security in the family background is given priority. Since focusing and sustaining attention require high levels of neuropsychological resources, emotional insecurity may be particularly likely to undermine this dimension of functioning and, as a consequence, increase the risk for development along maladaptive trajectories. Despite initial findings supporting this hypothesis prospectively and not based on an experimental approach (Davies et al., 2008), we think the most appropriate way to examine allocation of attention resources in the context of interparental conflict might be within an analogue (experimental) study which assesses children’s attention performance prior to and immediately after conflict exposure, and to compare the impact of the conflict stimulus to stimuli unrelated to conflict (see Chapter 6 and 7).
4. Beyond parental conflict: The role of counterbalancing positivity

Interparental conflict is not an isolated occurrence and must be weighed in the broader family context. The tendency to focus on unitary causation (in this instance, between marital conflict and child outcomes) is necessarily limiting. Sustainable impetus for a wider consideration of child development within the family provided family system theorists (Cox & Paley, 2003), with a mindset leading to strong implications for clinical work with families (Heinrichs & Prinz, 2012). Adopting a broader family perspective in this research area might also contribute to understanding why children develop along multiple paths. With due regard to the effect sizes of meta-analyses in this field, we have gained knowledge about the vast variability in children’s adaptation facing parental strife. Interparental conflict is discussed to account for somewhere between 4% – 25% of the variance in child maladjustment (Buehler et al., 1997; Grych & Fincham, 1990). For instance, the mean effect size of associations between marital conflict and child behavior problems was $d = .16$ in a meta-analytic review of 33 studies by Reid and Crisafulli (1990), a value that is considered a small effect. The mean effect reported by Buehler et al. (1997) was twice as large ($d = .32$). This weak to moderate average effect size and the number of significant findings (34%) were, though, substantially lower than found in narrative reviews (e.g., Grych & Fincham, 1990). Fincham and Osborne (1993) concluded that the magnitude of associations is small in all, which means that only the minority of children raised in conflictual families experiences significant enduring problems. Risk associated with interparental discord therefore appears probabilistic rather than certain, and empirical support is accumulating that its impact must be considered within the wider family context. That is, other factors beyond marital conflict may help to account for why many children are resilient to adverse outcomes. Laursen and Hafen’s (2010) “conflict is bad (except when it’s not)” makes a valuable contribution in this context. The authors advocate

---

4For the interested reader, different effect sizes for different conflict tactics (overt, covert, withdrawn, avoidant, cooperative) are intriguing (Buehler et al., 1997, p. 238).
regarding conflict as neither inherently good nor inherently bad; instead its implications depend on (1) how it is managed, (2) the relationship in which it arises, and (3) its frequency in relation to positive interactions.

(1) The way how conflicts are managed

A consistent finding is that it is not whether couples argue but how they do that is most pertinent to the welfare of children. There is compelling evidence for the existence of (a) constructive conflict communication tactics from the child’s perspective. EST holds that constructive marital conflict in front of the children may even increase their emotional security and their functioning by observing the parents effectively managing challenging and potentially threatening situations (Cummings & Davies, 2010). The results of analogue, diary, and observational studies provide support for this notion. For example, Goeke-Morey, Cummings, Harold, and Shelton (2003) classified marital conflict behaviors by means of children’s responses to vignettes of adult interactions. Remarkably, they found a continuum from most destructive (i.e., eliciting more negative than positive reactions in children) to most constructive conflicts (i.e., significantly more positive than negative responses), with physical aggression at one extreme and parental affection and support at the other. Parental diary reports over a 15-days period confirmed these categorizations; calm discussion, support, and affection were linked with increased positive emotionality in children (Cummings, Goeke-Morey, & Papp, 2003). Notably, constructive conflict communication fostered children’s emotional security, which enhanced their prosocial behavior (rated by fathers, mothers, and teachers) over time (McCoy, Cummings, & Davies, 2009). A particularly intriguing finding is that repeated exposure to constructive interadult conflict had benign effects on children. That is, in contrast to destructive conflict, there was no evidence of sensitization under constructive conflict dimensions in an experimental study (Davies et al., 1999). A recent study, moreover, demonstrated a positive spillover pathway, indicated by prospective links between constructive marital conflict and warm parenting of both mothers and fathers (McCoy,
Encouragingly enough, analogous to negative spillover effects (cf. Chapter 2.4), positive emotions in the interparental relation are likely to transfer to parent-child interactions too.

In addition to constructive communication, two further positive dimensions have emerged over many years of couple research as prominent hallmarks of stable and satisfied marriages, which might also counterbalance the impact of interparental negativity on children. The waning of (b) positive everyday interaction (i.e., decline in reciprocal affection or validation) between partners is being increasingly discussed as one of the principal precursors of marital distress and dissolution (T. L. Huston, Caughlin, Houts, Smith, & George, 2001). The early focus on negative (conflict) interactions to prevent divorce “is elegant in its simplicity and broad in its impact on the field” (Bradbury et al., 2001, p. 77). However, evidence is increasing that the adoption of the general “bad is stronger than good” assertion might not readily be tenable in terms of close relationship outcomes, as was suggested (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). Inconsistent to the review of Baumeister and colleagues (2001), other authors argue that positive behavior is at least as important as spousal negativity in determining perceived marital satisfaction (Bodenmann, 2012; Cutrona, 1996). Constructive couple interaction was shown to be uniquely related to relationship satisfaction, over and above negativity (Nussbeck, Hilpert, & Bodenmann, 2012). Along similar lines, Graber and colleagues found that affective behavior in a positive interaction context (i.e., talking about positive feelings for each other) was a unique longitudinal predictor of marital satisfaction and stability, beyond affection shown in a negative interaction (conflict) setting (Graber, Laurenceau, Miga, Chango, & Coan, 2011). The significance of reciprocal dyadic positive engagement in the broader family setting has also been reported recently (Ackerman, Kashy, Donnellan, & Conger, 2011).

---

5These authors argue that the greater power of bad over good events in everyday life, memory, learning, social interactions, etc. supports “bad is stronger than good” as a general principle across a wide range of phenomena in psychology, including intimate relationships (Baumeister et al., 2001, p. 328).
The couple’s (c) dyadic coping (the ways in which couples cope together with stress; cf. Bodenmann, 2000, 2005) has emerged as a vital predictor of relationship satisfaction and stability in numerous studies through its moderating effects on the damaging consequences of stress in couples (Bodenmann, Meuwly, Bradbury, Gmelch, & Ledermann, 2010), and by building intimacy and a sense of “we-ness” between partners (Bodenmann, Meuwly, & Kayser, 2011). Bodenmann (2002) also highlighted the importance of stress for the whole family system. The author argues that stress provides a breeding ground for a dysfunctional family environment, characterized by an increase of parental discord and inadequate parenting, thus leading to higher child vulnerability to psychopathology. Lending support to this hypothesis, in a 1-year longitudinal study with 255 parents, Cina and Bodenmann (2009) found that stress reported by parents was significantly linked with their dysfunctional conflict communication and inappropriate parenting behavior, which in turn predicted child externalizing symptoms. It was therefore suggested that parents’ supportive dyadic coping skills might prevent erosion of the family climate. First evidence for that was provided by Bodenmann-Kehl, Perrez, and Bodenmann (1995, as cited in Bodenmann, 2000), who established interparental dyadic coping as moderator in the link between problematic personality traits of parents and dysfunctional parenting; high levels of dyadic coping buffered the association between low tolerance towards child maladjustment or high trait anger in parents and applying harsh punishment toward their children. In a sample of 140 families, Bodenmann-Kehl (1999, as cited in Bodenmann, 2000) further reported sound correlations between mothers’ and fathers’ dyadic coping and child reports of life satisfaction, family satisfaction, and family cohesion. Additionally, Gabriel and Bodenmann (2006a) revealed dyadic coping as a powerful negative predictor of child-related marital conflicts, yielding stronger effect sizes than individual coping or parenting competencies. Most strikingly, recent findings (Bodenmann, Cina, Ledermann, & Sanders, 2008) indicate that the enhancement of parental dyadic coping (in form of the Couples Coping Enhancement
Training CCET; see Bodenmann & Shantinath, 2004) may be particularly efficacious in improving relationship quality but also in reducing dysfunctional child behavior, albeit less strongly compared to an evidence-based parenting program (the Triple P-Positive Parenting Program; Sanders, 1999).

(2) The relationship in which conflicts arise

Children’s responses and adjustment to interparental conflict seem to depend, to a great extent, on the quality of the family relations. Davies, Harold, et al. (2002) found that interparental conflict was a weaker predictor of children’s emotional insecurity and that insecurity was less associated with their psychological problems in families where parents scored high in emotional expressiveness. Parents’ ability to discuss their emotions directly and constructively seemed to protect children from developing emotional insecurity and subsequent maladjustment in the face of parental conflict. Likewise, children from cohesive families perceived simulated parental arguments as less threatening to their wellbeing than children from other (less functional) family profiles (Davies, Cummings, & Winter, 2004). Moreover, a secure parent-child relationship (El-Sheikh & Elmore-Staton, 2004), perceived family support (Davies & Windle, 2001), and positive parenting variables (Katz & Gottman, 1997) were shown to buffer children from the harmful effects of marital conflict. One potential explanation for these ameliorative effects might be children’s appraisals in the light of interparental conflicts; supportive parenting mitigated the impact of parental discord on children by decreasing their self-blaming attributions (DeBoard-Lucas, Fosco, Raynor, & Grych, 2010). Correspondingly, children experiencing a family climate marked by high levels of negative affect and low positive affect were most likely to blame themselves for parental discord. It was, notably, the combination of negativity and positivity that best explained variation in self-blaming appraisals (Fosco & Grych, 2007). In the study by Lindahl and Malik (2011), high levels of observational measures of family cohesion were associated with low child-perceived threat and self-blame in parental conflict situations, independent of
conflict style. Interestingly, differences between conflict types were apparent regarding low
levels of family cohesiveness. Children from parents of the conflictual-hostile group reported
higher threat than children from conflictual-expressive couples characterized by intensely
angry interactions which, however, generally closed in a positive manner. Hence, a lack of
family cohesion might potentiate the negative impact of parental negativity, but only when
children do not perceive it being balanced by positivity.

(3) The frequency of conflicts in relation to positive interactions

Consequences of interpersonal difficulties might rather depend on the ratio of positive to
negative interactions than the absolute frequency of either (Gottman, 1993, 1994). Gottman
and Levenson (1992) reported that couples characterized by more negative than positive
interaction (i.e., unregulated couples) were at greater risk of starting the cascade toward
divorce than regulated couples outperforming negativity by positive interaction. Gottman
(1993) more precisely identified the positive-to-negative equations in observational data of
spousal conversations based on plots representing the cumulative difference between positive
and negative behaviors for each partner as a speaker. Regulated couples (i.e., speaker slopes
positive for both spouses) displayed a ratio of about 5:1 (positivity to negativity) and were
less likely to divorce over the next 4 years compared to unregulated couples, who yielded a
ratio of approximately 1:1 (or even less). Subsequent research strongly supported Gottman’s
balance theory of marriage (1993, 1994) postulating that, rather than negativity per se, a
couple’s ability to balance adverse interaction by positivity might be a better predictor of
relationship outcomes (e.g., Bertoni & Bodenmann, 2010; Bodenmann, Meyer, Binz, &
Brunner, 2004; Gottman, Coan, Carrère, & Swanson, 1998). Impressively, it was possible to
predict divorce over 6 years only on the basis of the positive-to-negative affect proportion in
the first 3 minutes of a couple conflict discussion (Carrère & Gottman, 1999).

Gottman’s balance theory might add a significant contribution in this field. The ratio of a
couple’s positivity to negativity could help to explain the heterogeneity of children’s
adjustment to parental conflict. The first attempt to address this idea was reported by Katz and Woodin (2002). They examined the relations between four types of couples identified by Gottman (1993) based on the partners’ speaker and listener slopes (hostile couples, hostile-detached couples, avoiders, and engagers) and their children’s adjustment in terms of mother-reported behavior problems and observed negative affect/noncompliance in a peer interaction. Their study yielded three intriguing results: First, marital typology significantly contributed to variance in child adjustment, even after controlling for parenting, co-parenting, and family-level processes (e.g., cohesiveness), and above and beyond marital satisfaction or marital violence. Second, for mother-reported child behavior problems, differences in the absolute degree of negativity between the couple types did not account for the differences in child outcomes. Third, the combination of hostility and withdrawal within the parental relationship was most destructive for children, rather than the presence of one negative behavior per se (Katz & Woodin, 2002).

In sum, marital conflict does not occur in an interpersonal vacuum. Rather, the family climate provides an important backdrop determining its implications for children’s welfare. Evidence has established the importance of examining positive interaction in couples in its own right, with constructive communication, positive everyday interaction, and dyadic coping as potential key dimensions. These behaviors might be powerful in diluting the sequelae of destructive conflict on children because couple research has also revealed that conflict may predict adverse outcomes only when it crosses a threshold in proportion to the number of positive interactions. Adopting Gottman’s balance theory (1993) to child’s development in the family, however, seems a rather novel idea. The study by Katz and Woodin (2002) corroborated that the positive-to-negative ratio in parental interaction may be crucial to children’s well-being in the family, but they focused on negativity in couples and did not answer the question of how much positivity is needed for children (see Chapter 8).
5. **Research questions and study objectives**

The present thesis seeks to add to the understanding of the causative role of interparental conflict in children’s attention problems and to examine whether some children are particularly vulnerable in this respect. In broadening the scope of this realm of research, a further goal is to underscore the importance of the counterbalancing effect of positivity when discussing marital conflict as a severe stressor in child development.

5.1. **Does interparental conflict harm child attention performance and which children are at elevated risk?**

Emerging lines of theory suggest that child exposure to interparental conflict might detrimentally interfere with children’s attention performance, but little headway has been made to empirically substantiate this hypothesis. We addressed this paucity of research in a community sample of overall $N = 94$ children, aged 11–13 years, and their mothers using an analogue design in an experimental approach. Children were randomly assigned to one of three experimental groups viewing different film stimuli of 1-min duration: (1) a couple argument (i.e., verbal anger interaction without problem solving), (2) a sequence of an action film (i.e., arousal control condition), and (3) a neutral scene of a nature documentary (i.e., calm control condition). Children’s attention performance was assessed prior to and immediately after the video exposure by the d2-R attention task (Brickenkamp, Schmidt-Atzert, & Liepmann, 2010), and children rated their actual affective state on a Likert scale repeatedly over the study procedure. Children’s skin conductance level (SCL) was first measured for a 3-min baseline period while watching neutral pictures of the International Affective Picture System (IAPS; P. J. Lang, Bradley, & Cuthbert, 2008). SCL was then recorded continuously throughout stimulus presentation. Various family variables (parental conflict, parenting, dyadic coping, etc.) were further assessed by means of questionnaires from both the children’s and the mothers’ perspectives. Figure 1 depicts the study design.
In the present study, we focused on early adolescent children, aged 11 – 13 years. Children at this age (from 9 years approximately) have a mature understanding of marital conflict and the parental relationship, and they are able to integrate their parents in both spousal and parental roles (Jenkins & Buccioni, 2000). The age of 11 – 13 years is an important developmental stage for this examination, because youth are then beginning to explore their identity as an interacting partner in family and peer relations (Steinberg, 2001). Transformation of representations of the interparental dyad as relational templates (cf. cognitive scripts, page 17) to interpret and manage their own close relationships may therefore be especially salient during this period (Demorest, 1992). Accordingly, 10- to 12-year-olds showed schema-consistent processing of conflict words after being exposed to a simulated conflict not evident in children of 7 to 9 years (O’Brien & Chin, 1998). Evidence further suggests that interparental discord increases over children’s early school years, reaching a peak during middle childhood and preadolescence (Anderson, Russell, & Schumm, 1983). The most recent study exploring dynamic processes of EST impressively reported that an history of emotional insecurity leaves an insidious legacy on later functioning; insecurity during early school years sets in motion a developmental cascade process culminating in increased sensitivity to threatened emotional security and enhanced psychological problems in early adolescents (Davies, Sturge-Apple, Bascoe, & Cummings, 2013). Hence, parental strife
might place additional demands on their cognitive functions because they are often compelled to devote psychological resources to processing parental conflict. This allocation of resources might interfere with children’s attention performance and creates potential vulnerabilities since early adolescents are concurrently experiencing large changes in physical development, in peer networks, and in the school setting. These are demanding stage-salient tasks. The concurrent diversion of resources due to experience of interparental conflict might thus be particularly momentous in this developmental phase.

**Study I**

The first study, described in Chapter 6, was undertaken to test resource allocation in children following exposure to a couple’s angry interaction. Analogue studies involving child exposure to simulations of marital conflict are a promising approach, particularly in investigating causality in specific links (Cummings, 1995). Numerous studies have demonstrated the ecological validity of analogue conflict stimuli used as a proxy for real conflicts in this field (cf. Table A). The longitudinal study by Davies and colleagues (2008) emphasized the significance of children’s attention problems as an intervening mechanism in the link between marital conflict and children’s academic maladjustment. However, it does not allow any conclusions to be drawn on the short-term depletion of attention resources caused by interparental conflict. To the best of our knowledge, this study was the first to address this gap by rigorously investigating the immediate impact of an analogue couple argument on children’s attention in a performance task, compared to a conflict-unrelated control stimulus.

**Study II**

As set out in Chapter 7, in a second contribution within this experimental design we examined whether there are children at particular risk in the link explored in Study I. A first generation of research established that interparental conflict impairs child development.
Additional work over the past two decades has been increasingly concerned with advancing insights into precise conditions that *exacerbate* or *attenuate* the risk posed by interparental conflict (see for an overview Barletta & O’Mara, 2006). Two moderators have been successfully replicated in multiple studies: (1) the frequency of interparental conflict at home and (2) skin conductance level reactivity (SCLR). First, considerable evidence has supported the sensitization hypothesis holding that frequent exposure to parental conflict engenders children’s progressively higher reactions to future parental arguments or experimental simulations of conflicts (e.g., Cummings et al., 1981; Davies et al., 1999). Second, previous research reported that high levels of SCLR to conflict may increase the risk of marital conflict for children’s development (El-Sheikh, Keller, & Erath, 2007; El-Sheikh, 2005). However, few studies have attempted to account for individual differences in the relation between parental conflict and child’s cognitive functioning to date (Medina et al., 2000; O’Brien & Chin, 1998), and to our knowledge no study has investigated physiological reactivity (SCLR) as a moderator in this context. We addressed this dearth of research by examining the effects of marital discord on children’s attentional performance, testing SCLR and children’s history of interparental conflict as moderating variables.

5.2. Adopting Gottman’s balance theory to the family context: How much positivity is needed for the children’s sake?

Interparental conflict is well established as a robust risk factor for a whole array of adjustment problems in children. It must also be taken into account, though, that conflicts are a natural and unavoidable part of marriages, and most children from conflictual homes do not develop significant levels of maladjustment (Fincham & Osborne, 1993). As supported by a large corpus of literature, destructive parental conflict has far less detrimental, sometimes negligible, impact on children’s welfare when they occur in a broader family context marked by high levels of positivity (e.g., Fosco & Grych, 2007). The adoption of the balance theory by Gottman (1993, 1994) to the child development in the family might add a significant
contribution in this context, which has been first considered by Katz and Woodin (2002), but has never been undertaken in an European sample. These authors, however, focused on parents’ negativity (i.e., hostility and detachment) and did not address the question to what extent negativity may be buffered by positivity when investigating child’s welfare in the family.

Study III

The third study, as depicted in Chapter 8, was designed to examine the effects of interparental negativity on children, weighed in terms of the amount of positivity needed to counterbalance them. According to Gottman’s ratio conception, we investigated child adjustment as a function of the numerical ratio of their parents’ positivity to negativity in an online sample of $N = 375$ mothers and fathers, based on a latent class analysis approach. In contrast to the majority of studies in this field, which have focused on family variables going beyond the parental dyad (e.g., parent-child relation, parenting, family cohesion, etc.), we specifically focused on three positive dyadic dimensions of parental interaction: (a) constructive communication, (b) positive everyday interaction, and (c) dyadic coping. These dimensions are presumed to be pivotal in buffering the harmful impact of interparental conflict on children.
EMPIRICAL CONTRIBUTIONS


6.1. Abstract

A growing body of research suggests an association between exposure to interparental conflict and attention problems in children and adolescents. This study examined whether a videotaped couple conflict decreases child’s short-term attention performance, comparing the effect to the known disruptive impact of watching action films. Participants were 60 children, aged 11 – 13 years. Children’s performance in an attention task was measured prior to and immediately after video exposure and their skin conductance level (SCL) was assessed throughout stimulus presentation in two experimental conditions: (1) couple conflict condition, and (2) action film condition. Results indicate that the simulated couple conflict more harmfully disrupted children’s accuracy performance (i.e., error ratio) although being less physiologically arousing than the action film. No significant group differences were present concerning concentration performance as behavioral outcome. The present study adds to the evidence that interparental conflict might be crucial in understanding more profoundly attention difficulties in children.

6.2. Introduction

Attention regulation including abilities to focus on relevant information and sustain attention over time is a critical skill in child development (Ruff & Rothbart, 1996). Attention problems, either subclinical or as a key symptom in attention-deficit/hyperactivity disorder (ADHD), are a frequent phenomenon in many children and adolescents and entail severe sequelae often reflected in poor academic performance (Barry, Lyman, & Klinger, 2002) or

---

*A manuscript of this chapter has been submitted for publication (Zemp, Bodenmann, & Beach, 2013).*
conduct and behavior problems (Fleming, Harachi, Cortes, Abbott, & Catalano, 2004; Mannuzza, Klein, Abikoff, & Moulton, 2004); thus represent one of the major risk factors for child’s development. Since ADHD has one of the highest average heritability for psychiatric disorders (Biederman, 2005), twin and adaptation studies yielding heritability rates up to 76% (Faraone et al., 2005), researchers and clinicians repeatedly stress the neurobiological and genetic aspects of etiology (Cortese, 2012; Kebir & Joober, 2011). In contrast, the current body of research on environmental factors that increase child’s vulnerability to attention disorders seems much sparser (Johnston & Mash, 2001). However, as recent studies show, only the interaction between genetic vulnerability and environmental factors leads to the onset of disorders (Caspi, Hariri, Holmes, Uher, & Moffitt, 2010). Hence, knowledge about the role of family functioning in the development and maintenance of attention problems in children is important for a better understanding of pathogenic mechanisms (Nigg, 2012). The goal of this study is therefore to further examine the significance of interparental conflict with respect to children’s attention performance in an experimental approach.

