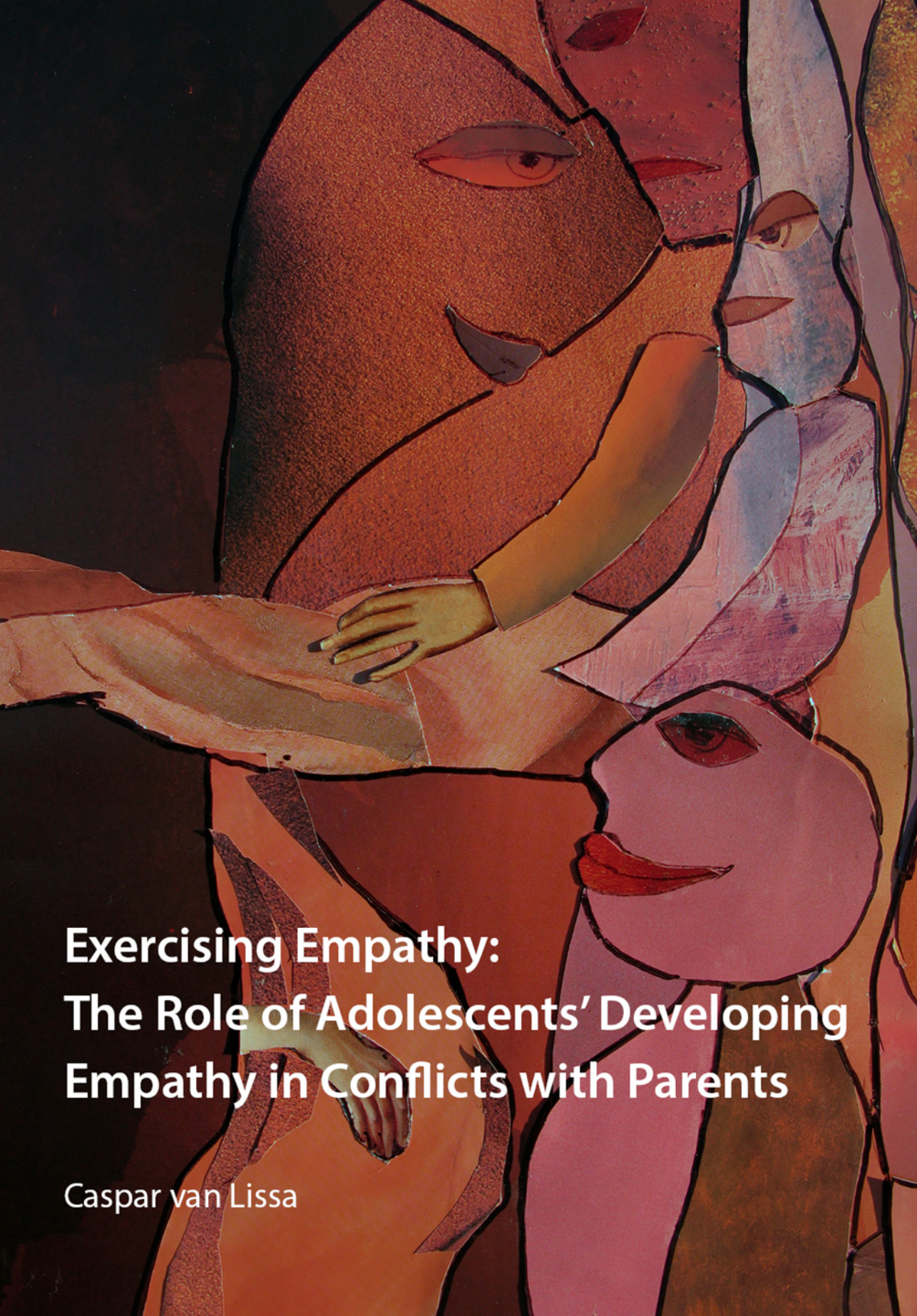

Exercising Empathy: The Role of Adolescents' Developing Empathy in Conflicts with Parents

Caspar van Lissa

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(met een samenvatting in het Nederlands)