Among environmental factors posing a risk for child’s attention problems, parental functioning seems to be a prominent predictor and its role is increasingly discussed in this context (Biederman et al., 1995; Davies et al., 2008). Previous studies have consistently demonstrated that parents of children with attention problems are more discordant in comparison with parents of children without this trouble (Johnston & Mash, 2001), even when considering child perception of interparental conflict (Counts, Nigg, Stawicki, Rappley, & Von Eye, 2005). Gabriel and Bodenmann (2006b) reported that parents of children with externalizing symptoms and attention problems (evaluated with the CBCL) showed higher dyadic dysfunctions compared to parents of children with externalizing symptoms only or healthy control children. However, these studies give no explanation of the causal role of marital adjustment regarding child dysfunction.

Over many years, interparental conflict rather than a global measure of couple
functioning has emerged as a primary powerful predictor of child maladjustment (Emery & O’Leary, 1984; Porter & O’Leary, 1980). Considerable evidence exists that exposure to high levels of destructive interparental conflict increases child risk for a wide array of psychological problems including internalizing and externalizing symptoms, poor social adjustment, and impairments in school performance (Barletta & O’Mara, 2006; Cummings & Davies, 2010; Zimet & Jacob, 2001). Considering the latter, theory and previous findings support the assumption that attention difficulties might constitute a primary underlying mechanism. When faced with interparental discord, children react emotionally (e.g., fear, distress), behaviorally (e.g., intervening, avoidance), physiologically (e.g., skin conductance level reactivity), and cognitively (e.g., insecure representations of parental relationship, self-blaming) (Rhoades, 2008). Children’s reactivity to marital conflict is, according to the emotional security theory (EST; Davies & Cummings, 1994), an expression of perceived threat to their sense of security; a central goal for children that is significant for their well-being. Compared to children exposed to less destructive conflict, children from high-conflict homes are expected to develop insecure representations of the interparental relationship more likely (Davies & Cummings, 1998) which may interfere with information processing and cognitive functioning, leading to less attention (Davies & Cummings, 1994). Accordingly, children’s insecure representations of the parental relationship have been identified to be a significant intervening mechanism in the link between observational ratings of marital discord and child and teacher reports on children’s school adjustment (including attention problems) over a 2-year period (Sturge-Apple et al., 2008). Strikingly, Davies and colleagues revealed that attention difficulties accounted for 34% of the association between children’s insecurity and their academic performance. Children’s insecure representations of the parental relationship predicted subsequent children’s attention problems, measured by attention tasks and parent report one year later, which in turn were associated with teacher reports of children’s school problems both concurrently and longitudinally over a further year (Davies et
Attention deficits after child exposure to interparental conflict are understandable in the light of resource allocation models of cognitive neuroscience indicating that human cognitive processing is limited by central resources regulating multiple activities (Kahneman, 1973). If too many distracting stimuli or tasks require resources, performance diminishes as a result (Schneider & Fisk, 1982). In particular, affective experiences redirect one’s attention away from task performance and toward the arousing stimulus (Beal et al., 2005). Correspondingly, Davies, Manning, and Cicchetti (2013) recently reported that children’s insecurity in response to parental discord predicted subsequent behavior problems, partly mediated by their difficulties to successfully master developmental tasks. The authors argued with reference to EST that child’s regulation of emotional insecurity restrains his or her cognitive functioning by depleting the common neuropsychological resource pool (Davies, Manning, et al., 2013).

In a similar vein, exposure to parental arguments may disrupt children’s short-term attention capacity by undermining their ability to focus and sustain attention (Davies, Winter, et al., 2006). This is the first study, to our knowledge, to experimentally examine this hypothesis measuring children’s attention performance prior to and after exposure to an analogue conflict stimulus.

Analogue designs employing simulations of couple disputes emerged as a powerful experimental tool for the investigation of causal effects of marital conflict on child adjustment considering the potential of direct stimulus manipulation (Cummings, 1995). A large number of studies in this field have established the validity of the experimental exposure to simulated conflict (e.g., Davies et al., 1999; Goeke-Morey et al., 2003). To date, we know from two studies that examined the immediate effect of parental conflict on children’s cognitive functioning using this approach. First, O’Brien and Chin (1998) demonstrated that children of 10 to 12 years developed mental representations of interparental conflict which, after being activated by exposure to audiotaped angry interadult conversations, impaired their cognitive
functioning in terms of memory biases for conflict-related words. More specifically, after conflict exposure, children were instructed to listen to constructive and aggressive conflict words and to report whether they had already heard them before in the conflict stimuli. It was shown that children from high- compared to low-conflict homes showed a greater tendency to false positive memory errors (i.e., mislabeling new aggressive word not presented previously as having been heard) but made fewer errors in recognizing correct known aggressive words. Notably, similar evidence for memory biases was found neither for younger children (ages 7 – 9 years) nor concerning constructive conflict words (O’Brien & Chin, 1998).

Secondly, Medina, Margolin, and Wilcox (2000) examined the impact of children’s history of family hostility (i.e., maternal child-abuse potential and interpartner conflict) on their performance on a verbal attention task, assessed prior to and after exposure to audiotaped marital disagreements. They found that children from a high- versus low-exposure family background improved their auditory verbal attention following the conflict exposure in comparison with performance prior to the stimulus. Authors discussed that heightened reactivity to the conflict stimulus might be one underlying mechanism whereby children exposed to high family hostility achieved enhanced scores on the post-stimulus measurement (Medina et al., 2000). These findings revealed that children’s history of parental conflict does affect their reactivity to simulated parental conflict in terms of memory and attention performance but, limiting their implications, no comparisons were made to a control group exposed to stimuli unrelated to marital conflict. The purpose of the present study is to address this gap in research.

The current study

This experimental study examines the short-term effects of a videotaped couple conflict on children’s attention performance compared to a control group in a community sample. Children’s attention performance and affective state were assessed prior to and immediately after the video exposure and their skin conductance level was measured continuously.
throughout stimulus presentation. The conflict situation represented a verbal couple dispute with no conflict resolution but an escalation outcome. This type of unresolved conflict is especially prone to elicit child’s reactivity (Cummings et al., 1993). Children of the control condition were exposed to a physiologically arousing, but emotionally neutral (i.e., conflict-unrelated) stimulus; that is an action film sequence which was chosen with reference to previous research showing that films characterized by fast pace, high level of physical movement and visual change, as well as dramatic sound are highly arousing and attention-grabbing (A. C. Huston et al., 1981), and known to disrupt attention on tasks following exposure to the film (Lillard & Peterson, 2011). In accordance with the limited capacity model of television viewing (A. Lang, Bolls, Potter, & Kawahara, 1999), it has been hypothesized that the rapidly changing scenery and attention-grabbing editing of action films undermine child’s attention capacity with regard to less exciting tasks (Landhuis, Poulton, Welch, & Hancox, 2007).

Children aged 11 to 13 were recruited since there is considerable evidence that their internal representations of the interparental relationship at this developmental stage have become fairly elaborate and play an increasingly important role in information processing (Demorest, 1992). Consequently, 10- to 12-year-olds showed schema-consistent processing of conflict words after being exposed to a simulated conflict not evident in children of 7 to 9 years (O’Brien & Chin, 1998). Accordingly, it has been found that early adolescents more accurately used affective cues to evaluate conflict endings (Davies, Myers, & Cummings, 1996) and made sharper discriminations between resolved and unresolved interadult anger than younger children (Cummings et al., 1993).

**Hypotheses**

In preliminary analyses we first examine if manipulation of the experimental stimuli was successful. Both video sequences were supposed to elicit physiological arousal, but significantly higher levels should result in the action film group compared to the couple
conflict group (H1). Furthermore, we only assumed the conflict condition, but not the control condition, to trigger negative affective reactivity in children (H2). As main hypothesis, the conflict exposure was expected to have more detrimental impact on children’s short-termed attention performance, i.e., their performance in accuracy (H3a) and concentration (H3b) in the attention task. Child’s gender was controlled but we did not propose specific hypotheses concerning gender differences because prior research on the effect of child’s gender on the association between interparental conflict and child outcomes has been highly inconsistent (Davies & Lindsay, 2001).

6.3. Method

Participants

Participants were recruited by means of advertisements in local newspapers or magazines and a letter to parents in local schools. Inclusion criteria for participation were the children’s age being between 11 to 13 years and that they understood and spoke German. N = 60 children (30 boys and 30 girls) participated in this study. Three outliers (> 3 SD above the mean) with regard to attention performance had been removed from the initial sample because these data points were not compatible with the remaining data. According to the test manual of the attention task used in this study cases for which there is a large gap in the value of performance from the remainder cannot be meaningfully interpreted due to potential simulation or comprehension problems (Brickenkamp et al., 2010). The average age of children was 11.67 years (SD = .71). All were German speaking. 70% of the children attended elementary school, 23% secondary school, and 7% another type of regular school. Most (95%) were living together with both biological parents, only 3 children were living with their biological mother and a stepfather since toddler age. Ninety-seven percent of parents were married, 3% cohabitated. Mean parental relationship duration was $M = 18.58$ years ($SD = 4.25$, range = 10 – 28 years).
Procedure

Interested mothers were screened by telephone and received an informed consent for participation in the study. Eligible children and their mothers were then invited to our lab. After the introduction by the investigator, mothers were asked to sign the declaration of consent and were instructed to wait in the next room. Electrodes were then attached to the child’s non-dominant hand. Children’s SCL was first measured for a 3-min baseline period (SCL-B). Pictures neutral in valence of the International Affective Picture System (IAPS; P. J. Lang et al., 2008) which have been validated concerning self-report and SCL (P. J. Lang, Greenwald, Bradley, & Hamm, 1993) were shown during this period. Next, SCL was recorded while children were viewing a 1-min video sequence (SCL-R) to which they were randomly assigned (couple conflict versus action film). Block randomization was used to implement the random assignment to condition in order to ensure an equal allocation to both conditions. The person responsible for the random assignment to condition was not involved in the assessment of outcomes.

Group 1 (i.e., the couple conflict group; \( n = 29 \)) was exposed to a 1-min videotaped couple dispute characterized by intense verbal anger of the woman, complaining about her husband’s lack of understanding of her daily exhaustion and the husband’s highly defensive reaction. The argument ended in escalation with shouting by the wife and a display of contempt by the husband. Children of group 2 (i.e., the action film group; \( n = 31 \)) watched a 1-min sequence of an action film appropriate to children’s age. The sequence showed two kids fleeing from policemen in a racing car. In this sequence no interpersonal aspects were present, but there was perceptually salient visual change, hectic sound, high speed and physical movement. Prior to and after video exposure, all children responded to two items assessing their affective state and completed the d2-R test of attention (Brickenkamp et al., 2010).

At the end, all children were thoroughly debriefed. They were told that conflicts were
common in normal families but that constructive conflict resolutions were important. The debriefing happened first alone, then with the mother present. Participants were not rewarded financially. However, each mother was given a CCET-DVD (Bodenmann, Schaer, & Gmelch, 2008), a self-directed marital distress prevention tool, and they were able to obtain a study report. The children received a bag of sweets and a certificate for study participation.

Measures

Attention performance. The d2-R test of attention (Brickenkamp et al., 2010) was used to assess children’s attention performance. This paper-pencil test consists of 14 rows each of 57 characters (“p” and “d” with one to four dashes above and/or below each letter), whereby the first and the last row are not included in the final scoring of outcome measures. All “d” with two dashes are target symbols. The subjects were asked to cancel as many target symbols as possible within 20 seconds per row. Total test time is 4’40” without pause between test rows. The manual provides several processing measures according to standardized formulae. Concentration (total characters correctly processed minus errors of commission) and accuracy (error ratio, i.e., errors of false positive and errors of omission divided by the total characters processed) were calculated in this study since all other parameters enter in these two formulae. It should be noted that low scores on error ratio imply high accuracy. The d2 test is a very popular and frequently used attention task in German speaking countries. Cronbach’s alpha within the relevant age range were $\alpha = .82 – .86$ regarding accuracy and $\alpha = .92 – .95$ with regard to concentration (Brickenkamp et al., 2010). The authors had already pointed out in previous editions that considerable training effects are to be expected (Brickenkamp, 2002) which has been confirmed empirically (Bühner, Ziegler, Bohnes, & Lauterbach, 2006). It therefore had to be assumed that all children would enhance performance from pre- to post-measurement but to different degrees.

Skin conductance level reactivity. SCL was measured for a 3-min baseline period (SCL-B) and continuously throughout stimulus exposure (SCL-R) using two Ag-AgCl electrodes
filled with isotonic electrode gel (0.5% saline in a neutral base). Two electrodes were placed on the volar surfaces of the distal phalanges of the first and second fingers of the children’s non-dominant hand having been washed with pure water. An SCL response amplifier using a constant voltage (0.5 V) technique and a 16 channel A/D converter were used to amplify and digitize the signals. The AcqKnowledge data acquisition and analysis software (Biopac Systems, Inc.) collected SCL assessments at a rate of 1000 readings per second. Averages (expressed in microSiemens) for SCL-B and SCL-R were calculated. SCL data was not available for 4 children because of equipment failure or measurement artifacts. These children were excluded from the whole study.

_Affective reactivity._ To examine children’s affective state they were asked to evaluate their actual mood and wellbeing on a 5-point Likert scale (highly positive to highly negative and very comfortable to very uncomfortable, respectively).

6.4. Results

_Descriptive analyses_

Descriptive statistics of the study variables are presented in Table 1. As it is immanent in data of repeated measures, high correlations were found between the repeated measures concerning children’s physiological reactivity, affective reactions, and attention performance in the present study. Random assignment could be considered as successful since no significant group differences among all variable means at pre-stimulus assessment were present. Additionally, a chi-square test was computed in order to assure that boys and girls were equally distributed across the two experimental conditions ($\chi^2(1) = 2.11; ns.$).
Table 1.
Means, standard deviations, correlations, and t-tests for comparing group means among variables of Study I

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Group 1 Mean (SD)</th>
<th>Group 2 Mean (SD)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.76 (.69)</td>
<td>11.58 (.72)</td>
<td>.98</td>
</tr>
<tr>
<td>2. Mood (pre)</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.45 (.69)</td>
<td>1.39 (.63)</td>
<td>.32</td>
</tr>
<tr>
<td>3. Mood (post)</td>
<td>.08</td>
<td>.89***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.76 (.95)</td>
<td>1.32 (.60)</td>
<td>2.11*</td>
</tr>
<tr>
<td>4. Wellbeing (pre)</td>
<td>.07</td>
<td>.83***</td>
<td>.61***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.38 (.68)</td>
<td>1.39 (.57)</td>
<td>.08</td>
</tr>
<tr>
<td>5. Wellbeing (post)</td>
<td>.04</td>
<td>.35**</td>
<td>.81***</td>
<td>.50***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.93 (1.19)</td>
<td>1.26 (51)</td>
<td>2.80**</td>
</tr>
<tr>
<td>6. SCL-B</td>
<td>-.16</td>
<td>-.21</td>
<td>-.18</td>
<td>-.14</td>
<td>-.11</td>
<td>.84***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.28 (3.28)</td>
<td>9.89 (3.68)</td>
<td>.42</td>
</tr>
<tr>
<td>7. SCL-R</td>
<td>-.18</td>
<td>-.17</td>
<td>-.09</td>
<td>-.14</td>
<td>-.11</td>
<td>.84***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11.57 (3.44)</td>
<td>13.14 (4.50)</td>
<td>-1.47</td>
</tr>
<tr>
<td>8. Accuracy (pre)</td>
<td>.01</td>
<td>.15</td>
<td>-.15</td>
<td>.13</td>
<td>-.20</td>
<td>.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5.80 (4.24)</td>
<td>8.06 (8.35)</td>
<td>-1.34</td>
</tr>
<tr>
<td>9. Accuracy (post)</td>
<td>.01</td>
<td>.21</td>
<td>-.15</td>
<td>.10</td>
<td>-.02</td>
<td>-.12</td>
<td>.65***</td>
<td></td>
<td></td>
<td></td>
<td>4.31 (3.84)</td>
<td>3.47 (3.62)</td>
<td>.87</td>
</tr>
<tr>
<td>10. Concentration (pre)</td>
<td>.33*</td>
<td>-.03</td>
<td>.04</td>
<td>-.10</td>
<td>.04</td>
<td>.19</td>
<td>.03</td>
<td>-.54***</td>
<td>-.33***</td>
<td></td>
<td>128.31 (23.44)</td>
<td>122.42 (26.21)</td>
<td>.92</td>
</tr>
<tr>
<td>11. Concentration (post)</td>
<td>.32*</td>
<td>-.01</td>
<td>.03</td>
<td>-.08</td>
<td>.02</td>
<td>.10</td>
<td>.05</td>
<td>-.30*</td>
<td>-.21</td>
<td>.92***</td>
<td>155.76 (26.55)</td>
<td>154.00 (30.65)</td>
<td>.24</td>
</tr>
</tbody>
</table>

Note. Group 1 = couple conflict group; group 2 = action film group. *p < .05; **p < .01; ***p < .001.

Children’s reactivity to video exposure

In order to test the group-by-time interactions a series of repeated measures ANCOVA were computed with different dependent variables according to the study hypotheses; that is SCL-B, affective state, and attention task assessment prior to film exposure as pre-measurement and SCL-R, affective state and attention performance after stimulus exposure as post-measurement, respectively. We controlled for children’s gender as a between-subjects factor and children’s age as a covariate.

The first hypothesis was supported by a significant 2 (couple conflict vs. action film) × 2 (SCL-B vs. SCL-R) interaction indicating that the action stimulus induced significantly higher physiological arousal than the couple conflict ($F(1,52) = 13.19; p < 0.001; \eta_{p}^{2} = .20$). No other main or interaction effects achieved significant values in this analysis (H1 confirmed).

Similarly, it was found that the couple conflict stimulus was effective in triggering negative emotional reactivity in children. The ANCOVA revealed a significant group-by-time interaction regarding children’s actual mood ($F(1,52) = 7.65; p < 0.01; \eta_{p}^{2} = .13$) and wellbeing ($F(1,52) = 11.94; p < 0.01; \eta_{p}^{2} = .19$) indicating that children of the couple conflict group reported more negative mood and feeling less comfortable at post-stimulus assessment than prior to the stimulus in comparison to the action film group. Additionally, the significant interaction term of time and child’s gender ($F(1,52) = 9.38; p < 0.01; \eta_{p}^{2} = .15$) suggested that girls’ mood was more negatively influenced by the video exposure independent of group
allocation. Taken together, initial results are indicative that exposure to the interadult conflict scene, but not the action sequence, was powerful to elicit emotions which might occur in real interparental conflict situation (H2 confirmed).

As expected due to general training effects in the attention task, children in both groups improved their performance in the d2-R test from pre to post, however, concerning accuracy there was a significant group × time effect ($F(1,55) = 7.79; p < .01; \eta_p^2 = .12$). In accordance with our hypothesis 3a, children exposed to the couple conflict improved their accuracy performance after video exposure compared to prior to the stimulus to a lesser extent than children exposed to the action film indicating more serious cognitive interference by the couple conflict (H3a confirmed). Regarding children’s concentration performance in the attention task, the pre-post change of concentration in the couple conflict group did not differ from the action film group ($F(1.55) = 1.68; ns$). Hypothesis 3b was therefore not confirmed.

6.5. Discussion

In the current study, children’s performance in an attention task was assessed prior to and immediately after a stress inducing stimulus (either interadult conflict or action scene). Children’s physiological reactivity (i.e., SCL) was measured throughout video exposure and emotional reactions were assessed by means of questionnaires. Whilst taking into account that our findings are preliminary due to the relatively small sample size, we found significant evidence that a 1-min couple conflict interfered detrimentally in children’s cognitive functioning on the level of accuracy performance in the attention task. The present results are particularly noteworthy since effects were rigorously tested comparing them with a conservative control stimulus in this context. Previous research underlined the significant association between television exposure and child’s cognitive impairments both in short-term (A. Lang et al., 1999; Lillard & Peterson, 2011), as well as longitudinally (Landhuis et al., 2007; Swing, Gentile, Anderson, & Walsh, 2010). Findings are in particular important in the light of the fact that the action film induced more physiological arousal than the interadult
Previous literature on the impact of marital conflict on child adjustment has been summarized by a number of reviews (e.g., Buehler et al., 1997; Cummings & Davies, 2002; Fincham, 1994; Rhoades, 2008) but still very little is known about the role family dysfunction might have in the development of children’s attention difficulties. While we cannot reveal from our data what underlying psychological mechanisms may be involved, the current findings are in line with the assumption that children’s emotional insecurity following exposure to interparental discord may increase their risk for cognitive maladjustment by undermining their capability to sustain attention (Davies, Winter, et al., 2006). Accordingly, Davies et al. (2008) reported that insecure representations of the parental relationship were prospectively associated with attention problems in 6 year old children, accounting for a substantial proportion of their subsequent school problems. Along similar lines, experimental research demonstrated that internal representations, activated by simulated couple conflicts, considerably biased cognitive functions in preadolescent children as a function of their experiential history of interparental conflict at home (Medina et al., 2000; O’Brien & Chin, 1998). Findings of the present study are consistent with these previous studies but expand knowledge by strong support for the substantial impact interparental discord might have on child’s attention performance compared to a control condition.