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te 's Gravenhage

Promotor: Prof. dr. W. H. J. Meeus
Co-promotor: Dr. S. T. Hawk

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1

General Introduction

Conflict with parents has long been considered an integral aspect of adolescence (Hall, 1904). This perspective still permeates popular depictions of adolescent-parent relationships. From a scientific perspective, however, adolescence is no longer considered the period of "storm and stress" it was once thought to be (Arnett, 1999). Instead, according to the social relational perspective, contemporary researchers increasingly conceive of adolescent-parent conflict as a vehicle through which families renegotiate the dynamics of their relationships, in order to accommodate adolescents' increasing autonomy needs in a more egalitarian way (Branje, Laursen, & Collins, 2013). These shifts in adolescent-parent relationships coincide with important cognitive-developmental changes. One manifestation of these changes appears to be adolescents' development of more mature empathic abilities (Blakemore & Choudhury, 2006). Empathy refers to the tendency to respond to the emotions and experiences of others with affective *empathic concern*, as well as the ability to consider others' point of view by engaging in cognitive *perspective taking* (Davis, 1980). Across different relationship contexts, empathy is known to reduce aggression (Miller & Eisenberg, 1988) and promote various prosocial behaviors, including helping (Eisenberg & Miller, 1987) and constructive conflict resolution (De Wied, Branje, & Meeus, 2007; Galinsky, Maddux, Gilin, & White, 2008; Richardson, Hammock, Smith, Gardner, & Signo, 1994). However, the link between adolescents' empathy development and adolescent-parent conflict has received relatively little attention in research, to date. Therefore, the overarching goal of the present line of research was to study adolescents' empathy development in relation to conflict with parents. We formulated three main research questions, namely:

RQ 1: How does empathy develop in adolescence?
RQ 2: How is adolescents' empathy related to adolescent-parent conflict?
RQ 3: Are highly empathic adolescents more sensitive to conflict with their parents?

The present chapter describes the broader theoretical framework which inspired this research, with special emphasis on previously unaddressed issues. It concludes with an overview of the five empirical chapters contained in this dissertation, and an outline of the research questions answered therein. The dissertation concludes with a discussion chapter, which explains how the five studies relate to the three main research questions, the contributions the present research makes to broader themes in the contemporary literature, and its implications for parenting and clinical practice.

EMPATHY DEVELOPMENT IN ADOLESCENCE

Defining Empathy

Empathy is a complex multi-dimensional construct, which has historically been defined in myriad ways (Batson, 2009). One important categorization which has stood the test of time, however, is the distinction between affective and cognitive empathy dimensions (Davis, 1994b; Hoffman, 2000). Affective empathy refers to those aspects of empathy pertaining to individuals' emotional reactivity to the expressed and imagined emotions of others, including sympathetic responses and self-focused empathic distress. Cognitive empathy refers to more reflective empathy components, such as the ability to consider situations from others' points of view and gain an understanding of their thoughts and feelings (Batson, 2009; Davis, 1980; Hoffman, 2000). In the empirical chapters of the present dissertation, we will focus on specific operationalizations of affective and cognitive empathy, which become increasingly salient in adolescence: Affective *empathic concern* and cognitive *perspective taking* (Davis, 1983; Davis & Franzoi, 1991). Empathic concern is an other-oriented, caring or concerned response to people's emotional states or situations. This response has also been referred to as sympathy (Eisenberg, 1988). Perspective taking refers to the tendency to consider others' points of view. The measurement instrument we use to assess these two empathy dimensions, the Interpersonal Reactivity Index (IRI, Davis, 1983), was initially designed with the express purpose of studying their differential effects on behavior (Davis, 1980). However, despite the widespread consensus that empathy involves both affective and cognitive dimensions, the implications of this distinction have received little attention in developmental research. For example, the developmental interplay between these two empathy dimensions has remained unaddressed in empirical research. Furthermore, little is known about potential unique associations of these dimensions with adolescents' specific conflict resolution behaviors towards parents. To address these issues, one overarching theme of the present line of research was to further explore the developmental interplay and behavioral correlates of empathic concern and perspective taking in adolescence.