This result matches neuroscientific findings. Task performance principally decreases to the extent that human attention is focused off task (Schneider & Fisk, 1982). Consequently, appraisals, arousal, and regulation strategies around significant affective states oppress immediate cognitive resources to the disadvantage of the target task. However, results were not similar regarding both outcome measures of the attention task, showing that performed accuracy was affected but concentration was not. One explanation might be that training effects in the d2 test are particularly observable with regard to concentration (Bühner et al., 2006) and this measure seems to be much more robust which is reflected in its resistance to
falsification (Brickenkamp et al., 2010). In the current context this fact could have made the concentration measure less amenable to the impact of the observed couple argument. On the other hand, accuracy may be more influenced by affects and cognitive processes and therefore exposure to experimental stimuli yielded stronger effects on this variable.

The findings reported in the present study are intriguing for several reasons. First, all documented effect sizes (i.e., partial eta squared) can be interpreted as large or next to large according to Cohen (1988). Second, it is remarkable that an impact of interparental conflict on children’s accuracy was found even though the stimulus presentation was only of very short duration (i.e., one minute). Considering that interparental conflicts in the family context usually last longer and chronic marital discord is particularly harmful for children’s wellbeing, it can be assumed that the effects of parents’ disputes in family daily routine might be considerably stronger. Third, the impact of the children’s own parents’ conflicts may be much higher than effects of an unfamiliar videotaped couple as it was used in this study. Fourth, previous research indicated that interparental discord characterized by physical or verbal aggression is the most detrimental (Cummings et al., 1989). Thus it is noteworthy that our stimulus, representing an angry but not hostile, aggressive or violent interaction already showed such strong effects. As conflicts at home are often characterized by aggression or violence (in Switzerland 24% of women experience at least once in their live physical aggression (Gillioz, De Puy, & Ducret, 1997)), again effects in real life are likely to be more salient. Fifth, as children often are the subject of the conflict (e.g., Papp et al., 2002) or actively engage in parental conflicts by playing an active part in family conflict situations (Jenkins et al., 1989), effects may be more pronounced in real family life than in the lab where there was no involvement of the child in the conflict.

On the other hand, several limitations of this study merit discussion. First, due to the small sample size we did not control for children’s history of interparental conflict. Future research is needed to replicate findings taking into account children’s experiences with
interparental conflict in the family context. Second, the experimental design allows high internal validity but potentially reduces external validity. Children’s reactions to marital conflict stimuli in the laboratory may not be equivalent to responses to disputes between their parents at home. Third, underlying cognitive mechanisms were not investigated and thus discussed theoretical assumptions were not directly tested. Our suggestions therefore remain hypothetical and should be examined in more detail in a next study. Fourth, the trainings effects inherent in the attention task used in this study make interpretation of results more complex. The application of a task with available parallel forms would have been more advantageous. Fifth, given the nature of the study a self-selection bias in terms of overrepresentation of well adjusted families has to be assumed which limits the generalizability of results. However, this could also mean that even stronger effects might be expected in a more representative community sample including also more families with low income and poorer education. Sixth, though implications with regard to ADHD were made results do not refer to a clinical sample but reveal that interparental conflict has the potential to lower attention performance in healthy children. Only a replication study with clinically diagnosed children can shed light on the significance of the findings for ADHD.

Conclusion

Taken together, the current findings are of particular relevance considering that the impact of the conflict stimulus used in this study may be minor in comparison with frequent and intense parental disputes in real family life. The present study added to the evidence that interparental discord might be considerable in paving the way for attention difficulties in childhood and adolescence. With regard to ADHD this contribution may show that beyond genetics family functioning plays a crucial role (Johnston & Mash, 2001). If replicated elsewhere in larger sample sizes and more sophisticated research designs including observational measures in the family context, our findings have several practical implications. Rather than exclusively improve parenting and child-rearing abilities in parents, prevention
and intervention programs should further stress the enhancement of the parental relationship itself (Emery, Fincham, & Cummings, 1992). Authors have already pointed towards the relevance of early prevention on the parents’ level in this context (Heinrichs, Bodenmann, & Hahlweg, 2008). There is, in summary, increasing evidence that relationship education with an emphasis on conflict communication is effective in reducing externalizing problems in children and adolescents as has been shown, for instance, in the context of the Couples Coping Enhancement Training (e.g., Bodenmann, Cina, et al., 2008). Although further research is urgently needed, the present findings on the significance of couple’s relationships for child’s attention performance and also potentially ADHD are promising.
7. **Study II: The role of skin conductance level reactivity in the impact of children’s exposure to interparental conflict on their attention performance**

7.1. **Abstract**

Previous research suggests that undermining of attention performance might be one decisive underlying mechanism in the link between marital conflict and children’s academic maladjustment but little is known about specific risk patterns in this regard. This study examines in an experimental approach the role of child’s history of interparental discord and skin conductance level reactivity (SCLR) as moderators in the link between analogue marital conflict exposure and child’s attention. Attention performance of fifty-seven children, aged 11–13 years, was assessed prior to and immediately after a 1-min video exposure to either (1) a couple conflict or (2) a neutral condition. SCLR was measured continuously throughout the stimulus presentation. Results indicated that the children’s family background of interparental conflict and their physiological reactivity moderated the influence of the experimental stimulus on child’s short-term attention performance. Lower SCLR served as protective factor in children from high-conflict homes exposed to the couple conflict. The current study advances the body of knowledge in this field by identifying risk patterns for the development of attention problems in children in relation to marital conflict exposure.

7.2. **Introduction**

Exposure to destructive interparental conflict increases child’s risk for psychological problems such as externalizing and internalizing symptoms, impairments in social relationships, and poor academic achievement (Cummings & Davies, 2010; Grych & Fincham, 1990; Rhoades, 2008). Due to its role as predictor of a wide array of future adjustment problems (Masten & Coatsworth, 1998), the latter has become the focus of

---

\(^7\)A manuscript of this chapter has been accepted for publication in the *Journal of Experimental Child Psychology* (Zemp, Bodenmann, & Cummings, 2014).
increasing interest. Previous findings suggest attention performance as one of the major underlying mechanism that may account for the detrimental impact of interparental conflict on child school maladjustment (Davies et al., 2008). However, no study has been undertaken, to our knowledge, identifying why certain children may be at higher risk for disruption in attention performance in this context. We addressed this paucity of research by examining the effects of marital discord on children’s attentional performance, testing physiological reactivity and child’s history of interparental conflict exposure as moderators, in an experimental approach.

Previous work on the emotional security theory (EST; Davies & Cummings, 1994) provides conceivable explanatory mechanisms in the link between marital strife and child’s academic problems. EST posits that maintaining a sense of security and safety in the family setting is a priority goal for children and insecurity is elevated when facing interparental conflict. It holds the sensitization hypothesis stating that children do not get used to conflict between their parents but with repeated exposure the more conflict-sensitive they get and the more intense become their emotional and behavioral responses (Cummings et al., 1981; Davies, Sturge-Apple, et al., 2006). Accordingly, the theory postulates that children from high-conflict homes compared to children experiencing lower levels of marital conflict are more likely to develop negative internal representations of the consequences of parental conflict for the welfare of themselves and the family, one of three domains emotional security can be manifested in (Davies & Cummings, 1994). Although such insecure representations may be adaptive by enhancing children’s ability to identify danger cues in high-conflict homes, maladaptive implications for their long-term adjustment are reported. Presuming to serve as schemata for guiding decisions and information processing, they have emerged to be a primary intervening mechanism in the association between interparental conflict and children’s academic maladjustment over two years (Sturge-Apple et al., 2008). Beyond, several studies have explored the underlying processes in the relation between children’s
emotional insecurity and their functioning in the school setting, including (1) the role of sleep disruptions (El-Sheikh, Buckhalt, Cummings, & Keller, 2007; El-Sheikh, Buckhalt, Keller, et al., 2007), (2) negative peer information processing (e.g., Bascoe et al., 2009), and (3) attention performance (e.g., Davies et al., 2008).

Addressing the latter, Davies and colleagues (2008) found that attention difficulties measured by task assessment and parents’ reports accounted for 34% of the link between insecure representations of the interparental relationship and teacher report on children’s school problems. Insecure representations predicted subsequent child attention problems one year later, which in turn were associated with children’s academic adjustment both concurrently and longitudinally over a 1-year period (Davies et al., 2008). Therefore, parental discord appears to have substantial impact on child’s functioning outside the home too, in particular in school, with attention difficulties as a potential result. Concerns about emotional security following destructive interparental conflict require psychosocial resources which may impair children’s neuropsychological functioning, e.g., attention performance (Davies, Winter, et al., 2006). In a similar vein, Davies, Manning, and Cicchetti (2013) recently reported that regulation of emotional insecurity in toddlers seems to cause impairments in other domains of functioning by prioritizing resources toward potential threat. This hypothesis is consistent with resource allocation models postulating that human cognitive processing of multiple stimuli is limited by central resources (Kahneman, 1973). To the extent that an individual is burdened with too many distracting stimuli that tap these resources, performance on other tasks will suffer (Schneider & Fisk, 1982). Given that affective states redirect attentional focus from the task to the affective experience particularly strong (Beal et al., 2005), exposure to parents’ arguments may undermine children’s short-term attention by disrupting their ability to focus and sustain attention. The purpose of the current study is to examine this assumption taking into consideration children’s physiological reactivity to simulated conflict and their parental conflict history as moderators in an experimental
approach, using an analogue design.

Analogue studies involving child exposure to simulations of marital conflict are a promising approach particularly in investigating directionality and causality in specific links of interparental conflict dimensions and child’s reactivity (Cummings, 1995). Numerous studies have demonstrated the ecological validity of analogue conflict stimuli used as a proxy for real conflicts in this field, providing substantial evidence about the moderating role of children’s history of parental discord in the impact of simulated marital conflict on children’s reactions in the laboratory setting (e.g., Davies, Sturge-Apple, et al., 2006; El-Sheikh, 1994; O’Brien et al., 1991).

To our knowledge, two experimental studies have examined the immediate effect of interparental conflict on children’s cognitive functioning using simulated conflict stimuli to date. First, O’Brien and Chin (1998) reported that 10- to 12-year-old children’s responses to audiotaped vignettes of couple conflict interactions biased their recognition memory for conflict-related words assessed by a word recognition task. Children were instructed to listen to constructive and aggressive conflict words and to state whether they had or had not heard them previously in the study (in presented questionnaires or audiotapes). Concerning the aggressive words, children from high-conflict homes compared to children who experienced less frequent parental discord made more false positive memory errors (i.e., aggressive words having not been presented in the previous study procedure mistakenly remembered as having been) and fewer false negative memory errors (i.e., number of presented aggressive words that were incorrectly labeled as unknown). In accordance with the sensitization hypothesis, the authors discussed their results as support for the notion that children experiencing frequent marital conflict at home develop insecure representations for interparental conflict that, after experimentally being activated by simulated conflicts, guide information processing and thus affect child’s cognitive functions (O’Brien & Chin, 1998).

Secondly, Medina, Margolin, and Wilcox (2000) determined the impact of children’s
conflict experiences in the family context on their performance on a verbal attention task, assessed prior to and after exposure to audiotaped vignettes depicting marital conflict. Strikingly, children from families reporting high levels of family hostility improved their scores on auditory attention from pre- to post-stimulus assessment in contrast to children from low-conflict families. Hence, both studies (Medina et al., 2000; O’Brien & Chin, 1998) have consistently revealed that children’s experience of parental conflict significantly moderated the effects of analogue conflict stimuli on their immediate cognitive functioning. Previous findings, however, were limited as no control group with non-conflict stimulus exposure was considered. This research gap will be addressed in the present study.

Medina and colleagues (2000) assumed children’s physiological reactivity to be a further crucial variable in this respect which should be assessed in future research. According to the literature physiological arousal assessed by skin conductance level reactivity (SCLR) is considered to be a promising measure. It has been identified as a robust moderator of links between family adversity and maladjustment in children (e.g., Cummings, El-Sheikh, Kouros, & Keller, 2007). Skin conductance level (SCL) is an electrodermal measure caused by the activity of sweat glands which are innervated solely by the sympathetic branch (SNS) of the autonomic nervous system (ANS). Since SNS activity is predominant in stressful situations, SCLR (i.e., changes in SCL baseline to a stressor) is a particularly useful indicator for the ANS activity elicited by stress (Boucsein, 2012). Remarkably, recent research strongly supports the necessity to conceptualize SCLR as a stable individual variable of children across different stressors rather than only a stimulus-evoked physiological response (El-Sheikh, 2007). SCLR to simulated marital discord is emerging as an important moderating mechanism in the association between exposure to interparental conflict and child functioning. El-Sheikh and colleagues found both in a cross-sectional (El-Sheikh, 2005) as well as in a longitudinal study (El-Sheikh, Keller, et al., 2007) that higher SCLR operated as vulnerability-reactive factor in girls; that is, the negative impact of high levels of parental discord on the
development of cognitive and externalizing symptoms was exacerbated by high levels of SCLR. These findings suggest that children (predominantly girls) who are particularly physiologically reactive to marital arguments are the most adversely affected.

Therefore, SCLR may help to unravel the impact of marital conflict on child’s cognitive functions. The Yerkes-Dodson law postulates an inverted U-shaped curve for the relationship between arousal and cognitive performance. Accordingly, when state of arousal is high, performance decreases (Yerkes & Dodson, 1908). Easterbrook’s (1959) cue utilization hypothesis is frequently used to account for this relationship. Referring to his theory, there is a progressive restriction in the total number of environmental cues that an individual is able to attend to as a function of an increase in arousal. Corresponding to the notion of resource allocation, high levels of arousal reduce the integration of relevant cues and, as a result, performance diminishes (Easterbrook, 1959). Hence, high physiologically reacting children in the face of marital conflict are expected to be particularly impaired in their attention performance.

The current study

In this study, we examine the role of two moderators that already have been successfully considered in previous studies: (1) SCLR and (2) frequency of interparental conflict at home. The current study examined the impact of a 1-min video exposure on children’s attention performance, assessed prior to and after stimulus exposure, in two experimental groups. The effects of a videotaped couple conflict were compared to a neutral stimulus and children’s baseline attention performance was controlled for. The couple conflict interaction represented a verbal escalating dispute with no conflict resolution, assumed to be particularly prone to elicit child’s reaction (e.g., Cummings et al., 1993). The control group was exposed to an emotionally neutral (i.e., conflict-unrelated) stimulus such as a calm scene of flying birds. This control condition was explicitly chosen because: (1) Using a non-conflict interadult interaction does not match the study objectives. Based on the model of classical conditioning
it is likely that even non-conflict adult interaction can trigger negative reactions in children autonomously if previous experiences with aversive interparental interactions were made and parental interaction became a conditioned stimulus evoking conditioned reaction. Fear conditioning has been experimentally proven in healthy children of the age group examined in the current study (Glenn et al., 2012) and seems to be manifested in SCLR particularly (Neumann, Waters, Westbury, & Henry, 2008). Hence, only a genuine neutral stimulus completely unrelated to adult interaction can avoid such confound. (2) That is, a neutral film condition provides a valuable control stimulus (e.g., see Fowles, Kochanska, & Murray, 2000), also addressing a gap in the research design of many leading studies in the field.

Children aged 11 to 13 were recruited as evidence exists that at this developmental stage their mental representations of the interparental relationship have become fairly elaborate and play an increasingly important role in information processing (Cummings et al., 1993; Demorest, 1992). Consequently, 10- to 12-year-olds have been found to show schema-consistent processing of conflict words after exposure to simulations of couple conflict which was not evident in younger children (O’Brien & Chin, 1998).

Hypotheses

Given previous findings about the sensitization hypothesis and the moderating role of SCLR in this regard we expected that children experiencing high levels of interparental conflict will differ in their attention performance depending on the experimental condition (couple conflict versus controls) and their physiological reactivity in the following specified direction (hypothesis 1): High-conflict children exposed to the couple conflict compared to the control group are hypothesized to be particularly predisposed for poorer performance in the attention task under conditions of high SCLR (hypothesis 2). In contrast, children from high-conflict homes but characterized by lower levels of SCLR to the conflict stimulus are expected to be less affected in their attention performance than controls (hypothesis 3). Due to the small sample size no hypothesis on gender differences was tested.
7.3. Method

Participants

Participants for this study were 60 children and their mothers. Three outliers (> 3 SD above the mean) with regard to attention performance (i.e., errors of omission) were removed from the analyses because these data points were not compatible with the remaining data. According to the authors of the attention task used in this study (Brickenkamp et al., 2010) cases for which there is a large gap in the value of performance from the remainder cannot be meaningfully interpreted due to potential simulation or comprehension problems. N = 57 children (27 boys and 30 girls) and their mothers formed the final sample. Mean age of the children was 11.64 years (SD = .74, range = 11 – 13 years). All children were living together with both their biological parents except for 3 children who were living with their biological mother and their stepfather since toddler age. Seventy-two percent attended elementary school, 19% secondary school, and 9% another type of school. The mothers’ age averaged 42.93 years (SD = 3.87, range = 31 – 52 years). Most (96%) were married, 4% were cohabiting. Relationship duration ranged from 7 to 28 years (M = 18.40 years, SD = 4.39). Mothers were primarily Swiss (82%), 8% were Germans and 10% were from other countries, but all were fluent in German. Four percent completed secondary school, 37% graduated vocational school, and 59% attained higher educational qualification, respectively.

Participants were recruited by means of advertisements in newspapers or magazines and information letters for parents sent home with children from local public schools. Inclusion criteria for participation were the child being between 11 and 13 years of age, that both mother and child were fluent in German, and that they were living together with the child’s father or stepfather in the same household.

Procedure

Assessment of eligible mothers and children took place in our lab. After the introduction
by the examiner, mothers were asked to sign the consent form. Subsequently, the child was told that the mother would be next door for the remainder of the assessment session. Mothers and children completed a set of questionnaires separately (mothers completed them online). After a short adaptation period once electrodes having been attached, children’s SCL was then first measured for a 3-min baseline period. Pictures neutral in valence of the International Affective Picture System (IAPS; P. J. Lang et al., 2008) which have been validated concerning self-report and SCL (P. J. Lang et al., 1993) were shown during this period. Next, SCL was recorded while children were viewing a 1-min video sequence. They were randomly assigned to two experimental video conditions \(n = 28\) to the couple conflict and \(n = 29\) to the neutral scene, respectively. Block randomization was used to implement the random assignment to condition in order to ensure an equal allocation to conditions. The person responsible for the random assignment to condition was not involved in the assessment of outcomes.

Group 1 (i.e., the couple conflict group) was exposed to a 1-min videotaped couple argument depicting verbal anger of the woman, complaining about her husband's lack of understanding of her daily exhaustion and the husband's reaction which included a high level of defensiveness. The argument ended unresolved in shouting by the wife and displaying contempt by the husband. Due to ethical concerns no intense interpersonal hostility or aggressiveness (i.e., interparental violence) was presented. Group 2 (i.e., the control group) was shown a neutral scene of equal length showing flying birds, representing a peaceful and calm stimulus. The sequence of a nature film was chosen as a conflict-unrelated control condition excluding any interpersonal aspects.

Prior to and after video exposure, all children completed the d2-R test of attention (Brickenkamp et al., 2010). This paper-pencil cancellation test consists of 14 rows each of 57 characters (“p” and “d” with one to four dashes above and/or below each letter), whereby the first and the last row are not included in the calculation of the processing measures. All “d”
with two dashes, regardless where they appear, are target symbols. The subjects were asked to cancel as many target symbols as possible within 20 seconds per row. Total test time is 4’40’’ without pause between test rows.

At the end, all children were thoroughly debriefed by the examiner. They were told that conflicts were a common occurrence in normal family life but that constructive conflict resolutions were important. The debriefing happened first alone, then with the mother present. Participation in the present study was not rewarded financially. However, each mother was given a CCET-DVD (Bodenmann, Schaer, et al., 2008), a self-directed marital distress prevention tool based on the Couples Coping Enhancement Training (CCET; Bodenmann & Shantinath, 2004) and they were able to obtain a report of the study after its completion. The children received a bag of sweets and a certificate for participating in the family study.

**Measures**

**Attention performance.** Children’s attention performance was measured using the d2-R test of attention (Brickenkamp et al., 2010). This test provides a number of scores, one of them is relevant to this investigation. Errors of omission are the sum of number of target symbols not cancelled by the subject. While there is controversy regarding the meaning of commission errors in attention tasks there is much more consensus that errors of omission reliably indicates inattention (Trommer, Hoeppner, Lorber, & Armstrong, 1988). The d2 test is a frequently used neuropsychological tool in German speaking countries. Reliability and validity of the revised version have been examined comprehensively with Cronbach’s alpha within the relevant age range of .81 – .86 concerning errors of omission (Brickenkamp et al., 2010).

**Frequency of interparental conflict.** One subscale of the German short version of the Children’s Perception of Interparental Conflict Scale (Gödde & Walper, 2001) developed originally by Grych, Seid, and Fincham (1992) was used to assess children’s perceptions of frequency of interparental conflict. A largely consistent factor structure to the American
original and good psychometric properties have been shown (Gödde & Walper, 2001). The children completed the three items (e.g., *My parents are mean to each other*) of the subscale Frequency on a 5-point Likert scale ranging from 1 (never) to 5 (very often). Internal consistency was $\alpha = .72$ in the current study.

*Skin conductance level reactivity (SCLR).* SCL was measured for a 3-min baseline period and continuously throughout video exposure using two Ag-AgCl electrodes filled with isotonic electrode gel (0.5% saline in a neutral base). The electrodes were placed on the volar surfaces of the distal phalanges of the first and second fingers of the child’s non-dominant hand having been washed with pure water. An SCL response amplifier using a constant voltage (0.5 V) technique to measure skin conductance and a 16 channel A/D converter were used to amplify and digitize the signals. The AcqKnowledge data acquisition and analysis software by Biopac Systems, Inc. collected SCL assessments at a rate of 1000 readings per second. Averages (expressed in microSiemens) for SCL during the baseline and the stimulus exposure period were calculated. SCLR in response to the video exposure was obtained by subtracting SCL baseline from SCL during viewing the respective video. SCL data was not available for 4 children because of equipment failure or measurement artifacts. These children were excluded from the whole study.

*Data analysis*

Hierarchical multiple regression analyses were used to examine SCLR and frequency of interparental conflict as moderators in the link between video condition and performed errors of omission at post-stimulus assessment (Cohen, Cohen, West, & Aiken, 2002). Performance of omission errors prior to the stimulus was controlled for, entering it in the first step of the regression analysis. The child’s experimental condition (i.e., a dummy-coded variable indicating the couple conflict group with the control condition as reference group), perceived frequency of interparental conflict, and SCLR followed in the second step. In the third step, all two-way interactions between frequency of interparental conflict, SCLR, and the
experimental condition were entered. The three-way product of frequency of interparental conflict, SCLR, and child’s experimental condition formed the last step. All numerical predictors were grand mean centered in order to simplify the interpretation of significant interactions and to eliminate nonessential multicollinearity (Aiken & West, 1991).

7.4. Results

**Preliminary analyses**

Preliminary analyses in the form of t-tests evidenced that random assignment was successful as there were no significant differences between the two experimental groups for any of the study variables (see Table 2). Additionally, a chi-square test was computed in order to assure that boys and girls were equally distributed across the two experimental conditions ($\chi^2(1) = 2.11, ns.$). As presented in Table 2, the study variables were not significantly intercorrelated with the expected exception of the association between children’s pre- and post-stimulus performed errors of omission.

Table 2.
Means, standard deviations, correlations, and t-tests for comparing group means among variables of Study II

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Group 1 M (SD)</th>
<th>Group 2 M (SD)</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IPC$^a$</td>
<td>-</td>
<td>2.26 (.84)</td>
<td>2.08 (.81)</td>
<td>t(55) = -.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SCLR$^b$</td>
<td>.08</td>
<td>1.38 (1.14)</td>
<td>2.17 (2.07)</td>
<td>t(55) = 1.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Omission errors (pre-stimulus)</td>
<td>-.06</td>
<td>.21</td>
<td>8.71 (8.50)</td>
<td>7.59 (4.42)</td>
<td>t(55) = -.63</td>
<td></td>
</tr>
<tr>
<td>4. Omission errors (post-stimulus)</td>
<td>-.08</td>
<td>.12</td>
<td>.60*</td>
<td>4.93 (3.96)</td>
<td>4.76 (3.93)</td>
<td>t(55) = -.16</td>
</tr>
</tbody>
</table>

*Note. $^a$IPC = frequency of interparental conflict; $^b$SCLR = skin conductance level reactivity; group 1 = couple conflict group; group 2 = control group. $^*p < .001.$

**Main results**

As shown in Table 3, the hierarchical multiple regression analysis revealed that the children’s attention performance prior to the stimulus exposure significantly predicted post-stimulus performed errors of omission, as expected. The two-way product term of SCLR and child’s perception of interparental conflict emerged as significant without consideration of the experimental groups (b = -1.00, p = .018; see Table 3). However, results must be discussed in
relation to a significant three-way interaction once the experimental condition was taken into account ($b = 1.36, p = .047$; see Table 3).

Following Aiken and West (1991), the three-way interaction was interpreted by plotting the simple regression lines for high and low values of the moderators, and the simple slopes were further examined whether they were significantly different from zero. According to the recommendation of Cohen and Cohen (1983), lower and higher levels of moderators were defined as 1 standard deviation above (+1 $SD$) and below (-1 $SD$) the mean, respectively.

With the pivotal requirement that the conditional values of the moderator designated for plotting and testing interactions should be meaningful (Preacher, Curran, & Bauer, 2006), we first confirmed that +/- 1.0 standard deviation of SCLR and frequency of interparental conflict fell inside the range of the observed data in the subsamples of both study groups separately. Likewise, SCLR values of the high-conflict subgroups (+1 $SD$ in interparental conflict) included the range of +/- 1.0 standard deviation.

Table 3.  
**SCLR and frequency of interparental conflict as moderators of the impact of experimental condition on post-stimulus performed errors of omission**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>b</th>
<th>p</th>
<th>$\Delta R^2$</th>
<th>p</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Omission errors (pre-stimulus)</td>
<td>.32</td>
<td>.000</td>
<td>.36</td>
<td>.000</td>
<td>.36</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental condition</td>
<td>-.38</td>
<td>ns</td>
<td>.00</td>
<td>ns</td>
<td>.37</td>
</tr>
<tr>
<td>IPC$^{a}$</td>
<td>.71</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCLR$^{b}$</td>
<td>-.16</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental condition * IPC</td>
<td>-1.18</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental condition * SCLR</td>
<td>.40</td>
<td>ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPC * SCLR</td>
<td>-1.00</td>
<td>.018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental condition * IPC * SCLR</td>
<td>1.36</td>
<td>.047</td>
<td></td>
<td></td>
<td>.45</td>
</tr>
</tbody>
</table>

Note. Unstandardized regression coefficients of the last step are reported. $^{a}$IPC = frequency of interparental conflict; $^{b}$SCLR = skin conductance level reactivity; outcome variable = post-stimulus performed errors of omission.

Depicted in Figure 2 is the link between the experimental video condition and children’s attention performance plotted separately for children from high- and low-conflict homes at
higher and lower levels of SCLR. As expected, it is shown that the impact of children’s history of frequent interparental conflict was different in the two study groups depending on their physiological reactivity. To test hypothesis 1 beyond the regression analysis, a slope difference test (Dawson & Richter, 2006) was computed which indicated a significant difference between the two regression lines for children from high-conflict homes in the expected direction ($t(48) = 1.69, p = .049$). That is, at high levels of interparental conflict, children’s attention performance varied as a function of experimental condition (exposure to couple conflict versus controls) and physiological arousability. More specifically and in accordance with hypothesis 3, the simple slope test revealed that children from high-conflict homes exposed to the couple conflict made fewer omission errors than the controls when not highly aroused (i.e., low SCLR) by the video stimulus ($b = -3.93, t(48) = -1.96, p = .028$). This association manifested in the reverse direction under conditions of high physiological reactivity, that is, children from high-conflict homes exposed to the couple conflict compared to controls evidenced worse performance when highly aroused (i.e., high SCLR). However, the simple slope was not statistically significant and therefore hypothesis 2 was not supported by this test.

Figure 2. The effect of experimental condition on post-stimulus performed errors of omission moderated by skin conductance level reactivity (SCLR) and frequency of interparental conflict (IPC), controlled for pre-stimulus performed errors of omission.
Considering children reporting low levels of parental arguments, post-stimulus performed errors of omission were not different between experimental groups as a function of physiological arousal. The slope difference test did not reveal a significant difference between the two regression lines for children from low-conflict homes and the simple slopes were not significant at either high or low values of physiological reactivity. Since literature in this context is much sparser no hypotheses had been formulated.

7.5. Discussion

This is the first study, to the best of our knowledge, to test the effects of marital conflict on children’s short-termed attention performance under consideration of their history of interparental conflict and physiological reactivity to a simulated couple conflict compared to controls. Children’s attention was assessed prior to and immediately after a 1-min video exposure and SCLR was measured continuously throughout stimulus presentation. Whilst definite conclusions are precluded by the small sample size, the present study is unique in providing new insights about the negative impact of marital conflict on child’s attentional performance. Both children’s experiences with parental discord and SCLR were confirmed as moderators in this link. Replicating an abundance of literature, our results indicate that not all children are similarly affected by exposure to interparental disputes (in this instance, experimental versus control condition) but, in agreement with the emotional security theory, the effects are also determined by (1) the child’s former family background of marital conflict as well as (2) child characteristics, such as stress reactivity (Cummings & Davies, 2002).

First, considerable evidence has supported the sensitization hypothesis that frequent exposure to parental conflict engenders children’s progressively higher reactions to future parental arguments or experimental simulations of conflicts (e.g., Cummings et al., 1981; Davies et al., 1999). This study is consistent with previous findings that children’s history of interparental conflict might be one of the decisive factors in the short-term impact of marital conflict on their cognitive functions in terms of memory biases (O’Brien & Chin, 1998) and
verbal attention (Medina et al., 2000). Secondly, child’s dispositional physiological reactivity is identified to be an important moderating mechanism in the link between interparental conflict and child outcomes (Cummings & Davies, 2002). The research by El-Sheikh and colleagues correspond to this notion reporting SCLR to conflict simulations exacerbates the risk of high levels of marital conflict in girls (El-Sheikh, Keller, et al., 2007; El-Sheikh, 2005).

The current study tried to contribute to a better understanding of child attention difficulties by comparing the effects of a parental argument with a control stimulus. Taken together, our pattern of results suggests that children’s perceptions of the frequency of interparental conflict in the home and their physiological reactivity measured by SCLR moderated the influence of the experimental stimulus on child’s short-term attention performance, but differently depending on whether children were exposed to a marital conflict or to a conflict-unrelated stimulus. This finding affirms the validity of the study and the viability of the present hypotheses; that is, that the effects of two prominent moderators explored in this field are unique for explaining immediate reactivity to marital conflict in terms of children’s cognitive functioning. Conclusions to children from low-conflict families are not possible as the moderation effect was primarily driven by children reporting frequent interparental discord. Under conditions of low SCLR values children from high-conflict homes made significantly fewer errors in the attention task after video exposure compared to the controls. Thus, as expected, lower physiological reactivity to the stimulus acted as a protective factor in children from high-conflict homes exposed to the couple conflict. Our findings do not completely match previous reports (El-Sheikh, Keller, et al., 2007; El-Sheikh, 2005). More specifically, they found that higher levels of SCLR emerged as vulnerability factor in the link of marital conflict and girls’ cognitive and externalizing problems. The reported results do not definitely support the vulnerability hypothesis of high SCLR since we failed to find a significant simple slope in children from high-conflict families at high values.
of SCLR and therefore differences between the two experimental groups could not be interpreted. However, caution is warranted in comparing the results since former studies (El-Sheikh, Keller, et al., 2007; El-Sheikh, 2005) examined parents’ reports of child maladjustment as a trait measure by means of questionnaires. There is increasing evidence that intense and prolonged SNS activation causes wear and tear on the body systems which is linked with multiple adjustment problems in the long term, whereas far less is known about its short-term impact.

The immediate impact of conflict simulations to children’s attention performance has been tested in a previous study but without regard to physiological reactivity and no comparison to a conflict-unrelated stimulus has been considered (Medina et al., 2000). The results reported here shed light on their, at first view, counterintuitive finding that children experiencing higher family hostility enhanced their performance after conflict exposure compared to children from low-hostility homes. As the authors argued, induced physiological arousal may in fact be important to consider; that is, our study indicates that only children from high-conflict family backgrounds who do not get highly physiologically aroused regarding skin conductance seem to be able to invest their attentional resources particularly efficiently. From the standpoint of resource allocation theories this conclusion appears plausible considering the assumption that under low arousal levels individuals are better capable of focusing the bulk of attentional resources on a given task instead on conditions surrounding their arousing state resulting in a restricted central resource pool (Beal et al., 2005).

Apparently, the process of resource allocation fails to explain why electrodermal underarousal was beneficial for children’s attention performance in the couple conflict group, but not in the control group. Interpretation in the light of the behavioral inhibition system (BIS) of the two-factor learning theory by Gray (1975) might be helpful for this purpose. The BIS is an arousal system responding to threatening or aversive stimuli by producing anxiety.
which *inhibits* rather than energizes behavior (also referred to as anxiety system; Gray, 1976). There is increasing evidence that electrodermal activity is a strong indicator for BIS activation (Fowles, 1980). Fowles and colleagues (2000) reported that young children’s skin conductance lability, a measure of the cumulative effects of SCLR to various experimental stimuli, was significantly correlated with child’s observed fearfulness and inhibitory control as two components of the BIS. Low behavioral inhibition, reflected in low SCLR, constitutes a condition of poor fear conditioning manifested in low anxiety when faced with aversive stimuli (Fowles et al., 2000). This pattern might be conducive for children reporting high levels of marital conflict having been exposed to the couple argument since it may have the potential to mitigate their increased sensitivity. Conversely, heightened BIS activity, which is characterized by passive and fearful behavioral tendencies (Beauchaine, 2001), has to be considered as highly dysfunctional in this context. Electrodermal underarousal in response to an emotionally neutral stimulus, respectively, may affect child’s attention adversely by the disability to focus resources of information processing. A conclusion that, in the clinical context, has led to the underactive BIS hypothesis for attention deficit hyperactivity disorder in children (Quay, 1997).

Several limitations of this study and corresponding directions for future research merit discussion. First, substantial precaution is required when interpreting the present findings because of the low power immanent in small sample sizes. In particular, the three-way interactions must be interpreted with caution and further studies are needed to support the reliability and stability of these findings. Beyond, the examined non-significant simple slopes might reveal significant in larger samples. Second, it is important to comment that the effect sizes of the interactions were modest in magnitude. Experimental studies, however, are known to be highly efficient to detect moderator effects but most often yield small effect sizes (McClelland & Judd, 1993). Third, in order to maximize the possibility to detect effects by reducing statistical distortions in the present sample, only interaction terms of primary
theoretical interest were included in the regression analyses (Cohen & Cohen, 1983). Given
that available data reported gender differences in the moderating role of SCLR the lack of
consideration of child gender in the interactions has to be regarded as limitation and
additional studies are needed to clarify whether the presented results differ in boys and girls.
Likewise, El-Sheikh and colleagues (2009) advocated the emerging hypothesis that the joint
influence of sympathetic and vagal activity might be particularly predictive of children’s
attention difficulties in the context of interparental conflict. Examinations of physiological
systems as independent entities must be regarded as inherently limited which should be
considered in future research. Fourth, the present study used a conflict-unrelated stimulus
without any adult interaction as control condition in order to avoid arousal in children due to
potential previous classical conditioning of interparental conversations. Our finding that
SCLR was not significantly different between the two experimental groups is consistent with
Fowles et al. (2000) reporting that (positive and negative) emotional films did not evoke
higher SCL in children compared to neutral films. It seems that already video exposure goes
along with physiological arousal in children largely independently of content; hence we
believe that variables distinctive from the couple conflict scenario (e.g., species, setting, and
vocalizations) may have a less important influence than just watching a videotape. However,
we cannot completely rule out that these variables may have an impact above and beyond this
unspecific arousal. To compare a marital conflict with either a constructive dispute or a
neutral interparental conversation is therefore an important future research direction. Fifth,
since experimentally in nature, this study focused on short-termed effects of parental conflict
on child’s attention performance. Although Davies et al. (2008) documented attention
difficulties to be one of the key pathogenic processes in the impact of emotional security on
child’s school adjustment we cannot establish from our data, albeit plausible, whether the
presented mechanisms might undermine academic performance in the longer term. In a
similar vein, though considerations from the EST were discussed as one of the pivotal
theoretical frameworks of the present study, we did not measure emotional security and it is thus not possible to draw conclusions in this regard. Therefore, additional studies employing more sophisticated research designs, including longitudinal data, are needed.

Conclusion

Notwithstanding these limitations, the present study has potential strengths. These include the experimental design involving controls allowing investigation of causal relationships, the performance task for assessing children’s attention, and measurement of SCLR in response to marital conflict exposure. The current findings advance theory and research literature on the impact of marital conflict on child’s functioning indicating that physiological stress reactivity and children’s experiences with interparental conflict are crucial when discussing why some children might be at higher risk for the development of attention problems in this connection. Our results are particularly notable given (1) the short duration of the conflict stimulus (1 minute) considering that real parental conflicts usually last longer, (2) the impact of the children’s own parents is presumably much stronger, and (3) no intense interparental hostility or violence, but an angry child-unrelated interaction, formed the stimulus. In sum, it has to be assumed that effects in real life might be much more salient. If results are replicated elsewhere it may yield important practical implications about prevention of children’s attention difficulties in relation to marital conflict exposure.
8. Study III: How much positivity is needed to buffer the impact of parental negativity on children?

8.1. Abstract

Previous research suggests that a couple’s ability to balance adverse interaction by positivity is a better predictor of relationship outcomes than negativity per se. In a sample of 375 parents, different interparental positive-to-negative ratios were identified and linked to children’s adjustment. Children whose parents were characterized by more negativity relative to positivity scored higher in externalizing problems compared to children whose parents’ negativity was outbalanced by positive interaction. Girls from parents yielding the highest positive-to-negative ratio were better prosocially adjusted than girls from all other families. Additionally, detrimental impacts of interparental negativity on children were buffered by positive dyadic functioning. It appears that parental negativity should be outperformed by at least twice the amount of positivity for the children’s sake.

8.2. Introduction

Marital conflict has been highlighted as a form of stress that deserves particular consideration in the context of children’s development (Barletta & O’Mara, 2006; Rhoades, 2008). However, there is increasing evidence that, rather than adverse interactions per se, the couple’s capabilities to compensate them by positivity may be a stronger predictor of marital outcomes (Gottman, 1994). Remarkably, to the best of our knowledge, few attempts were made so far to investigate the meaning of Gottman’s findings for children’s well-being in the family context. The purpose of the present study was to address this gap by examining the positive-to-negative ratio in parental interaction as a predictor of child adjustment.

Since couple research broke with the earlier personality-based tradition, work in recent decades has been increasingly concerned with studying interaction patterns in marriages.

---

*A manuscript of this chapter has been submitted for publication (Zemp, Merrilees, & Bodenmann, 2014).*
(Gottman & Notarius, 2002). It was shown that positivity and negativity in intimate relationships may not be considered as poles of one bipolar dimension but as two independent dimensions that constitute marital quality (Fincham & Linfield, 1997). According to this assumption both happy and unhappy couples do interact positively and negatively but, notably, in different proportion. Gottman and Levenson (1992) reported that couples characterized by more negative than positive interaction (i.e., unregulated couples) were at greater risk to start the cascade toward divorce in comparison to regulated couples outperforming negativity by positive interaction. Further studies based on observational data supported Gottman’s balance theory of marriage that states that the equation of positivity to negativity is crucial to predict marital quality and stability, suggesting a ratio of about 5:1 (positivity to negativity) in regulated couples (Gottman, 1993, 1994). Subsequently, Gottman’s couple typology could be reliably verified in survey data too (Holman & Jarvis, 2003) and positive dimensions outweighed the negative in satisfied European couples as well, notwithstanding to a lesser extent (Bertoni & Bodenmann, 2010; Bodenmann et al., 2004).

The ratio of a couple’s positivity to negativity may also help to explain the heterogeneity of children’s outcomes in high-conflict homes. Fincham and Osborne (1993) emphasized that the vast majority of children from conflictual homes do not develop psychological problems, a finding that motivates the identification of potential protective factors in this context. Several theoretical approaches support the idea that the extent to which parental negativity is buffered by their positive interaction is critical for child adjustment. First, according to the social learning theory (Bandura, 1977), children tend to imitate their parents and learn about interpersonal relations by watching them. Consequently, parents characterized by high positivity in relation to negativity demonstrate less maladaptive and more functional ways of interaction which children might model in their own relations.

Second, the emotional security theory (EST; Davies & Cummings, 1994) holds that parental discord harms children’s development by undermining children’s emotional security;
i.e., their primary goal of felt safety in the family and confidence in their parents’ abilities to preserve family stability. From an EST perspective, the impact of negative parental interaction on child’s functioning hinges on the quality of the broader family functioning (Cummings & Davies, 2010). Davies, Harold, et al. (2002) found that interparental conflict was a weaker predictor of child’s emotional insecurity and insecurity was less associated with children’s psychological problems in families where parents scored high in emotional expressiveness. Parents’ ability to discuss their emotions in a direct and constructive manner seemed to protect children from developing emotional insecurity and subsequent maladjustment in the face of parental conflict. In a similar vein, it was reported that family functioning provides a salient backdrop for children’s reactivity to marital conflict. Children from cohesive families perceived simulated parental arguments as least threatening to their well-being compared to other family profiles (Davies et al., 2004). Moreover, a secure parent-child relationship was shown to buffer children from the harmful effects of marital conflict (El-Sheikh & Elmore-Staton, 2004).

Third, pursuant to the cognitive-contextual framework (Grych & Fincham, 1990), the emotional climate in the family setting strongly affects children’s appraisals of interparental conflict. For instance, children’s self-blaming attributions for their parents’ arguments seem to depend on parenting; supportive parenting mitigated the impact of parental discord on children by decreasing those appraisals (DeBoard-Lucas et al., 2010). Strikingly, children whose parents described their emotional climate in family by high levels of negative affect and low positive affect were more likely to blame themselves for parental discord in comparison to all other groups, including children from families high in both positive and negative emotional expression. It was, notably, the combination of negativity and positivity that best explained variation in self-blaming appraisals (Fosco & Grych, 2007). In the study by Lindahl and Malik (2011), high levels of observational measures of family cohesion were associated with relatively low child perceived threat and self-blame in parental conflict.
STUDY III

situations independent of conflict style. Under conditions of low family cohesion, children from parents of the conflictual-hostile group (which were usually not able to resolve their arguments) reported higher threat compared to children from conflictual-expressive couples characterized by intensely angry interactions which, however, generally closed in a positive manner (Lindahl & Malik, 2011). These results demonstrate that a lack of family cohesion does potentiate the negative impact of parental negativity, but only in conditions where children perceive their parents’ negativity not being balanced by positivity.

In summary, a number of studies reveal that interparental destructive interactions have far less detrimental to negligible impact on children’s welfare when they occur in a broader family context marked by high levels of positivity. We think that the balance theory by Gottman (1993) adds a significant contribution in this context. The first attempt to address this idea was reported by Katz and Woodin (2002). They examined the relations between four types of couples identified by Gottman (1993) and their children’s adjustment in terms of mother-reported behavior problems and observed negative affect/noncompliance in a peer interaction. They found that the marital typology significantly contributed to variance in child adjustment, even after controlling for parenting and family-level processes, and above and beyond marital satisfaction or marital violence. For mother-reported child behavior problems, the absolute degree of negativity between the couple types did not account for the differences in child outcomes (Katz & Woodin, 2002). This study supported that the positive-to-negative ratio in parental interaction may be crucial to children’s well-being in the family, but they focused on negativity in couples (i.e., hostility and detachment) and did not answer the question of how much positivity is needed for children to buffer the negativity.