The Interplay between Empathic Concern and Perspective Taking

According to theory (Davis, 1994) and empirical findings (Hawk et al., 2013), empathic concern and perspective taking can be conceived of as independent, but highly interrelated constructs. The question of how these two constructs are interrelated is extremely relevant if one seeks to address their developmental interplay over time, or their unique associations with behavior. One prominent view of the relationship between empathic concern and perspective taking in contemporary literature is that

perspective taking is a pathway to experiencing empathic concern. For example, Davis' (Davis, 1994) organizational model of empathy classifies perspective taking as a "process", and empathic concern as an "outcome". This view is also evident from the title of a prominent book chapter that referred to perspective taking as "the royal avenue" to empathy (Decety, 2005). Although Davis' (1994) organizational model was designed to describe the processes that give rise to *state* empathy, the view of perspective taking as a pathway to empathic concern also reverberates in the literature on the development of *trait* empathy. Several prominent developmental theories have stressed the importance of perspective taking development for the ability to experience empathic concern (Eisenberg, Fabes, & Spinrad, 2007; Hoffman, 2008), which suggests a developmental order from perspective taking to empathic concern. This view has met with some criticism, however, as De Waal (2007) argued that empathy in humans develops from relatively automatic affective components, to more effortful cognitive components that build upon and feed back into these affective components. This suggests a developmental order from empathic concern to perspective taking. Despite the substantial theoretical interest in the developmental order of these empathy dimensions in adolescence, however, these issues had not been studied empirically prior to this dissertation. Therefore, we set out to investigate whether adolescents' empathic concern predicted their development of perspective taking, or vice versa.

There are several reasons to treat the conceptualization of perspective taking as "the" pathway to empathic concern with some caution. First of all, the primary source of support for the notion that perspective taking is a pathway to empathic concern comes from experimental research, which has shown that instructing participants to engage in perspective taking promotes experienced empathic concern (Batson, Early, & Salvarani, 1997; Lamm, Batson, & Decety, 2007). One might wonder whether such experimental findings are likely to generalize to questions of developmental order. In fact, it is likely that the direction of effects found is influenced by the methods used. Perspective taking is more easily manipulated through explicit instructions than empathic concern, because it is considered to be relatively voluntary and effortful, whereas empathic concern is thought to be a relatively involuntary and automatic response (Hoffman, 1983). This does not preclude the possibility that empathic concern may arise without perspective taking, nor that empathic concern can lead to perspective taking, nor that individuals may engage in perspective taking without experiencing empathic concern. Indeed, there is some evidence to support each of these points. Firstly, it has long been argued that there are more immediate pathways to affective empathy, which do not require mediation by perspective taking. For example, direct exposure to emotional cues is known to give rise to affective empathic responses (e.g., Hoffman, 1983). In further support of this notion, direct exposure to emotional cues and cognitive perspective

taking were both found to serve as alternate pathways to affective empathic responding (Hawk, Fischer, & Van Kleef, 2011). Secondly, there is some evidence in the literature for effects from empathic concern to perspective taking. Several studies have reported that participants engaged in spontaneous perspective taking when merely observing another's distress (Davis et al., 2004; Gruen & Mendelsohn, 1986; Hawk et al., 2011). This suggests that an initial affective empathic response might motivate cognitive perspective taking. Thirdly, several studies support the notion that perspective taking does not *always* lead to empathic concern. For example, literature on the "dark side" of perspective taking has revealed that perspective taking can be used to hurt others, as well as help them. For example, adolescents high in perspective taking engaged in greater relational aggression, which is a devious way of harming others by undermining their social relationships (Batanova & Loukas, 2011). Similarly, experimentally induced perspective taking promoted egocentric behavior when perspective takers believed others to be selfishly motivated (Epley, Caruso, & Bazerman, 2006). In conclusion, there is some cause for doubt regarding the notion that perspective taking is merely the process that gives rise to empathic concern.