The current study

To the best of our knowledge, this is the first study that investigated child outcomes as a function of the ratio of their parents’ positivity to negativity in an European online survey study. The first aim of the study was to identify distinct classes of ratios between interparental
positivity to negativity in a sample of \( N = 375 \) mothers and fathers (individual data). We relied on latent class analysis (LCA) for this purpose given previous evidence of the usefulness of cluster analytic approaches to apply Gottman’s theory in survey data (Holman & Jarvis, 2003). In contrast to Katz and Woodin (2002), we primarily focused on the numerical positive-to-negative ratio rather than on qualitative descriptions of (negative interactions in) couple types. The second goal was to examine whether the different classes of parents’ interactivity were linked with the parents’ perception of their children’s psychological functioning (i.e., internalizing and externalizing problems, prosocial behavior). Third, we investigated buffer effects of parental positivity on their negative interactions in respect of child maladjustment.

In contrast to the majority of studies in this field that focused on family variables going beyond the parental dyad (e.g., parent-child relation, family cohesion), we examined more specifically three positive dyadic interactions of parents which are assumed to be key dimensions to counterbalance the sequelae of interparental negativity on children. First, parents’ constructive communication in conflict situations (e.g., support, problem solving) was shown to elicit positive responding in children both experimentally and in a study based on home diary reports (Cummings et al., 2003; Goeke-Morey et al., 2003). Children’s exposure to constructive communication seems to foster their emotional security which is likely to elevate their social functioning (McCoy et al., 2009). Second, reciprocal positive everyday interaction (e.g., affection, validation) between partners is being increasingly discussed as unique predictor of relationship outcomes over and above couple’s negativity (Graber et al., 2011). Its significance for family interactions has been reported (Ackerman et al., 2011). Third, consideration of the couple’s dyadic coping is warranted since it has emerged as a powerful and robust predictor of relationship satisfaction and stability (Bodenmann, 2005) by building intimacy between partners and through its moderating effect on the damaging consequences stress causes in couples (Bodenmann et al., 2010). There is
growing evidence that functional dyadic coping might be a vital moderator mitigating the impact of parental stress on children (Gabriel & Bodenmann, 2006a).

Hypotheses

Children from parents exhibiting a higher proportion of positivity to negativity were expected to be better adjusted than children from parents with smaller ratios. We further hypothesized that the three positive dyadic dimensions were potent protective factors alleviating the negative impact of interparental negativity on children. However, since this study was not designed to provide rigorous testing of a given theory, a conservative analytic stance was adopted; that is, two-tailed tests of significance were used throughout.

8.3. Method

Participants

The participants constituted a convenience sample of $N = 375$ parents (308 mothers and 67 fathers). Inclusion criteria for participation were good knowledge of German, cohabiting with spouse or partner and having at least one child aged 4 to 18 years. Participants were recruited by means of flyers distributed in local community centers and via internet by posting a link on family forums. Eligible mothers and fathers completed questionnaires on their intimate relationship and their child’s adjustment online. If participants had more than one child in the respective age range (4 – 18 years) parents were asked to select one child at random. Participation in the present study was not rewarded financially.

The average age of participants was 39.53 years ($SD = 7.06$). Most of them were Swiss (68%), 22% were Germans, and 10% were from other countries, but all were fluent in German. Eighty-four percent were married, 16% cohabitated with their partner. Mean relationship duration was $M = 14.58$ years ($SD = 6.54$, range = 1 – 38 years). Participants’ educational achievement was high school in 4%, grammar school in 56% or university in 40%, respectively. The age of children who were evaluated by their parents averaged 9.25
years (SD = 4.10, range = 4 – 18 years). One hundred and ninety-seven children (53%) were females and 178 (47%) were males.

Measures

Interparental communication quality. The short version of the Marital Communication Questionnaire (MCQ; see Bodenmann, Bradbury, & Pihet, 2008) was used, a self-report questionnaire based on the Specific Affect Coding System (SPAFF; Gottman, 1994). This questionnaire assesses with eight items negative marital communication behaviors (i.e., interparental negativity in the following) in conflict situations such as contempt, defensiveness, domineering, belligerence, and stonewalling (e.g., I criticize my partner; I deny responsibility or blame my partner). Constructive marital conflict communication was measured by four items (e.g., I validate my partner’s opinion and feelings; I try to understand my partner). Items were reported on a 6-point Likert scale (1 = very rarely, 6 = very often). The internal consistency of negative communication was α = .76 and α = .85 for positive communication in the current study.

Positive everyday interaction. Four items were developed assessing positive everyday interaction in the relationship (e.g., showing appreciation; exchange of tenderness) based on many years of research on constructive interactivity in intimate relationships (Bodenmann, 2012). Participants rated their own as well as their partners’ behavior using a Likert-type scale (1 = very rarely, 6 = very often). Internal consistencies were α = .80 for own positive behavior toward the partner and α = .84 regarding perceived positive behavior of the partner toward the respondent, respectively.

Common dyadic coping. The short version of the Dyadic Coping Inventory (DCI; Bodenmann, 2008) was used to measure the participants’ perceptions of the common dyadic coping between them and their partners as a couple by three items (e.g., We try to cope with the problem together and seek solutions). Each question was answered using a Likert scale ranging from 1 (= very rarely) to 5 (= very often). Cronbach’s alpha was α = .90 in the present
Child adjustment. Child’s adjustment was assessed by parent report of the German version of the Strengths and Difficulties Questionnaire (SDQ; Klasen, Woerner, Rothenberger, & Goodman, 2003; originally developed by Goodman, 1997). Following recent recommendations to rely on the broader three factor structure in low-risk samples (vs. clinical or high-risk samples) instead of using the original five subscales (Goodman, Lamping, & Ploubidis, 2010), we measured internalizing problems by ten items (e.g., Many fears, easily scared; Often unhappy, depressed or tearful), externalizing problems by ten items (e.g., Often fights with other children or bullies them; Easily distracted, concentration wanders), and prosocial behavior by five items (e.g., Often offers to help others (parents, teachers, children); Helpful if someone is hurt, upset or feeling ill). Parents’ rated each subscale on a 3-point Likert scale (0 = not true; 1 = somewhat true; 2 = certainly true). The internal consistency of the subscales were α = .75 for internalizing problems, α = .80 concerning externalizing problems, and α = .76 with regard to children’s prosocial behavior, respectively.

Data analysis

Latent class analysis (LCA) was used to address the first objective of the study. LCA is a person-centered approach assigning individuals to homogenous subpopulations (latent classes) by virtue of their similarity across a number of relevant variables; that is, interparental negativity, constructive communication, positive everyday interaction of the respondent and his or her partner, and common dyadic coping in the present study. In accordance with Holman and Jarvis (2003) we considered cluster analysis as a convenient tool for distinguishing couples (in this instance, individual data of parents) due to distinct relations of negativity to positivity in their relationship. Referring to previous reports (e.g., Bertoni & Bodenmann, 2010) we computed a numerical proportion of perceived negativity to positivity based on the variable means whereby positivity constitutes the average of the means of the three positive dyadic dimensions for the sake of simplicity. The mean of positivity was
divided by the mean of negativity to obtain the positive-to-negative ratio for each latent class.

Since items assessing common dyadic coping were replied on a different range compared to
the other variables, all measures which were included in the calculation of the ratio were
transformed to scales ranging from 0 to 5 to make them comparable.

LCA was computed using mixture modeling in Mplus 6 (Muthén & Muthén, 1998-2010).
Parameters are estimated by the maximum likelihood criterion. To avoid local solutions of
maximum likelihood we specified that 500 random sets of starting values for the initial stage
and 50 final stage optimizations will be used. Residual variances across classes were held
equal as by default. The optimal number of latent classes that best fit the data was determined
by evaluating fit of models with progressively more groups (beginning with n = 1) using
Schwarz’s Bayesian Information Criterion (BIC), with lower values indicating better fit.
Based on Nylund, Asparouhov, and Muthén (2007) the BIC can be regarded as superior to all
other relative fit indices in this context. The BIC corrects rigorously for the number of
parameters to be estimated (Field, 2009); hence, models with fewer groups are favored.
Notwithstanding, referring to Lavner and Bradbury (2010) we decided that the number of
classes were chosen at which the BIC value was smallest, on condition that each group
constituted at least 15 individuals in order to avoid overfitting. In adopting this approach, we
warranted to provide meaningful groups while still establishing parsimony. Posterior
probability of class membership was calculated for each individual and they were then
identified as belonging to one group on the basis of their maximum posterior probability.

Hierarchical multiple regression analyses were conducted to test (1) whether parents’
class membership of different positivity-to-negativity proportions predicted child adaptation
and (2) whether positive dyadic functioning of parents buffered the adverse effect of negative
interaction on children (Aiken & West, 1991). For purpose one, parent’s gender, child’s
gender and child’s age were controlled for potential confounds, entering them in the first step
of the regression analyses. Parents’ membership to the classes resulting from the LCA was
entered in the second step in form of dummy-coded variables. Since dummy variables only allow dichotomous comparisons of a number of categories against one chosen baseline group (that is, the reference group) we determined the reference groups in due consideration of maximal interest and plausibility in terms of content. Thus, reference group for computing the dummy variables was the class with the lowest (least functional) ratio of parental positivity relative to negativity regarding the two SDQ scores assessing child maladjustment (i.e., internalizing and externalizing problems). Children from this class were expected to score lowest on these dimensions, thus comparison of each group against this baseline group was most interesting. In contrast, the class with the highest (most functional) ratio served as reference group concerning the positive child outcome (i.e., children’s prosocial behavior). Multivariate analyses of variance (MANOVA) would have been the method of choice comparing means of a categorical variable with more than two categories pairwise and multivariate. This method was not tenable in the present study because the assumption of homogeneity of covariance matrices was violated and cell sizes were highly unequal. As robustness of statistics cannot be assumed in such cases (Field, 2009) we have opted for a regression analytic approach rather than MANOVA.

For the second purpose, hierarchical multiple regression analyses were computed to examine positive interactions between parents as moderators in the link between their negativity and child psychological well-being. Again, parent’s gender as well as child’s gender and age were controlled for in the first step of the regression analyses. Parental negativity and the respective moderator formed the second step and the two-way interaction between the main predictor and the moderator were entered in the third step. Referring to Cohen and Cohen (1983), only interaction terms of theoretical interest were included in order to maximize possibility to detect significant effects by reducing statistical distortions. All numerical predictors were grand mean centered.
8.4. Results

Descriptive statistics

Means, standard deviations and correlations between study variables are compiled in Table 4. As expected, all indicators of the dyadic functioning were highly intercorrelated with each other, as well as the measures of child outcome. Dyadic adjustment was further strongly associated with children’s welfare in the expected direction (i.e., negative associations between constructive couple behaviors with child problem behaviors but positive relations with prosocial behavior and vice versa in respect of parental negativity), albeit more consistently with children’s externalizing problems than with their internalizing or prosocial behaviors.

Table 4.
Means, standard deviations, and correlations among variables of Study III

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Negativity</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.03 (.55)</td>
</tr>
<tr>
<td>2. Constructive communication</td>
<td>-38***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.15 (.85)</td>
</tr>
<tr>
<td>3. Positive everyday interaction (respondent)</td>
<td>-31***</td>
<td>.53***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.45 (.86)</td>
</tr>
<tr>
<td>4. Positive everyday interaction (partner)</td>
<td>-.14**</td>
<td>.42***</td>
<td>.71***</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>2.26 (.99)</td>
</tr>
<tr>
<td>5. Common dyadic coping</td>
<td>-32***</td>
<td>.48***</td>
<td>.50***</td>
<td>.56***</td>
<td>-</td>
<td></td>
<td></td>
<td>3.35 (1.21)</td>
</tr>
<tr>
<td>6. Internalizing problems of children</td>
<td>.19***</td>
<td>-.05</td>
<td>-.05</td>
<td>-.13*</td>
<td>-.15**</td>
<td>-</td>
<td></td>
<td>.33 (.31)</td>
</tr>
<tr>
<td>7. Externalizing problems of children</td>
<td>.28***</td>
<td>-.21***</td>
<td>-.14**</td>
<td>-.15**</td>
<td>-.15**</td>
<td>.36***</td>
<td>-</td>
<td>.51 (.35)</td>
</tr>
<tr>
<td>8. Prosocial behavior of children</td>
<td>-.12*</td>
<td>.25***</td>
<td>.11*</td>
<td>.06</td>
<td>.11*</td>
<td>-.21***</td>
<td>-.31***</td>
<td>1.53 (.36)</td>
</tr>
</tbody>
</table>

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

Latent classes of dyadic positivity in relation to negativity

The results of the LCA indicated that the four class solution outperformed alternative class solutions across our two domains of evaluation; i.e., parsimony and model fit. The BIC decreased from the three class solution (BIC = 4376.73) to the four class model (BIC = 4340.78) and the smallest class did not come below the threshold of 15 individuals. The BIC value dropped further in the five class solution (BIC = 4307.28) but the smallest group did then include only 9 individuals (2.4%), hence the four classes were adopted in the whole sample. In a second step, we examined whether parents’ gender significantly predicted different class solutions. Therefore, a mixture modeling with known classes (in this instance,
females versus males) was computed (i.e., a multiple group analysis; see Muthén & Muthén, 1998-2010). A constrained model in which means of the specific variables of the four latent classes were held equal across the classes of gender while the variances were held equal across the latent classes was compared to an unconstrained class solution. The BIC of the constrained model was 4734.84 and provided a better fit than the unconstrained (BIC = 4784.30). However, the cogency of this result had to be considered as limited owing to the high disproportion in sample sizes between females (n = 308) and males (n = 67).

Consequently, we computed two LCA separately for women and men and compared these latent groups with the four class solution resulting from the total sample. As expected due to the high percentage of females constituting our sample, class solution of women closely resembled the overall LCA. Analogous to the former analysis, the 4 class model best fit the data yielding lowest BIC value (3634.36) without minimal group size falling short of 15 individuals of the female subsample. Furthermore, a comparison of the four class solution constrained by fixing the means at the values arising from the overall LCA with the unconstrained model indicated better fit for the former (BIC = 3527.57). According to these results, latent structure in females can be assumed to be highly congruent to the total sample and separate analyses were therefore not necessary from this point of view. Next, the same approach was applied for the male subsample. Independent LCA of men revealed that a three class solution (BIC = 758.82) fit data better than the two class model (BIC = 766.13) or the four class solution (BIC = 762.78). Visual inspection of class pattern suggested that the three groups evidently approached to three out of the four classes of the entire sample. Again, the unconstrained model was tested against a constrained model with fixed means at the values resultant from the overall LCA and the latter provided a lower BIC value (729.71). Thus, latent classes of males could successively be merged into the overall LCA solution. These preliminary analyses indicated mere quantitative rather than significant qualitative differences in latent groups between women and men. Hence, we concluded that treating the sample as a
whole without consideration of gender effects in latent classes was justified.

Table 5 shows estimated parameters of the latent classes for the total sample. The patterns of the means along the positive dimensions did not differ to a large extent across groups. In three out of the four classes the order of the means were similar (common dyadic coping > constructive communication > own positive everyday interaction > positive everyday interaction of partner). In the fourth group couple’s common dyadic coping was markedly lower but ranking of the other positive interactions were comparable. Hence, averaging all positive dimensions to compute the value of positivity in respect of the positive-to-negative ratio seemed viable in total. The four groups engendered by the LCA can be distinguished between three functional classes in which dyadic negativity was outweighed by positive interactivity to different degrees and one dysfunctional group yielding lower positivity than negativity. The (1) very high positive – low negative group (9.60%) yielded the highest ratio outperforming negativity more than 6 times by positive interactions. In the (2) high positive – low negative class (45.87%) the positive-to-negative ratio was 3.31:1 and 1.98:1 for couples of the (3) moderate positive – low negative group (39.73%). A minority (18 individuals) which was labeled as the (4) low positive – moderate negative subgroup showed less positive interaction relative to negativity revealing a ratio of 0.73:1.

<table>
<thead>
<tr>
<th>Class</th>
<th>Means and residual variances of dimensions of parental interactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negativity</td>
</tr>
<tr>
<td>1 Very high positive – low negative</td>
<td>.66 (.27)</td>
</tr>
<tr>
<td>2 High positive – low negative</td>
<td>.95 (.27)</td>
</tr>
<tr>
<td>3 Moderate positive – low negative</td>
<td>1.15 (.27)</td>
</tr>
<tr>
<td>4 Low positive – moderate negative</td>
<td>1.54 (.27)</td>
</tr>
</tbody>
</table>

*Note. All parameter estimates are significant at p < .01.*
Links between parental classes of positive-to-negative ratio and child adjustment

To examine if the positive-to-negative ratios of parental interactions were associated with child functioning, the three measures of children’s psychological adaptation were submitted as dependent variables to a series of hierarchical multiple regression analyses. As described above, the low positive – moderate negative class served as reference group concerning children’s problem scores and the very high positive – low negative class was the reference group pertaining to analyses of children’s prosocial behavior. For predictions of children’s internalizing symptoms only child’s age emerged to be significantly related with the outcome variable ($\beta = .13, p < .05$). Nonsignificant coefficients of the dummy variables suggested that there were no group differences in terms of latent classes of parental interactivity (see Table 6).

Regarding child’s externalizing problems children from the dysfunctional parental pattern (i.e., the low positive – moderate negative subgroup) were reported to score significantly higher in comparison to the very high positive – low negative ($\beta = -.32, p < .001$), the high positive – low negative ($\beta = -.50, p < .001$), and the moderate positive – low negative group ($\beta = -.41, p < .001$). Since child’s gender remained significant in the second step of the analysis as depicted in Table 6 ($\beta = -.14, p < .01$; indicating boys showing more externalizing problems than girls) a further step was entered to examine interaction terms between dummy variables representing class membership and child’s gender. None of these interactions were significant, thus these results are not presented in Table 6.
Table 6.
Classes in parental interactivity as predictors of children’s internalizing and externalizing problems

| Predictors | Internalizing problems | | | | Externalizing problems | | | |
|------------|------------------------|------------------|------------------|-----------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|            | β                      | ΔR²  | R²      | β               | ΔR²  | R²      |
| Step 1     |                        |      |        |                 |      |        |
| Child’s age| .13*                   | .02  | .02*** | -.13*           | .04  | .04*** |
| Child’s gender | -.06                  |      |      | -.13*           |      |        |
| Parent’s gender | .04                   |      |      | .07             |      |        |
| Step 2     |                        |      |        |                 |      |        |
| Class 4 vs. 1 | -.09                  | .01  | .03    | -.32***         | .05  | .09    |
| Class 4 vs. 2 | -.11                  |      |      | -.50***         |      |        |
| Class 4 vs. 3 | -.04                  |      |      | -.41***         |      |        |

Note. Standardized regression coefficients of the last step are reported. Class 1 = very high positive – low negative; class 2 = high positive – low negative; class 3 = moderate positive – low negative; class 4 = low positive – moderate negative. *p < .05, **p < 0.01, ***p < .001.

Table 7 shows that children’s prosocial behavior was significantly predicted by child’s gender (β = .12, p < .05), with girls perceived to be better adjusted on average compared to boys, and two dummy variables depicting higher prosocial functioning in children from very high positive – low negative parents in relation to children from the moderate positive – low negative (β = -.21, p < .05) and the low positive – moderate negative (β = -.14, p < .05) group. Again, since child’s gender remained a significant predictor (β = .12, p < .05) over and above class membership in the second step of the regression analysis, two-way interactions between dummy variables and gender of the child were examined in the third step yielding significant effects (see Table 7). We therefore conducted gender-specific regression analyses (not presented) which did not provide any significant group differences in boys. For girls however, the most functional ratio (very high positive – low negative) in parental interactivity was associated with higher scores in their prosocial behavior in comparison to the high positive – low negative (β = -.34, p < .05), the moderate positive – low negative (β = -.45, p < .01), and the low positive – moderate negative group (β = -.32, p < .001), respectively. Overall, 8% of the variance in girls’ prosocial adjustment could be explained solely by membership of the very high positive – low negative class relative to all other groups (ΔR² = 0.08; p < 0.01).
Table 7.
Classes in parental interactivity as predictors of children’s prosocial behavior

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Prosocial behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>.01</td>
</tr>
<tr>
<td>Child’s gender</td>
<td>.12*</td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.03</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
</tr>
<tr>
<td>Class 1 vs. 2</td>
<td>.15†</td>
</tr>
<tr>
<td>Class 1 vs. 3</td>
<td>.21*</td>
</tr>
<tr>
<td>Class 1 vs. 4</td>
<td>.14*</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
</tr>
<tr>
<td>Class 1 vs. 2 * child’s gender</td>
<td>-.55†</td>
</tr>
<tr>
<td>Class 1 vs. 3 * child’s gender</td>
<td>-.68*</td>
</tr>
<tr>
<td>Class 1 vs. 4 * child’s gender</td>
<td>-.54**</td>
</tr>
</tbody>
</table>

Note. Standardized regression coefficients of the last step are reported. Class 1 = very high positive – low negative; class 2 = high positive – low negative; class 3 = moderate positive – low negative; class 4 = low positive – moderate negative. †$p < .10$, *$p < .05$, **$p < 0.01$, ***$p < .001$.