The present dissertation thus adopts a more nuanced view of empathic concern and perspective taking as interrelated but independent constructs, which might hold unique associations with adolescents' conflict-related behavior. In this way, our view is compatible with Feshbach and Feshbach's (2011) cognitive-affective model of empathy. In discussing the links between empathy and aggressive behavior, they argue that empathic concern reduces aggression directly, without necessitating any intervening processes, because observing a victim in distress should elicit an aversive emotional response in high-empathic concern individuals (see also: Blair, 1995; Stocks, Lishner, & Decker, 2009). Perspective taking, on the other hand, does not necessarily inhibit aggression directly. Instead, the understanding of another's point of view is thought to enable individuals to engage in *effective* social behavior. In support of this notion, experimentally induced perspective taking was found to help individuals negotiate mutually beneficial outcomes in seemingly competitive situations (Galinsky et al., 2008). The aforementioned literature on the "dark side" of perspective taking, which revealed that perspective taking may promote selfish behavior (Epley, 2006) and indirect aggression (Batanova & Loukas, 2011), is also congruent with this more "instrumental" view of perspective taking. Therefore, the present dissertation takes a view of empathic concern as the tendency to experience other-oriented emotional responses with a motivational component, and perspective taking as the tendency to consider others' viewpoints, which is likely to facilitate effective social behavior. Across several chapters of the present dissertation, we focused explicitly on the differences between empathic concern and perspective taking, in order to examine their developmental interplay

(Chapter 2), and their unique associations with adolescents' conflict-related behavior (Chapters 4 and 5). However, we also acknowledge the fact that dispositional empathic concern and perspective taking are typically highly correlated within individuals (e.g., Davis, 1983). Consequently, in chapters where we focused on between-individual differences in empathy development (Chapters 3 and 6), we disregarded differences between the two empathy dimensions.

Theory and Research on Empathy Development

Empathy is widely considered to be an adaptive trait that facilitates social bonding and plays a role in the maintenance of positive close relationships (Davis & Oathout, 1987; McCullough, Worthington Jr., & Rachal, 1997). Although more classical perspectives have characterized empathy as a uniquely human characteristic, evolutionary etiologists have argued that many social species display empathic abilities (De Waal, 2010). Indeed, even rats engage in empathically motivated pro-social behavior, as they prefer to rescue entrapped group mates over munching on tasty chocolate chips (Bartal, Decety, & Mason, 2011). Although human infants are not yet capable of such advanced helping behavior, they do show primitive, apparently automatic, affective empathic responses from birth. For example, newborn infants already respond to the sound of crying by crying themselves (Sagi & Hoffman 1976; Simner, 1971). The notion that this behavior is motivated by empathy is supported by the fact that other sounds do not elicit the same response. Furthermore, infants imitate others' facial expressions (Trevarthen & Aitken, 2001), a behavior which has been implicated in affective empathic responses (Sonnby-Borgström, 2002). Despite these early manifestations, however, the development of mature empathic responses is a protracted process in humans, which continues well into adolescence (Blakemore & Choudhury, 2006; Van der Graaff, De Wied, Hawk, Van Lier, & Meeus, 2014).

Several theorists have described the process of empathy development across the life span. For instance, according to the "Russian doll" model, empathy development progresses from relatively primitive and automatic affective empathic responses, such as infants' responses to other infants' cries, to more cognitive and voluntary processes (Preston & De Waal, 2002). This model conceptualizes cognitive and affective empathic processes as layers of increasing complexity, which build upon – and feed back into – more primitive layers of empathic abilities. Many of these layers are thought to develop in the first few years of life, as the emergence of theory of mind and increasing self-other differentiation enable children to transition from experiencing self-oriented empathic distress toward other-oriented empathic concern (Hoffman, 2000; Zahn-Waxler & Radke-Yarrow, 1990). This transition continues further into adolescence, as evidenced by an over-time decrease in empathic distress, and an increase in empathic concern and

perspective taking (Davis & Franzoi, 1991; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005).