Moderation of impact of interparental negativity on children by positive dyadic functioning

For examination of moderating effects of interparental positivity in the association between parents’ negativity and children’s functioning, one regression analysis was computed for each combination of the four moderators (i.e., constructive communication, positive everyday interaction each of the respondent and the partner, and common dyadic coping) and the three outcomes of children’s adjustment (i.e., internalizing and externalizing problems, prosocial behavior). As depicted in Table 8, dyadic negativity was a strong predictor of children’s internalizing problems yielding to significant explanation of variance beyond the control variables entered in the first step. However, across all positive dimensions examined, except of marginal findings interparental positivity was neither independently associated with child’s internalizing problems nor did it moderate the impact of parents’ negativity.
Table 8. Impact of parental negativity on children’s internalizing and externalizing problems moderated by positivity

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Internalizing problems</th>
<th></th>
<th></th>
<th>Externalizing problems</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
<td>$R^2$</td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>.17***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s gender</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td>.24***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constructive communication</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation*</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** Standardized regression coefficients of the last step are reported. *Moderation refers to the interaction term of the variables in step 2. †$p < .10$, *$p < .05$, **$p < 0.01$, ***$p < .001$. 

- 87 -
Externalizing problems, in contrast, were significantly predicted both by parental negativity and positivity across all moderation analyses with the exception of the effect of the respondent’s positive everyday interaction and the common dyadic coping which were only marginally significant (see Table 8). Additionally, it was found that the positive everyday interaction of the respondent’s partner and the common dyadic coping of the couple moderated effects of their negative interactions on children’s externalizing behavior problems. Consistent with the former analyses, interactions of child’s gender with the main predictors (i.e., negativity, positivity) were further explored in each regression but results were not listed as interaction terms were nonsignificant in all cases.

Following Aiken and West (1991), the significant two-way interactions were interpreted by plotting the simple regression lines for high and low values of the moderators and the simple slopes were examined whether they were significantly different from zero. According to the recommendation of Cohen and Cohen (1983), lower and higher levels of moderators were defined as 1 standard deviation above (+1 SD) and below (-1 SD) the mean, respectively. As shown in Figure 3, high levels of the partner’s positive everyday interaction emerged to buffer the detrimental impact of high parental negativity on children. The simple slope test revealed that negativity was significantly linked with children’s externalizing behavior under conditions of low positive behavior of the respondent’s partner (b = .19, t(367) = 4.26, p < .001) but not in case of high levels of positive behavior (b = .07, t(367) = 1.59, ns). Likewise, common dyadic coping was found to be a significant moderator in the link between interparental negativity and children’s externalizing problems. Negativity significantly predicted poor adjustment when common dyadic coping of the parents were low (b = .16, t(367) = 3.23, p < .01) but not when it was high (b = .04, t(367) = .80, ns). The plot of interaction was highly similar to Figure 3 and hence not presented.
Figure 3. The effect of parental negativity on children’s externalizing problems moderated by positive everyday interaction of the partner. Plots of interactions are presented including mean levels of all predictors as shown in Table 8. Low = -1 SD; high = +1 SD.

Given the evidence of strong gender effects in the above analyses child’s gender was consistently considered in interaction terms with variables predicting prosocial behavior (see Table 9). Step 4 (i.e., the three-way product term of parental negativity, the respective moderator, and child’s gender) is not presented for reasons of simplicity since it did not become statistically significant in any of the analyses. Results indicate that the harmful impact of parents’ negativity on children’s prosocial functioning was gender-specific; i.e., was only present for girls. Constructive communication was further identified as a powerful predictor of children’s prosocial behavior ($\beta = .22, p < .01$). Moreover, the effect of interparental negativity was moderated by their common dyadic coping.
Table 9. Impact of parental negativity on children’s prosocial behavior moderated by positivity

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Predictors</td>
<td>β</td>
<td>ΔR²</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>.01</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Child’s gender</td>
<td>.11*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td>.10</td>
<td>.06***</td>
<td>.08</td>
</tr>
<tr>
<td>Constructive communication</td>
<td>.22**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity * child’s gender</td>
<td>-.18*</td>
<td>.02*</td>
<td>.10</td>
</tr>
<tr>
<td>Constructive communication * child’s gender</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation*</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>.01</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Child’s gender</td>
<td>.11*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td>.01</td>
<td>.02*</td>
<td>.04</td>
</tr>
<tr>
<td>Positive everyday interaction (respondent)</td>
<td>.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity * child’s gender</td>
<td>-.17*</td>
<td>.02*</td>
<td>.06</td>
</tr>
<tr>
<td>Positive everyday interaction (respondent) * child’s gender</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation*</td>
<td>.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>.01</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Child’s gender</td>
<td>12*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td>-.01</td>
<td>.02*</td>
<td>.03</td>
</tr>
<tr>
<td>Positive everyday interaction (partner)</td>
<td>-.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity * child’s gender</td>
<td>-.17*</td>
<td>.02*</td>
<td>.05</td>
</tr>
<tr>
<td>Positive everyday interaction (partner) * child’s gender</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation*</td>
<td>.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age</td>
<td>-.01</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Child’s gender</td>
<td>12*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent’s gender</td>
<td>.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity</td>
<td>.01</td>
<td>.02*</td>
<td>.04</td>
</tr>
<tr>
<td>Common dyadic coping</td>
<td>.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negativity * child’s gender</td>
<td>-.14†</td>
<td>.03**</td>
<td>.07</td>
</tr>
<tr>
<td>Common dyadic coping * child’s gender</td>
<td>.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderation*</td>
<td>.10*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Standardized regression coefficients of the last step are reported. *Moderation refers to the interaction term of the variables in step 2. †p < .10, *p < .05, **p < 0.01, ***p < .001.
Figure 4 illustrates that children showed better prosocial adjustment when high values of parents’ negativity were combined with high scores in common dyadic coping in comparison to low common dyadic coping. The reverse pattern revealed when parental negativity was low. However, differences between lower and higher values of negativity in neither subgroup of moderator level could be interpreted since the simple slopes were not significant when common dyadic coping was low (b = -.06, t(367) = -.93, ns) or high (b = .07, t(367) = 1.13, ns).

**Figure 4.** The effect of parental negativity on children’s prosocial behavior moderated by parents’ common dyadic coping. Plots of interactions are presented including mean levels of all predictors as shown in Table 9. Low = -1 SD; high = +1 SD.

### 8.5 Discussion

The family provides a primary context to understand child development and research has repeatedly demonstrated marital functioning as a cornerstone in child’s socialization (Cowan & Cowan, 2002). “[…] Whenever you have a disturbed child, you have a disturbed marriage” might be the boldest pronouncement of this notion (Framo, 1975, p. 22). Indeed, interparental conflict is well established as a powerful risk factor for a whole array of adjustment problems in children (e.g., Davies & Cummings, 1994; Grych & Fincham, 1990). However, marital arguments are a common occurrence even in harmonious families and it must also be taken
into account that most children from conflictual homes do not develop psychopathology (e.g., Fincham & Osborne, 1993). Gottman’s balance theory (1993) might add an important contribution in this field; the ratio of a couple’s positivity to negativity could help to explain the heterogeneity of children’s adjustment to parental conflict. The study by Katz and Woodin (2002) suggests that, rather than the absolute degree of parental negativity, parents’ capabilities to compensate them by positivity may be a stronger predictor of children’s behavior problems. To the best of our knowledge, this study was the first in examining how much positivity is needed to buffer the impact of parental negativity on children. The presented results strongly support the idea that the impact of interparental negativity must be weighed in terms of their counterbalancing amount of positivity. For instance, two out of three children from parents with the worst positive-to-negative ratio (i.e., 0.73:1) belonged to the most symptomatic 30% in externalizing problems in comparison to approximately a fifth of the children from families with the most functional ratio (i.e., 6.29:1). Additionally, we found that positive dyadic functioning (parents’ common dyadic coping and positive everyday interaction) may buffer the impact of their negative interactions.

An LCA was computed to identify different patterns of the expression of positive behaviors in relation to negativity in couples. One subgroup (i.e., the (1) very high positive – low negative) resulted in which negative interactions were outbalanced more than 6 times. This exceeds Gottman’s 5:1 equation and is unusually high compared to ratios from previous studies based on survey data (Bertoni & Bodenmann, 2010; Bodenmann et al., 2004). However, this finding is likely to be a result of the statistical method applied in the current study. The LCA defined round 10% of the sample as a high functioning group inductively from empirical data which is not comparable to a deductive grouping approach on the basis of a given theory. Approximately 40% (the (3) moderate positive – low negative subgroup) corresponded to the positive-to-negative ratio of about 2:1 found in satisfied couples in the study of Bodenmann and colleagues (2004). A minority (the (4) low positive – moderate
negative group) obtained a ratio of less than 1.0 in accordance to the unstable couples studied by Gottman (1993). It was somehow unexpected that the profile patterns of means of the dyadic dimensions were approximately similar across the three functional classes with relatively high levels of all positive interactions in striking contrast to low negativity. That is, one typical couple type identified in previous research, interacting both high positively and negatively (i.e., volatile couples), which was shown to be particularly intriguing when it comes to examine the impact on child’s wellbeing (Fosco & Grych, 2007; Lindahl & Malik, 2011) was not represented in our sample. On the other side, the widely quantitative rather than qualitative differences between latent classes suggest that the proportion of positivity to negativity is the primary pivot to distinguish groups and thus interpretation hereof seems warranted.

Our results provided strong evidence that the ratio of interparental positivity to negativity does matter for children – for better or worse. More precisely, children whose parents were characterized by more negativity relative to positivity were reported to exhibit more externalizing problems compared to all other groups. On the other hand, girls from parents yielding the highest positive-to-negative ratio were better prosocially adjusted than girls from all other families. The reported gender differences in prosocial behavior might be explained by conventional gender-differentiated socialization emphases. Girls are commonly socialized to value interdependence and connectedness in close relationships while boys are often supported to develop greater independence and autonomy (Block, 1983). Hence, girls are assumed to be particularly sensitive to parental interaction (Davies & Lindsay, 2001), and they were shown to be especially responsive to absence of conflict resolution compared to boys (El-Sheikh & Cummings, 1995). Furthermore, gender differences in child imitation are reasonable with girls being more likely to model prosocial behavior than boys due to their socialization (J. R. Snyder, 1998).

The lack of significant findings regarding internalizing problems in contrast to the strong
effects in externalizing outcomes is consistent with earlier reports that (1) interparental discord was more consistently associated with externalizing than internalizing symptoms in children (e.g., Fauber, Forehand, Thomas, & Wierson, 1990; Grych & Fincham, 1990), (2) psychosocial risk factors in childhood played a very prominent role in the prediction of prospective externalizing problems while risk factors occurring in early adulthood had greater predictive power for internalizing disorders (Ihle, Esser, Schmidt, & Blanz, 2002), and (3) etiological factors of externalizing disorders are in general better identifiable (Blanz, Remschmidt, Schmidt, & Warnke, 2006). Moreover, parents may be more reliable raters of their children’s externalizing problems because they are inherently better observable. The child’s perspective might be the most appropriate to understand the impact of family problems on children’s internalizing symptoms and the lack thereof in the current study precludes definitive conclusions concerning this matter.

Results from the moderation analyses correspond to a large body of literature in demonstrating parental negative interactions as a robust predictor of significant disruptions in children’s externalizing and internalizing behavior, and social functioning in girls. Remarkably, the assertion that “not being nasty matters more than being nice” (Ewart, Taylor, Kraemer, & Agras, 1991) might be wrong with reference to child’s adjustment. That is, indicators of positive parental adjustment were uniquely associated with (1) reduced scores in externalizing problems and (2) improved prosocial behavior. Given that little headway has been made especially concerning the second path (e.g., McCoy et al., 2009), the current findings add substantial evidence that child exposure to constructive interaction in parents may even advance child functioning by learning essential lessons for better handling their own social relationships. Beyond, detrimental impacts of interparental negativity was buffered by positive everyday interaction of the respondent’s partner and by dyadic coping in terms of child externalizing problems and dyadic coping also moderated the impact of parents’ negativity on children’s prosocial behavior. Adult pair bond and the couple’s competencies to
utilize the partner as base of support to alleviate stress may not solely serve adult intimacy, but might also prevent undermining of parenting (Gabriel & Bodenmann, 2006a) and foster children’s emotional security that is beneficial for children’s perception of interparental discord; hence harmful effects are damped (Cummings & Davies, 2010). The result that only positive interaction of the respondent’s partner, but not the behavior of the respondent person itself, moderated the respondent’s negativity could be due to a child’s emotional bewilderment in the face of its parent’s highly inconsistent and thus unforeseeable behavior toward the partner.

Several limitations of this study merit discussion. First, we have to acknowledge methodological limitations as all study variables were assessed by self-report measures based on the parent’s perspective exclusively. This entails the risk that unhappy marriages lead parents to perceive their children as being more poorly adjusted or that effect sizes are inflated because of shared method variance. Second, albeit comparisons were made with the couple typology proposed by Gottman (1993), this study based on survey data exclusively. Previous findings (Bertoni & Bodenmann, 2010; Holman & Jarvis, 2003) supported the applicability of Gottman’s balance theory in this context. However, further investigation (based on observational data, for instance, cf. Katz & Woodin, 2002) is strongly required into whether Gottman’s idea of the positive-to-negative ratio might be adapted to child development in families. Third, while the relatively large sample size yielded considerable power to detect significant interaction effects, it is noteworthy that effect sizes were low in magnitude. However, considering the difficulties of detecting moderators in nonexperimental research (McClelland & Judd, 1993), even significant interactions of modest magnitude are appreciable. Moreover, it is known from the extensive pertinent literature that, albeit marital relationships substantially predict child development, still most of the variance in child’s well-being might be attributed to other factors (Cowan & Cowan, 2002). Fourth, since the parental relationship usually precedes parent-child relations it is tempting to examine marital
functioning as predictor of child adjustment. Nevertheless, most contemporary conceptualizations of system theories approve reciprocal family transactions. Heinrichs and colleagues stressed that future research on bidirectional effects between children’s and parents’ functioning is urgently needed in this field (Heinrichs et al., 2010). Fifth, caution in interpretation of findings is warranted as the indirect pathway of marital interaction on child outcomes by parenting was not a major concern in our study and was thus not examined. We cannot establish from our data whether the reported effects were mediated by parent-child interaction.

Conclusion

With these caveats in mind, the current findings add to our understanding of family processes that dilute the association between parental negative interactions and child maladjustment. Children experiencing an overall positive interparental relationship are emotionally secure and hence are less vulnerable to become concerned when faced with parental negativity (e.g., Davies, Harold, et al., 2002). But how much positivity is needed for children? Two points merit emphasis from our work: First, parental conflict is unavoidable in family life; what matters may be less marital negativity by itself, but rather that it is balanced by at least twice the amount of positivity. Second, the more the better seems to be the case with children of substantially reduced risk for adjustment problems and even enhanced prosocial functioning when grown in families where interparental positivity exceeds negativity many times over. Thus, the notion that parenting should be the exclusive focus of family treatment does not seem appropriate but it might be enhanced by more explicitly addressing the parents’ relationship difficulties (Emery et al., 1992). Specifically, previous findings indicate that the enhancement of parental dyadic coping may be particularly efficacious in improving relationship quality but also in reducing dysfunctional child behavior (Bodenmann, Cina, et al., 2008).
GENERAL DISCUSSION AND CONCLUSIONS

Summary of results

The three empirical contributions described in the current thesis each provide one key message which merits emphasis and further discussion: (1) a 1-min videotaped couple conflict interfered detrimentally with children’s attention performance, (2) highly physiologically responsive children from high-conflict homes might be at elevated risk, and (3) parental conflicts are unavoidable in family life; what matters may be that it is balanced by at least twice the amount of positivity.

First, findings from Study I raise concern; substantial support was found that interparental conflict deserves particular consideration in explaining attention problems in early adolescents. Exposure to an angry couple interaction of 1-min duration significantly disturbed children’s accuracy performance in the attention task accomplished immediately after stimulus presentation. To the best of our knowledge, this study contributes to the pertinent literature by providing the first empirical test of short-term resource allocation owing to marital conflict. The findings exhibit some noteworthy strengths: (i) The reported effect sizes can be considered as large or next to large according to Cohen (1988). (ii) Children’s attention was assessed by means of a performance task, instead of relying on questionnaire data exclusively, adopting a rather innovative and particularly valid approach. (iii) The experimental nature of the study involving controls is compelling, allowing causal interpretation. This is particularly noteworthy given that “nowhere has the issue of causality been more difficult to establish than in studies of family influences on children’s development” (Cowan & Cowan, 2002, p. 733). We found convincing evidence that the analogue couple argument, compared to a (conflict-unrelated) arousal control condition, depleted children’s attentional resources leading to disturbances in performed accuracy in the
attention task. (iv) Results are remarkable given that the couple argument was compared to an action film inducing significantly higher physiological arousal in children, thus representing a rather rigorous and conservative control stimulus. Our findings are especially alarming when it is considered that the damaging impact of fast-paced television shows on children’s cognitive functioning is well-established (A. Lang et al., 1999; Lillard & Peterson, 2011). (v) Previous studies (Medina et al., 2000; O’Brien & Chin, 1998) revealed that children’s history of interparental discord might be crucial in predicting cognitive distortion following conflict exposure, an important conclusion which we took into consideration in Study II. In this study, however, we were able to show that watching a short display of interadult anger is as such disturbing to children, independent of their background of family conflicts.

Whilst we cannot establish from our analyses the psychological mechanisms underlying the reported findings, results match theoretical frameworks. Conceptions offered by the emotional security theory (Davies & Cummings, 1994) and resource allocation models (e.g., Kahneman, 1973) suggest that children’s emotional insecurity elicited by a simulated parental conflict places demands on central resources, and thus task performance (in this instance, attention performance) deteriorates. Strong support for this hypothesis was recently provided by two studies: (a) Davies et al. (2013) reported that toddlers’ insecurity in the interparental relationship predicted failure in stage-salient tasks 1 year later, which, in turn, was linked to their subsequent behavior problems. (b) It was established that emotional security disrupts children’s adjustment in school longitudinally by undermining their ability to focus and sustain attention (Davies et al., 2008). Our study added substantial evidence to these emerging lines of research by confirming short-term attention impairment within an experimental approach. A major plausible reason for this could be that thoughts and concerns about family stability assume primacy in children’s cognitive functioning, leading to an inability to focus concentration in other contexts. It must be assumed, thus, that parental conflicts are a potential cause for attention problems in children. However, it is worth mentioning again that results
were not consistent across both task outcomes, indicating that performed accuracy was affected but concentration was not. Greater robustness (Brickenkamp et al., 2010) and high training effects particularly of the latter measurement (Bühner et al., 2006) might explain the lower susceptibility to interference. We addressed this issue in Study II by further examining accuracy performance (error measures) exclusively.

Second, Study II advanced our understanding by examining moderators that might exacerbate the link established in Study I. It is of substantive relevance that some children appear to be particularly vulnerable to attention disruption with regard to interparental conflict. Namely, highly physiologically reactive children from high-conflict family backgrounds may be at greater risk. This finding was deduced from comparison of children’s exposure to a couple argument with exposure to a neutral conflict-unrelated stimulus (lacking any interpersonal aspects), a powerful control condition avoiding any potential confound of conditioning processes. Using this experimental design, we were able to replicate two moderators in the association between interparental conflict and child adaptation that had been confirmed in an abundance of prior work: (a) Robust support has accumulated that frequent exposure to marital conflict progressively increases children’s reactivity, a phenomenon described in terms of a sensitization hypothesis in the literature (Cummings & Davies, 2010). (b) Physiological stress reactivity of children, assessed by skin conductance level reactivity (SCLR), is emerging as a promising moderating mechanism in this link, even though inconsistencies remain with respect to gender (El-Sheikh, Keller, et al., 2007; El-Sheikh, 2005). Our results are viable with regard to the theoretical background. Physiologically responsive children experiencing frequent parental conflict at home are presumably those children who suffer most from (1) allostatic load (i.e., wear and tear on psychophysiological systems given repeated conflict exposure), (2) cognitive interference by virtue of cognitive scripts developed based on their history of parental discord, and (3)
resource depletion due to the substantial expenditure of resources required to regain emotional
security (cf. Chapter 3).

Taken together, the findings from the experimental study raise intriguing issues. One
should thereby bear in mind that we examined the impact of a short, low-intensity, videotaped
couple conflict on a child-unrelated topic. It is a cause for substantial concern that effects of
conflicts in real life – that is, usually longer and often child-related arguments between the
children’s own parents – are certainly much more severe for children.

Third, Study III sought to address the circumstance that marital conflict does not occur in
isolation from other aspects of marital functioning. We did not assess children’s attention
performance in this study but children’s adjustment more broadly in terms of their
externalizing and internalizing behavior and their prosocial functioning by means of parent
report. Gottman’s balance theory (1993) suggests that conflict outcomes are more a result of
the ratio of positivity to negativity than the absolute number of each. This contribution may
also hold a key to understanding why a majority of children experiencing parental conflict
does not exhibit adjustment problems, a question which, to our knowledge, has never been
empirically tested in the narrower sense. Katz and Woodin (2002) clearly supported the
suggestion that the typology of the parental relationship, based on the combination of both
spousal negativity and positivity, might be more important to children’s adjustment than the
absolute degree of parental negative behaviors. This study, however, focused on Gottman’s
unregulated couples (hostile and hostile-detached couples), thus on parental hostility and
withdrawal conflict tactics, and its findings do not provide any information on how much
positivity is needed to buffer parental negativity. Our research indicates that – for better or
worse – the numerical positive-to-negative ratio of parents does matter for children’s welfare.
That is, girls whose parents were able to counterbalance their destructive conflict with
positivity by a factor of 6 were reported to be best prosocially adjusted. On the downside,
when interparental negativity outweighed positivity, children scored highest in externalizing problems compared to all other sample subgroups. This is a solid basis to claim that the impact of parental conflict must always be weighed in terms of the balancing amount of positivity between parents.