By the time individuals reach adolescence, they are thus generally capable of both empathic concern and perspective taking. Adolescence, in turn, appears to be a second developmentally sensitive period for empathy. Adolescence is characterized by extensive synaptic reorganization and specialization in prefrontal areas of the brain; an area which has been implicated in perspective taking (Blakemore & Choudhury, 2006; Gee et al., 2013; Singer, 2006). In contrast, limbic and para-limbic regions of the brain, which are implicated in affective empathy (see: Decety, 2010), develop at an earlier age (Casey, Jones, & Somerville, 2011; Singer, 2006). This synaptic reorganization in prefrontal areas of the brain is thought to give rise to non-linear changes in empathy: The development of new, more efficient neural pathways may paradoxically lead to a temporary decline in empathic abilities (Blakemore & Choudhury, 2006). A recent longitudinal study provided further support for this argument, as a temporary decrease in adolescents' self-reported perspective taking was found to be linked to pubertal timing (Van der Graaff et al., 2014). Substantial research thus supports the notion that adolescence is a developmentally sensitive period for empathy, in particularly perspective taking. Nevertheless, the potential *drivers* of perspective taking development have received little attention. Although developmental theorists have speculated about the importance of cognitive development for adolescents' ability to experience empathic concern (e.g., Hoffman, 2000), the developmental order of neural circuits underlying empathic concern and perspective taking instead suggests that adolescents' own empathic concern may be an important predictor of perspective taking development. To address this question empirically, we conducted a longitudinal study on the developmental interplay between empathic concern and perspective taking in adolescence (Chapter 2).

Adolescents' changing social lives are another factor thought to drive the development of new, more efficient neural pathways for perspective taking (Blakemore & Choudhury, 2006; Decety, 2010). On the one hand, the increasing importance of peer relations (Kerr, Stattin, Biesecker, & Ferrer-Wreder, 2003) and romantic relationships (Collins, 2003) will likely provide adolescents with a wealth of new social situations, and motivate them to consider others' point of view. On the other hand, parents might also shape their adolescent's empathy development. According to the intergenerational transmission hypothesis, researchers have proposed that parents transmit their empathic dispositions to their adolescent children through modeling, particularly with regard to perspective taking (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). The notion that modeling plays a role in the transmission of empathic dispositions is consistent with the finding that correspondence in empathy-related characteristics is greater between children and parents of the same gender (Eisenberg, Fabes, Schaller,

Carlo, & Miller, 1991; Fabes, Eisenberg, & Miller, 1990). Furthermore, longitudinal evidence supports the notion that positive relationships with parents foster adolescents' empathy development (Miklikowska, Duriez, & Soenens, 2011). However, the intergenerational empathy transmission hypothesis has not been explicitly tested in longitudinal research. Therefore, the study described in Chapter 2 aimed to test the intergenerational transmission hypothesis, using longitudinal data on mothers and their children. Because father data were not available, however, we could not investigate whether such transmission is stronger between parents and children of the same sex.

Although many studies have investigated mean-level, or "normative", developmental trajectories of empathy in adolescence, results have been equivocal. For example, one study found increases for both empathic concern and perspective taking (Davis & Franzoi, 1991), another for perspective taking only (Eisenberg et al., 2005), and one found no change at all (Grühn, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008). One commonality between these studies, however, is that all found substantial between-individual variance in developmental trajectories, which suggests that some individuals develop differently than others. A recent study suggested that this variance may, in part, be explained by gender differences in development (Van der Graaff et al., 2014). Specifically, girls' empathic concern was found to be high and stable throughout adolescence, whereas boys' empathic concern showed a temporary decrease around age 16. Perspective taking instead showed an earlier developmental increase for girls than for boys. Even after controlling for gender, however, there remained substantial heterogeneity in empathy development. This suggests that "normative" trajectories of mean-level development do not apply to all adolescents. Indeed, according to theorists, developmentally sensitive periods can be characterized by different patterns of change (Caspi & Moffitt, 1991). One common pattern is characterized by further differentiation between individuals, in the sense that pre-existing differences between individuals become exacerbated. Such between-individual differences in developmental trajectories can be captured and described using person-centered approaches, which aim to capture heterogeneity in developmental trajectories by classifying similarly-developing individuals into classes (Jung & Wickrama, 2008). To investigate potential heterogeneity in trajectories of empathy development, and to examine whether individual differences between adolescents became amplified, we conducted a study (Chapter 3) which sought to identify groups of adolescents based on similarities in their developmental trajectories for empathic concern and perspective taking.