Additionally, Study III provided affirmative evidence for constructive ways of handling conflicts that might even enhance children’s prosocial functioning (consistent with McCoy et al., 2009), rather than simply indicating nontoxic effects. Hence, we should not lose “[...] sight of the fact that conflict is a part of any relationship, and that the ability to satisfactorily resolve differences is a key element to the continuation of a relationship” (Montemayor, 1983, p. 98). When observed by children, it may even help them learn appropriate ways to handle their own interpersonal difficulties. Empirical support that conflict is not necessarily a negative event for children now exists in abundant supply (cf. Chapter 4). Strikingly, positive everyday interaction and dyadic coping in couples diminished the adverse impact of destructive interaction on children in some analyses. Children’s wellbeing can therefore be assumed to depend largely on marital functioning beyond conflict communication (e.g., Fosco & Grych, 2007), with parents’ positive reciprocity and abilities to provide and gain support from each other when managing stress as promising buffers. The adult pair bond and the couple’s dyadic coping may not merely serve couple intimacy but might also reduce the harmful effects of interparental discord on children (Gabriel & Bodenmann, 2006a).

Interestingly, these results don’t support the evolutionary reformulation of the emotional security theory postulating that children’s primary goal of safety in the family is organized around the operation of the social defense system (Davies & Sturge-Apple, 2007). Following this hypothesis, interparental threat cues (i.e., negativity in any form) are assumed to be priority in shaping children’s distress reactivity in conflict situations in comparison to interactions signaling constructiveness. Davies, Martin, and Cicchetti (2012) recently reported that constructive interparental conflict failed to moderate destructive conflict which was
interpreted within this evolutionary framework. Hence, processing of constructive conflict is inferior to destructive since it does not elicit child’s efforts to shelter from social threat. Contradictory to this result, we found that parental positivity, when it exceeds negativity by at least twice the amount, does have a buffer effect for the children's benefit.

Limitations and future directions

Several limitations of our research and corresponding directions in this field deserve discussion. With regard to the experimental study, it is worth adding that cautious interpretation of these data is urged due to the small sample size. Definite conclusions about parental conflict as a cause for child attention problems would be premature before additional studies adopting more sophisticated research designs, including longitudinal data (see also Fincham et al., 1994), are available. This also applies to underlying mechanisms explaining our results. Although considerations from different theoretical assumptions, in particular from EST, were derived, we are not able to establish their viability from our data. These suggestions remain tentative and we underscore the importance of more comprehensively examining explanatory mechanisms in this context. Furthermore, trainings effects inherent in the attention task used in this study preclude reliable statements about cognitive interference in an absolute sense; instead, the impact of the couple conflict stimulus on children’s attention performance was inferred by virtue of pre-post comparison to controls. This makes interpretation of findings more complex, and we strongly recommend using a task with available parallel forms in similar studies, potentially mitigating this limitation to a certain extent. An interesting future examination could involve measuring child’s attention performance during conflict exposure. To the best knowledge of the author, only one study has addressed this issue. In the study by Pollak et al. (2005), physically abused children and controls were asked to accomplish the Continuous Performance Test (assessing sustained attention) while simultaneously being exposed to a recorded interadult conflict from the adjacent room, involving four periods (pre-anger, active anger, unresolved anger, and a
resolution period). It is noteworthy that children’s response times in the task, independent of family background, were significantly faster during the resolution period than during active or unresolved anger. In addition, despite the tempting advantages of analogue designs (most notably, stringent causal testing involving direct manipulation of the independent variable; see Cummings, 1995), maximizing internal validity can occur at the cost of external validity by the same token. The experimental set-up in which children responded to our film stimuli is apparently distinct from what they encounter in real family life. Future research investigating the processes in the naturalistic environment or applying observational methods is urgently needed, a request we aim to comply with in prospective research at our lab.

It is then noticeable that the emerging research on youth sleep appears a highly vital one in this context. To date, we have learned that (a) increased parental conflict is associated with children’s disruptions in sleep quality and quantity assessed by actigraphy9 (El-Sheikh et al., 2006), and even longitudinally after controlling for genetic influences on child sleep disturbances (Rhoades et al., 2012); that (b) irregular sleep accentuates the association of interparental conflict and early adolescents’ aggressive behavior (Lemola, Schwarz, & Siffert, 2012); and that (c) sleep disruptions constitute a mediator in the relation between children’s emotional insecurity following marital conflict and their academic functioning (El-Sheikh, Buckhalt, Cummings, et al., 2007; El-Sheikh, Buckhalt, Keller, et al., 2007). It is clearly conceivable that sleep impairments due to parental conflict engender fatigue, loss of motivation, and attention problems in children, which are then responsible for school maladjustment in the long term. We therefore consider that the joint examination of sleep and attention in this field is particularly promising and want to address it in subsequent research in collaboration with the sleep laboratory.

Next, since the parental relationship precedes the parent-child relation, it is tempting to regard marital distress spilling over into parents’ relations to their children. The field may

9A non-invasive method of monitoring rest and activity cycles, measured by a sensor worn on the child’s nondominant wrist at bedtime for 7 consecutive nights.
gain however, as stressed by Heinrichs et al. (2010, p. 159), examining “the child with emotional or behavioral problems as the point of departure”. Accordingly, it has been reported that dysregulated child behavior might in fact increase subsequent conflict levels between parents (Cui, Donnellan, & Conger, 2007; Schermerhorn et al., 2007). In another study, the only aspect of child behavior found to predict elevated marital conflict was children’s externalizing symptoms, but not internalizing problems (Jenkins, Simpson, Dunn, Rasbash, & O’Connor, 2005). After an interaction with a child showing conduct problems (i.e., uncooperative and noncompliant behavior), parents consumed 30% more alcohol (Pelham et al., 1997) and communicated more negatively with spouses (Wymbs & Pelham, 2010) than parents who had been interacting with a normally acting child. It is also known that marriages among parents of children with attention-deficit/hyperactivity disorder (ADHD) are more likely to end in divorce (Wymbs et al., 2008) and are more discordant than control marriages (Johnston & Mash, 2001), although causal directions need to be explored more closely. In sum, this pattern of results consistently emphasizes considering reciprocal rather than unidirectional influences between parents and children, and this may be especially warranted when investigating externalizing or ADHD symptomatology in children. However, we merely examined attention problems among healthy children. Only a replication study with clinically diagnosed children will provide insights into the significance and implications of our findings for children with ADHD.

With respect to Study III, most importantly, we have to acknowledge that the problem of common method variance exists since all study variables were measured by self-report based on the parents’ perspective exclusively. This strongly limits the implications of results given the risk of inflated effect sizes or the possibility that maritally unhappy parents may be more likely to perceive their children as being poorly adjusted. Indeed, Fincham (1998) highlighted that child researchers should be aware of the sentiment override hypothesis too, a phenomenon described in couple research holding that a global measure of affection toward
one’s partner predicts interpretation of his or her current behavior (Weiss, 1984). Hence, due to the lack of multi-method/multi-informant assessment of variables in our work, further investigation (for instance, based on observational data like Katz & Woodin, 2002) is required into whether Gottman’s balance theory (1993) can be adapted to children’s development in the family.

Moreover, with our finding that parental dyadic coping buffered the detrimental impact of their negative interaction on children, we enhanced the knowledge available about family-wide implications of Bodenmann’s dyadic coping concept (2000, 2002). With due regard to prior reports on stress and coping in families, a promising fundus of literature is accumulating. It has been found, on the one hand, that stress distorts the family climate at the expense of the children (Cina & Bodenmann, 2009), potentially by undermining parents’ sensitive and supportive parenting (Nelson, O’Brien, Blankson, Calkins, & Keane, 2009; Repetti & Wood, 1997). On the other hand, dyadic coping has emerged as potent not only in attenuating the link between stress and anger/verbal aggression in couples (Bodenmann et al., 2010) but also in preventing parental conflict (Gabriel & Bodenmann, 2006a), and a recent study discussed dyadic coping as a primary determinant of parental sensitivity (Hänggi, Benz-Fragnière, Haberkorn, Furler, & Perrez, 2013). Hence, this constitutes an upcoming area of research which merits particular consideration in future directions.

Practical implications

The impact of parental conflict on children is of more than academic concern. To the extent that it creates health problems in children, it constitutes a significant personal, social and societal problem. From this point of view, this thesis is not only of scientific interest; when parental conflict plays a role in paving the way for attention problems in children, as the current results suggest, this has several practical implications. Impairments in attention performance, either subclinical or as a key symptom in ADHD, represent one of the major risk factors for child development. They may result in difficulties remaining engaged in
academic tasks, leading primarily to maladjustment in the school setting (Barry et al., 2002), but interference in other developmental contexts has been documented too (e.g., Mannuzza et al., 2004). With regard to the pathogenesis of ADHD, replication of our findings in a clinical sample may contribute to the growing body of knowledge that parental conflict, beyond genetics\(^{10}\), is a pivotal issue (Johnston & Mash, 2001). This is particularly worth mentioning given that the pertinent literature repeatedly emphasizes the genetic aspects of etiology (Cortese, 2012), in due consideration the high average heritability of this disorder (e.g., Faraone et al., 2005). In contrast, the scant and inconsistent findings regarding the role of the family environment in this debate still deserve to be addressed for the purpose of deeper insights into pathogenic mechanisms (Nigg, 2012). Considering the parental relationship as a potential cause for attention difficulties could then lead to the notion that prevention or treatment thereof might be especially beneficial in the family context. Given the well-established association between destructive interparental conflict and impaired functioning in children, there is compelling need for developing prevention programs focused on enhancing constructive conflict communication in parents. Our results indicate that marital conflict is itself an aversive event for perhaps all children (Study I), but some are at greater risk (Study II), and that dyadic negativity in parents needs to be put into the context of the interparental positivity (Study III). Each of these findings provides important practical implications for prevention and family therapy.

Study I points to the urgency of universal prevention tools addressed to community families, regardless of their risk status (Heinrichs et al., 2008). We emphasize the significance of disseminating the importance of managing parental conflict in appropriate, well-modulated ways to clinicians and the community. Multiple avenues of preventive programs aimed at enhancing positive parental behavior have been taken to date. Most of them give priority to

\(^{10}\)Or, at least, as a promising environment candidate potentiating the genetic disposition to ADHD in children (see the emerging research by Nikolas, Friderici, Waldman, Jernigan, & Nigg, 2010).
parenting, but more contemporary approaches recognize the relevance of the interparental relationship both as an influence on parent–child interaction and on children directly (Cowan & Cowan, 2002). Our own research and the summary of prior studies indicate that a prevention program focused on helping mothers and fathers make their relationship less troubled and more satisfying may be highly beneficial for child development. Thus, the notion that parenting should be the exclusive focus of family treatment omits an important piece of the puzzle, a shortcoming that may be overcome by more explicitly addressing the parents’ relationship difficulties themselves (Emery et al., 1992). Reviews on this issue buttress this hypothesis, showing that couple-focused or combined parenting and marital interventions equal or exceed parenting-only focused programs (Cowan & Cowan, 2002; Turner & Dadds, 2001).

In this regard, growing emphasis on translational research has challenged scientists to take the research on interparental conflict “from the bench to the bedside” (Cummings & Schatz, 2012, p. 18). Based on initial evidence for the promise of a short (one-visit) prevention program (Faircloth & Cummings, 2008), a brief program for improving marital conflict in community families was developed by Cummings, Faircloth, Mitchell, Cummings, and Schermerhorn (2008). They found that treatment couples were more supportive and emotionally positive to each other during interactions, and more constructive in conflict discussions compared to controls, with positive changes in relationship satisfaction, parenting, and child adjustment in a two-year follow up (Faircloth, Schermerhorn, Mitchell, Cummings, & Cummings, 2011). These findings outline the clinical viability of EST and the potential translational implications for alleviating the burden of children facing marital conflict.

In Switzerland, Bodenmann developed the Couples Coping Enhancement Training (CCET) (see Bodenmann & Shantinath, 2004; Bodenmann, 1997 for further description) based theoretically upon his systemic-transactional concept of stress and coping in couples (Bodenmann, 2000). The results presented here suggest that increases in parents’ ability to
cooperate as partners while under stress could also have important beneficial effects for their children’s wellbeing. A promising evaluation already exists (Bodenmann, Cina, et al., 2008): Couples assigned to CCET benefitted highly in terms of outcomes related to relationship quality as well as parenting and child misbehavior, although the efficacy regarding the latter was less compared to an evidence-based parenting program (i.e., Triple P by Sanders, 1999). This finding encourages research on this topic; further enlargement of the CCET for parents by integrating a special emphasis on the implementation of constructive conflict strategies in front of their children or effective problem-solving regarding child-related conflict topics might be worth considering.

Study II was conducted to advance knowledge about which children may be at heightened risk for attention interference, thereby improving our ability to identify children and families most in need of treatment. Replicating an abundance of literature, our results indicate that not all children are similarly affected by exposure to interparental discord. Rather, we confirmed previous reports that repeated conflicts make children vulnerable to cognitive impairments following conflict exposure. There is now mounting evidence that children’s representations of the interparental relationship (Davies & Cummings, 1994) reflect their socialization experiences with marital conflict which may weightily interfere with their information processing. While we did not examine mediating factors for the reported depletion in children’s cognitive functioning, past research offers potential candidates for such mediation described elsewhere in more detail: self-blaming appraisals (Ghazarian & Buehler, 2010; Harold et al., 2007), hostile attributions (Bascoe et al., 2009), memory biases (O’Brien & Chin, 1998), or pessimistic rumination about conflict outcome (O’Brien, Balto, et al., 1995; O’Brien et al., 1991). Hence, treatment efforts directed toward altering these cognitions in children (e.g., teaching more functional patterns of interpreting parental arguments) and corresponding coping mechanisms (e.g., enhancement of adaptive skills)
might be powerful in reducing harm to the child. Lending robust support to this suggestion, studies have reported that active and support-seeking forms of coping (Nicolotti, El-Sheikh, & Whitson, 2003; O’Brien, Margolin, et al., 1995) and appropriate emotion regulation (David & Murphy, 2004; Schulz, Waldinger, Hauser, & Allen, 2005) in children may buffer the damaging effects of parental strife.

On a related note, our findings about skin conductance level reactivity (SCLR) as moderator in this link also warrant attention. Under conditions of low SCLR values, children from high-conflict homes made significantly fewer errors in the attention task after the couple argument than children from high-conflict homes having been exposed to the control stimulus. Thus, low levels of SCLR served as a protective factor for children assigned to the conflict condition. SCLR is discussed as a strong marker of Gray’s (1976) behavioral inhibition system (BIS), a neurophysiological motivational system responding to aversive stimuli by eliciting anxiety which inhibits rather than energizes behavior (Beauchaine, 2001; Fowles, 1980). Individuals with a weak BIS (reflected in low SCLR to stressors) exhibit physiological predispositions toward low anxiety, fearlessness, or behavioral disinhibition when faced with threatening circumstances or cues of punishment (Fowles et al., 2000).

Accordingly, the studies by Erath and colleagues consistently indicated that lower SCLR to a couple dispute in boys exacerbated the association between parental use of harsh parenting and children’s externalizing symptoms (Erath, El-Sheikh, & Cummings, 2009; Erath, El-Sheikh, Hinnant, & Cummings, 2011). The authors suggested that these boys, compared to boys with a highly active BIS (higher SCLR), will rather learn aggression from harsh parental responses than feel punished by it since they experience less physiological arousal and psychological distress (Erath et al., 2011). Because attention is unimpeded by high arousal, an underaroused state in children could also have contributed to optimal physiological conditions for performance in the attention task in our study. These findings corroborate the importance of psychophysiological approaches in the examination of interactions between family risk
factors and children’s vulnerabilities to developing psychopathology. Although the BIS is conceptualized as temperamental construct (Gray, 1975), and SCLR was correspondingly proven to be a stable measure across time and tasks (El-Sheikh, 2007), interventions that focus on improving the child’s ability to regulate physiological arousal may also be effective ways to buffer the detrimental impact of interparental conflict.

In sum, however, it should be mentioned that initial evidence for beneficial effects by teaching children how to better cope with parental conflict was limited (Cummings & Schatz, 2012). Therefore, focusing on altering parental behavior might be the relatively more feasible alternative, in two ways: (1) by enhancement of parents’ constructive conflict tactics (see above), given that this prevents sensitization effects in children (e.g., Davies et al., 1999), and (2) with encouragement of supportive family communication about interparental conflict. In the study by Brown, Fitzgerald, Shipman, and Schneider (2007), only about 40% of the children reported that their mothers would talk about conflicts and, alarmingly, approximately 30% expected that they would communicate in an invalidating manner (e.g., minimization of the child’s emotion, punishment, or parentification). Against this backdrop, it is particularly important to note that validating and supportive mother-child conversations about parental conflicts were shown to buffer the harmful effects of discord. Children benefited from mothers’ explanations that frankly addressed the content of their questions (McDonald, Jouriles, Rosenfield, & Leahy, 2012) or from expression of remorse (Gomulak-Cavicchio, Davies, & Cummings, 2006). Post-conflict communications denying the occurrence of a disagreement, however, can aggravate the consequences of conflicts for children (Gomulak-Cavicchio et al., 2006).

Study III revealed that multiple aspects of dyadic functioning in parents combine to explain variance in child development. Since children’s emotional security hinges on the quality of the broader family functioning (Davies et al., 2004), parental negativity may have
less adverse effects on children when it takes place in a positive family climate (Fosco & Grych, 2007). We found that interparental positivity ought to exceed marital conflict by at least twice for the sake of children’s welfare. Children from families above this critical threshold (a) may be protected against negativity and (b) can learn from observed positivity.

This is an important and disburdening message which should be emphasized and disseminated to community families, since they all face conflict in everyday family life. In agreement with Bradbury et al. (2001), our findings indicate that the assertion of “conflict is king” oversimplifies the determinants of marital functioning and consequently limits intervention approaches that can be derived. That is, a focus on resources in prevention or treatment approaches seems timely and more promising than just reducing negativity. This certainly remains one main target but should be augmented by an attempt to enhance positive interactions (e.g., constructive communication, positive everyday interaction, and dyadic coping as examined in our study) in order to create a positive family environment for child development.
A WORD TO PARENTS

Based on the current state of scientific knowledge, a few principles on how to handle conflicts constructively – for the sake of the children – can be offered to parents:

- Avoid unconstructive fighting in the presence of the child whenever possible, in particular when concerning child-related topics.
- Not whether parents argue, but how they do is most important for the child’s welfare. There is a continuum from most destructive (i.e., physical aggression) to most constructive conflicts (i.e., signals of affection and support). Note that the latter may even enhance children’s adjustment.
- Be a role model for your children. They learn from you how to manage conflicts in their own relationships.
- Positivity buffers negativity. Conflicts belong to normal family life, but always try to outnumber them by instances of supportive behavior.
- Talk about conflicts. Explain to your children the reason for an argument and the way it was resolved. If it could not be solved, reassure them that a resolution will be found.
- Be aware that children are exceedingly sensitive and reactive to parental expressions of anger, also nonverbal, and that this sensitivity may accumulate over time.
- Make every effort to solve arguments satisfactorily. Conflict resolution, and each step in that direction, can reduce children’s harm.
- Don’t hold anger in. Children usually sense unexpressed hostility which makes them especially anxious. But keep children out of angry interactions and do never express aggression in front of them.
- Be aware that chronic and intense conflict might spill over to parenting and is seriously damaging to children’s development. Be sensitive to how they react, and be prepared to seek professional help when needed.
CLOSING REMARK

Overwhelming evidence has accumulated over years that parental conflict is a fundamental threat to which children are exposed. Marital distress may undermine children’s emotional security by feeling a loved one's unhappiness, raising concerns about family dissolution. When parents display anger toward each other, they become a source of fear rather than a source of protection or comfort for children. This experience of fear is hypothesized as one primary cornerstone for the development of long-term psychopathology. However, when stating that "[…] whenever you have a disturbed child, you have a disturbed marriage", Framo (1975, p. 22) does not take into consideration that most children seem resilient to interparental discord. A growing corpus of literature agrees that “conflict is bad (except when it’s not)” (Laursen & Hafen, 2010). Interparental conflict is not an isolated occurrence in everyday family life, but must be weighed in terms of the relationship in which it arises, how it is managed, and its quantity in relation to positive interactions. Prevention efforts to address these factors, however, are still in their infancies. It should be remembered that, while disturbed marriages place children at risk for a variety of adjustment problems, satisfying marriages can largely contribute to children’s welfare.
REFERENCES


REFERENCES


REFERENCES


REFERENCES


- 122 -


REFERENCES


REFERENCES


REFERENCES


Table A. Analogue studies assessing children’s immediate responses to simulated parental conflict

<table>
<thead>
<tr>
<th>Study</th>
<th>Stimulus</th>
<th>Sample</th>
<th>Response variables</th>
<th>Main results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown,</td>
<td>Audiotaped unresolved, child-focused couple argument</td>
<td>75 children, aged 6-12 years</td>
<td>Expectations of mother-child communication about the argument</td>
<td>40% of children reported that their mothers would talk about the arguments at home.</td>
</tr>
<tr>
<td>Fitzgerald, Shipman, &amp;</td>
<td></td>
<td></td>
<td>Expected validation and invalidation in post-conflict conversations</td>
<td>30% expected that they would communicate in an invalidating manner.</td>
</tr>
<tr>
<td>Schneider, 2007</td>
<td></td>
<td></td>
<td></td>
<td>Validating parent-child conversations about conflicts buffered the impact of parental discord.</td>
</tr>
<tr>
<td>Cummings, 1987</td>
<td>Simulated interaction between two adult females in the adjacent room opened to view for the child, including three periods:</td>
<td>85 children, aged 5 years on average</td>
<td>Observed verbal and physical aggression toward a close friend of the children</td>
<td>The majority of children responded behaviorally and emotionally to background anger: 46% were classified as concerned (only negative emotions) and 35% as ambivalent (both positive and negative emotions).</td>
</tr>
<tr>
<td></td>
<td>(1) friendly interaction period</td>
<td></td>
<td>Observed negative emotions (freezing, shutting out, verbal concern, etc.)</td>
<td>Verbal aggression toward the peer was higher in the post-anger period compared to the period after the friendly adult interaction.</td>
</tr>
<tr>
<td></td>
<td>(2) angry interaction period</td>
<td></td>
<td>Observed positive emotions (smiling at the actors, the mother or the peer)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) friendly interaction period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within/Between-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cummings, Ballard, El-</td>
<td>Videotaped couple arguments followed by different endings:</td>
<td>98 children / adolescents, aged 5-19 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, okay, happy)</td>
<td>Unresolved conflict elicited more negative responses than partially resolved and resolved conflicts.</td>
</tr>
<tr>
<td>Sheikh, &amp; Lake, 1991</td>
<td>(1) resolved (compromise, apology)</td>
<td></td>
<td>Reported likelihood of involvement into conflict (no involvement, background intervention, brief intervention, involved intervention)</td>
<td>Apology elicited greater involvement than compromise.</td>
</tr>
<tr>
<td></td>
<td>(2) partially resolved (submission, topic change)</td>
<td></td>
<td></td>
<td>Continued fighting was perceived as angrier than the silent treatment.</td>
</tr>
<tr>
<td></td>
<td>(3) unresolved (silent treatment, continued fighting)</td>
<td></td>
<td></td>
<td>Submission was perceived as angrier and induced more anger in children than topic change.</td>
</tr>
<tr>
<td></td>
<td>Within-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cummings, Goeke-Morey, &amp; Papp, 2004</td>
<td>Different videotaped tactics of a couple argument introduced verbally by the examiner:</td>
<td>108 children, aged 8-16 years</td>
<td>Self-reported aggressive responses</td>
<td>Destructive conflict induced more aggression in children than constructive conflict tactics. Child aggression in response to conflict stimuli predicted externalizing problems, even after controlling for child age and gender.</td>
</tr>
<tr>
<td></td>
<td>(1) destructive tactics (nonverbal hostility, defensiveness, physical distress, verbal hostility, threat, pursuit, personal insult, physical aggression toward an object, physical aggression toward a person, withdrawal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) constructive tactics (calm discussion, humor, support, physical affection, verbal affection, problem solving)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cummings, Iannotti, &amp; Zahn-Waxler, 1985</td>
<td>Simulated interaction between two adult females in the background of the room, including three periods:</td>
<td>Sample I: 47 children (exposed twice to anger); Sample II: 43 children (exposed once to anger); Sample III 20 children (no anger exposure); All aged 2 years on average</td>
<td>Observed distress Observed aggressive behaviors</td>
<td>Children showed more distress and aggressive behaviors following the anger period compared to the friendly interaction period. Children’s aggression was significantly higher after the second anger exposure relative to children having been exposed to anger only once.</td>
</tr>
<tr>
<td></td>
<td>(1) friendly interaction period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) angry interaction period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) friendly interaction period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within/Between-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cummings, Simpson, &amp; Wilson, 1993 (Study I)</td>
<td>Videotaped fight stems of couple arguments followed by different endings, each presented three times (nonverbal, verbal, and verbal-physical): (1) unresolved anger (2) observed resolution (3) explicit resolution behind closed doors (4) implicit resolution behind closed doors</td>
<td>40 children, aged 5-10 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, okay, happy)</td>
<td>Unresolved anger was perceived as the least satisfactory outcome. Resolution behind closed doors had similar ameliorative effects as observed resolution. The addition of an explicit reference to resolution was not necessary for children (there was no difference between the explicit and the implicit unobserved resolution).</td>
</tr>
<tr>
<td>Cummings, Simpson, &amp; Wilson, 1993 (Study II)</td>
<td>Different videotaped couple arguments: (1) unresolved anger (2) observed resolution (3) unobserved resolution with explanation (4) observed resolution with explanation (5) friendly interaction</td>
<td>48 children, aged 5-10 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, okay, happy)</td>
<td>Unresolved anger was perceived as the least satisfactory outcome and elicited most likelihood to conflict involvement. Explanation of resolution (in the absence of observing resolution) was similarly effective in reducing children’s negative emotionality as observed resolution.</td>
</tr>
<tr>
<td>Cummings, Vogel, Cummings, &amp; El-Sheikh, 1989</td>
<td>Different videotaped couple arguments: (1) nonverbal anger (2) nonverbal friendly interaction (3) verbal disagreement (4) verbal friendly interaction (5) hostile disagreement (6) affectionate interaction (7) unresolved anger (8) resolved anger</td>
<td>63 children, aged 4-9 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, okay, happy)</td>
<td>Children responded more negatively to unresolved anger than to matched friendly scenarios and to resolved anger. Children perceived adults’ holding back verbal anger expressions; they experienced nonverbal means as angry emotional interaction. Children’s capabilities to propose solutions for others’ conflicts and their proposed involvement into the argument increased with age.</td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Davies &amp; Forman, 2002 (Study I)</td>
<td>Simulated conflict between a female research assistant and the children’s mothers</td>
<td>56 children, aged 6-9 years</td>
<td>Observed and self-reported emotional reactivity (anxiety, fear, sadness) Observed vigilance (watchful attention, preoccupation) Observed conflict regulation (avoidance, intervention)</td>
<td>Three profiles of emotional security were identified: (1) Children in the <em>secure</em> cluster expressed mild, well-regulated, empathetically motivated concerns. (2) Children categorized to the <em>dismissing</em> cluster exhibited high levels of overt emotional reactivity, avoidance and intervention in observational measures while reporting low levels of negative emotions. (3) Children from the <em>preoccupied</em> clusters showed high levels of overt and subjective emotional reactivity.</td>
</tr>
<tr>
<td>Davies et al., 2002 (Study I)</td>
<td>Different videotaped couple conflict tactics, each once on adult-related and once on child-related topics: (1) physical aggression toward spouse (2) physical aggression toward objects (3) threat to intactness of family (4) verbal hostility (5) nonverbal hostility</td>
<td>327 children, aged 11-12 years</td>
<td>Self-reported ratings of emotional responses (happy, angry, mad, scared, okay) Observed conflict regulation (avoidance, intervention) Observed aggressive responses (physical aggression toward a person or an object, verbal hostility, nonverbal hostility)</td>
<td>Children responded with greater negativity to child-related than to adult-related conflicts and reacted more negatively to threats to intactness of family compared to verbal hostility. Children endorsed more avoidance than imitation for physical aggression, verbal hostility or nonverbal hostility. There were no gender differences in the means of children’s anger in response to fathers’ and mothers’ physical aggression.</td>
</tr>
<tr>
<td>Davies, Myers, Cummings, &amp; Heindel, 1999</td>
<td>Before watching an unresolved couple argument, children’s history of conflicts were experimentally manipulated by videotaped conflict scenarios: (1) four constructive (mild, resolved) conflict scenarios (2) four destructive (hostile, unresolved) conflict scenarios</td>
<td>112 children, aged 6-19 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, happy) Self-reported behavioral regulation (escape, mediation) Expected ending of adult interaction (from harmonious to discordant)</td>
<td>Repeated exposure to destructive conflicts sensitized children’s negative emotional responses, coping strategies designed to reduce conflict exposure, and hostile appraisals in subsequent conflict settings. Repeated exposure to constructive conflicts did not emotionally sensitize children to conflict.</td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>El-Sheikh &amp; Cummings,</td>
<td>Videotaped arguments of two different couples on different child-unrelated topics:</td>
<td>96 children, aged 4-10 years</td>
<td>Picture-based ratings of own and adults’ emotions (mad, sad, neutral, scared, happy)</td>
<td>Children’s experiences with experimentally manipulated outcomes of couples’ arguments influenced expected conflict endings. Couples with a history of unresolved anger were perceived by girls as more sad and to be less likely to resolve their disputes compared to couples with a resolved anger history.</td>
</tr>
<tr>
<td>1995</td>
<td>(1) four resolved or unresolved arguments of couple 1</td>
<td></td>
<td>Expected conflict endings of the interrupted arguments</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) interrupted argument of couple 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) four resolved or unresolved arguments of couple 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(4) interrupted argument of couple 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(5) resolution of all unresolved arguments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>El-Sheikh, 1994</td>
<td>Audiotaped adult angry interaction about</td>
<td>40 children, aged 4-5 years</td>
<td>SCLR</td>
<td>Children from high-conflict homes relative to children from low-conflict homes exhibited more overt behavioral distress in response to the argument, but perceived it less negative in affect.</td>
</tr>
<tr>
<td></td>
<td>(1) weekend plans</td>
<td></td>
<td>Heart rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) chores</td>
<td></td>
<td>Picture-based ratings of own and adults’ emotional responses (mad, sad, neutral, scared, happy)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Between-Subject-Design</td>
<td></td>
<td>Observed behavioral distress</td>
<td>Girls from high-conflict homes showed more heart rate reactivity than girls experiencing lower levels of conflict at home. No differences were found in terms of SCLR.</td>
</tr>
<tr>
<td>El-Sheikh, 2005</td>
<td>Audiotaped couple argument about in-laws and leisure activities issues.</td>
<td>216 children, aged 6-12 years</td>
<td>SCLR</td>
<td>SCLR was a risk factor for both boys’ and girls’ internalizing symptoms and girls’ externalizing and cognitive problems after controlling for the effects of marital conflict.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Picture-based ratings of emotional responses (anger, fear, sadness)</td>
<td>SCLR functioned as a vulnerability factor for girls’ internalizing, externalizing, and cognitive problems and a mediating factor for boys’ internalizing symptoms in the context of marital conflict.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>--------</td>
<td>-------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>El-Sheikh, Keller, &amp; Erath, 2007</td>
<td>Audiotaped couple argument</td>
<td>157 children, aged 6-15 years</td>
<td>SCLR</td>
<td>Higher SCLR functioned as a vulnerability factor in the link between marital conflict and increased internalizing and externalizing symptoms in girls. Marital conflict predicted increased externalizing behaviors for boys with lower SCLR but not higher SCLR, although levels of externalizing behaviors were similar among boys with low or high SCLR values. SCLR did not operate as a vulnerability or protective factor for boys in the context of marital conflict.</td>
</tr>
<tr>
<td>Goeke-Morey, Cummings, &amp; Papp, 2007</td>
<td>Different videotaped endings of couple arguments introduced verbally by the examiner: (1) compromise (2) apology (3) submission (4) agreement to disagree (5) withdrawal</td>
<td>163 children, aged 8-16 years</td>
<td>Perceived degree of conflict resolution</td>
<td>Conflict resolution ameliorated the impact of destructive conflicts. Compromise emerged as the ending having the most beneficial effects on children’s responses. Withdrawal was associated with high levels of negative emotionality and children’s likelihood to mediate in conflicts.</td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Goeke-Morey,</td>
<td>Different videotaped couple conflict tactics, each initiated once by the wife and once by the husband:</td>
<td>Sample I: 175 children, aged 8-16 years; Sample II: 327 children, aged 11-12 years</td>
<td>Picture-based ratings of emotional responses (anger, fear, sadness) Self-reported conflict regulation (avoidance, intervention) Expected conflict resolution</td>
<td>Conflict tactics formed two qualitatively different categories with constructive tactics (problem solving, support, affection) eliciting more positive than negative responding versus destructive conflicts (aggression, hostility, threat to intactness, pursuit) yielding more negative than positive responses in children. Calm discussion could not be classified consistently as either destructive or constructive, with results varying by the sample and gender of the parent.</td>
</tr>
<tr>
<td>Cummings, Harold, &amp; Shelton, 2003</td>
<td>(1) physical aggression toward spouse (2) physical aggression toward objects (3) threat to intactness of family (4) verbal hostility (5) nonverbal hostility (6) pursuit (7) calm discussion (8) problem solving (9) support (10) affection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grych &amp; Fincham, 1993 (Study I)</td>
<td>Audiotaped couple arguments, each presented in low- and high-intensity about: (1) child-related topics (2) child-unrelated topics</td>
<td>56 children, aged 11-12 years</td>
<td>Self-reported ratings of emotional responses (mad, sad, worried, ashamed, helpless) Self-reported appraisals of conflict (perceived threat, self-blame) Self-reported coping responses (direct intervening, indirect intervening, doing nothing, withdrawal)</td>
<td>Child-related conflicts and high-intensity arguments were associated with more self-blaming appraisals. Direct intervention was most frequently endorsed when arguments were child-related and low in intensity. Indirect intervention was the most common coping response for child-related high-intensity arguments.</td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Grych &amp; Fincham, 1993</td>
<td>Audiotaped low- and high-intensity couple arguments about a child-related topic, followed by different explanations given to the child in the film: (1) child-blaming (2) parent-blaming (3) no explanation</td>
<td>112 children, aged 11 years on average</td>
<td>Self-reported ratings of emotional responses (mad, sad, worried, ashamed, helpless) Self-reported appraisals of conflict (perceived threat, self-blame) Self-reported coping responses (direct intervening, indirect intervening, doing nothing, withdrawal)</td>
<td>Children responded more negatively, were more concerned about being drawn into the conflict and endorsed more self-blaming attributions when child-blaming explanations were given compared to the parent-blaming or no explanation condition.</td>
</tr>
<tr>
<td>(Study II)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Koss et al., 2011</td>
<td>Different videotaped couple arguments: (1) unresolved argument (2) resolved argument (3) escalating argument (4) final resolution to all arguments</td>
<td>207 children, aged 8 years on average</td>
<td>Picture-based ratings of own and adults’ emotions (mad, sad, neutral, scared, happy) Picture-based ratings of behavioral regulation strategies (involving, helping, monitoring)</td>
<td>Children reported feeling more happy and indicated less distress in response to the resolved argument compared to the unresolved and the escalating conflict. Specific emotional experiences to the stimuli were predictive of children’s behavioral regulation strategies; scared and angry feelings were associated with children’s use of involving intervention strategies whereas children’s sadness was associated with avoidant and monitoring strategies. Children’s adrenocortical functioning moderated the relationship between children’s scared feelings and their behavioral strategy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medina, Margolin, &amp; Wilcox, 2000</td>
<td>Audiotaped couple arguments increasingly negative in content: (1) agreeable light argument (2) loud angry argument (3) angry argument with aggression toward objects</td>
<td>49 children, aged 8-13 years</td>
<td>Auditory verbal attention Verbal learning (free recall of word lists)</td>
<td>Following simulated conflict, children with a high-hostility family background versus low-hostility improved their scores on the verbal attention task and committed fewer intrusion errors on the verbal learning task. High- versus low-exposure children achieved significantly lower scores on a short delay recall task.</td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Nicolotti, El-Sheikh, &amp; Whitson, 2003</td>
<td>Audiotaped couple arguments on:</td>
<td>89 children, aged 8-11 years</td>
<td>Self-reported coping strategies (active coping, support coping, avoidance coping, distraction coping)</td>
<td>Active and support coping combined were protective against girls’ depression symptoms and self-esteem problems and both boys’ and girls’ health problems in the context of marital conflict. Avoidance coping was a vulnerability factor for boys’ externalizing, internalizing, and physical health problems. Distraction coping was a protective factor against children’s depression and health problems.</td>
</tr>
<tr>
<td></td>
<td>(1) parent-related topics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) child-related topics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O’Brien &amp; Chin, 1998</td>
<td>Audiotaped angry couple conversations</td>
<td>70 children, aged 7-12 years</td>
<td>Recognition memory of aggressive and constructive words</td>
<td>Older children from high-conflict homes made fewer false negative and more false positive memory errors for aggressive words than children from low-conflict homes. Children from low-conflict homes identified constructive words with greater accuracy than they did the aggressive words.</td>
</tr>
<tr>
<td>O’Brien, Balto, Erber, &amp; Gee, 1995</td>
<td>Audiotaped couple arguments, each presented once in low- and once in high-intensity about:</td>
<td>66 adolescents, aged 19 years on average</td>
<td>Reported observations in the argument (comments regarding intensity, suggestions about resolution, pessimistic predictions)</td>
<td>Adolescents from a physically aggressive family background reported experiencing more physiological arousal and negative affect in response to the stimuli and made fewer constructive suggestions for conflict resolution compared to adolescents from nonphysically aggressive homes.</td>
</tr>
<tr>
<td></td>
<td>(1) chores</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) child-rearing topic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3) anger toward their child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within-Subject-Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study</td>
<td>Stimulus</td>
<td>Sample</td>
<td>Response variables</td>
<td>Main results</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>O’Brien, Margolin, John, &amp; Krueger, 1991</td>
<td>Audiotaped couple arguments, each presented once in low- and once in high-intensity about: (1) poor school performance of their child (2) chores (3) finances</td>
<td>35 boys, aged 8-11 years</td>
<td>Self-reported involvement (self-distraction, self-interference) Reported conflict prediction (negative evaluation, positive evaluation) Reported family beliefs (democracy and autocracy in the family)</td>
<td>Sons from low-conflict families made fewer self-distraction comments, evaluated the arguments more positively, made more positive outcome predictions and more democratic statements than sons from a physically or verbally aggressive family background.</td>
</tr>
<tr>
<td>Pollak, Vardi, Putzer, Bechner &amp; Curtin, 2005</td>
<td>Audiotaped adult interaction from the adjacent room, including four periods: (1) neutral period (2) active anger period (3) unresolved anger period (one adult leaves) (4) resolution period</td>
<td>33 children, aged 4-5 years</td>
<td>Attentional orienting (assessed by heart rate deceleration) Sustained attention during conflict exposure (assessed by the Continuous Performance Test CPT) Memory task for background information SCLR</td>
<td>Physically abused children showed greater heart rate deceleration across the unresolved anger period and less recovery once anger was introduced compared to non-abused children. Physically abused children elicited greater arousal response during the silent part in the unresolved period than controls. Independent of family background, children performed faster in the CPT during the resolution period than during both anger periods.</td>
</tr>
<tr>
<td>Shifflett-Simpson &amp; Cummings, 1996</td>
<td>Videotaped fight stems of couple arguments followed by endings differing in: (1) emotion (positive and negative) (2) content (compromise, apology, topic change, submission, continued fighting)</td>
<td>98 children, aged 5-12 years</td>
<td>Picture-based ratings of own and adults’ emotional responses (scared, mad, sad, okay, happy) Reported behavioral regulation (superficial help, task-oriented help, mediating)</td>
<td>Children distinguished “mixed message resolution” (inconsistent in content and emotion, e.g., an angry apology) from consistently positive conflict endings when responding to unresolved conflicts. Children were sensitive to adults’ emotion expressions in their selection of intervention strategies proposing more task-oriented help and mediation in arguments expressed with negative emotions. Older children offered more task-oriented help for partially resolved conflicts and showed more direct mediation in response to unresolved conflicts.</td>
</tr>
</tbody>
</table>

Note. No claim is made to completeness. Only studies which examined children’s responses to simulated marital conflict as main outcome are presented, and only variables and results considered to be most essential to the current thesis.
CURRICULUM VITAE

Personal Data

Martina Zemp
Department of Psychology
Clinical Psychology –
Children/Adolescents & Couples/Families
Binzmuehlestrasse 14/23
8050 Zurich
Email: martina.zemp@uzh.ch
Date of birth: November 17, 1985
Place of birth: Wattwil, Switzerland

Education

2011 – present
Assistant and PhD student at the Department of Psychology, Clinical
Psychology – Children/Adolescents & Couples/Families,
University of Zurich. Supervisor: Prof. Dr. Guy Bodenmann

2005 – 2010
Studies of Psychology, Psychopathology, and Educational Sciences,
University of Zurich

Professional Experience

07/2012 – present
Camp assistant at Autismus Deutsche Schweiz

01/2010 – 11/2010
Assistant at the special needs school Ilgenhalde, Fehraltorf

10/2009 – 03/2010
Behavioral therapy for children with autism, KJPD Zurich

03/2009 – 08/2009
Internship at the child and youth psychiatry Sonnenhof, Ganterschwil

06/2008 – 06/2009
Internship in behavioral therapy for children with autism, KJPD Zurich

02/2008 – 08/2008
Internship at the child and youth psychiatry Sonnenhof, Ganterschwil

01/2005 – 12/2008
Assistant at the child and youth psychiatry Sonnenhof, Ganterschwil

01/2005 – 12/2008
Camp assistant at the special needs school, Wattwil

02/2005 – 10/2005
Internship at the child and youth psychiatry Sonnenhof, Ganterschwil
Further Education


08/2013  Specialist conference *Divorce: Causes and consequences*, Clinical Psychology – Children/Adolescents & Couples/Families, University of Zurich

08/2012  Specialist conference *Time and family: Reflection, prevention, and intervention*, Clinical Psychology – Children/Adolescents & Couples/Families, University of Zurich

08/2011  Specialist conference *Depression and family: Associations and interventions*, Clinical Psychology – Children/Adolescents & Couples/Families, University of Zurich

06/2011  7th conference of the German Psychological Society – Clinical Psychology and Psychotherapy, Berlin/Germany

11/2009  Specialist conference *Early attachment disorders and their long-term effects* at the child and youth psychiatry Sonnenhof, Ganterschwil

05/2009  Specialist conference *Attachment – attachment disorders – personality disorders* at the child and youth psychiatry Sonnenhof, Ganterschwil

Publications


Conferences


Teaching

09/2013 – 12/2013 Diagnostics in couples, University of Zurich
05/2013 – 09/2013 Psychopathology in childhood and adolescence, IKAMED Zurich
02/2013 – 05/2013 Family risk factors for mental disorders in childhood and adolescence, University of Zurich
09/2012 – 12/2012 Behavioral therapy in childhood and adolescence, University of Zurich
05/2012 – 09/2012 Psychopathology in childhood and adolescence, IKAMED Zurich
09/2011 – 12/2011 Behavioral therapy in childhood and adolescence, University of Zurich

Further Research Activities

01/2013 – 02/2013 Research stay by Prof. E. M. Cummings, University of Notre Dame, Indiana
01/2013 – 12/2013 Peer mentoring group *Psychophysiology*, University of Zurich
09/2009 – 12/2009 Research assistant at the Department of Empirical Research in Economics, University of Zurich
12/2008 – 03/2009 Research assistant at the Department of Psychology, Psychopathology and Clinical Intervention, University of Zurich