EMPATHY AND ADOLESCENT-PARENT CONFLICT

Conflict in Adolescent-Parent Relationships

There is increasing consensus in the literature that at least some conflict is normative in adolescence. According to one meta-analysis, the frequency of adolescent-parent conflict peaks in early adolescence and subsides over time, while the emotional intensity of these conflicts peaks in mid-adolescence (Laursen, Coy, & Collins, 1998). Several theories exist to explain this temporary increase in conflicts. For example, according to the social-relational perspective, conflict is a temporary disturbance in the relationship, which contributes to adolescents' individuation and realigning adolescent-parent relationships towards greater equality (Collins & Laursen, 1992; Steinberg, 2001). Smetana (1989) has similarly argued that conflict fulfills a function in adolescents' individuation and definition of an autonomous self. This is supported by the finding that adolescents and parents define conflict topics in different ways, with parents defining conflict topics as conventional issues subject to their authority, and adolescents defining the same topics as matters of personal choice (Smetana, 1988; Smetana, 1989). Finally, others have proposed that conflict arises because adolescents expect to obtain increasing autonomy at an earlier age than parents are ready to grant it (Deković, Noom, & Meeus, 1997). Although adolescents and parents have similar expectations for the order in which adolescents might achieve certain developmental milestones, adolescents' expectations for the developmental timetables of these transitions are ahead of parents' expectations, and these discrepancies lead to conflict. What all these perspectives have in common is an emphasis on conflict as a vehicle for the renegotiation of adolescent-parent relationships towards greater autonomy and equality.

Indeed, the temporary increase in parent-child conflict that characterizes adolescence is not inherently harmful. According to the autonomy-relatedness perspective, most conflict occurs in the context of continued closeness and support (Laursen & Collins, 2004). In fact, the most frequent conflict occurs in mother-daughter dyads, which are at the same time the closest of all adolescent/parent gender combinations (Laursen & Collins, 1994). This might be explained by the fact that most adolescent-parent conflicts concern daily hassles (Adams & Laursen, 2001), which come to light more readily in close relationships. Although mean levels of closeness might temporarily subside as adolescents and parents come to see their relationship in different terms, interdependence theories stress the substantial continuity in these relationships (Branje et al., 2013). A dynamic systems perspective on adolescent-parent conflict similarly states that conflict allows dyads to find new ways of relating by expanding their behavioral repertoire (Granic, O'Hara, Pepler, & Lewis, 2007). After adolescent-parent relationships have successfully realigned into a more horizontal, egalitarian, and stable

state, closeness may return to prior levels, and patterns of communication are likely to improve (Branje et al., 2013).

Despite this appreciation for the functional role of adolescent-parent conflict, both popular wisdom and scientific evidence reveal that conflict can, under certain circumstances, have severe consequences for adolescents' maladjustment. Two major factors appear to determine whether conflicts are functional or dysfunctional. On the one hand, the relative frequency of conflict appears to play a role. In adolescence, most families experience a temporary increase in conflict compared to earlier levels (Laursen et al., 1998). Nevertheless, those families that experience relatively more frequent conflict than others are more adversely affected (Barber & Delfabbro, 2000; Collins & Laursen, 1992; Klahr, McGue, Iacono, & Burt, 2011; Klahr, Rueter, McGue, Iacono, & Burt, 2011; Smetana, 1996). On the other hand, the way in which conflicts are resolved also plays a role. Such conflict resolution is often operationalized as the extent to which individuals engage in four specific behaviors: Conflict escalation (intensifying the conflict and losing control), problem solving (negotiating a compromise), compliance without defending one's own position, and withdrawal from the discussion (Kurdek, 1994). In prior research, adolescents' use of different conflict resolution behaviors has been linked to adolescent-parent relationship quality (Branje, 2008; Van Doorn, Branje, Hox, & Meeus, 2009), adolescents´ conduct disorder and delinquency (Jaffee & D'Zurilla, 2003; Rubenstein & Feldman, 1993; Sanders, Dadds, Johnston, & Cash, 1992), and internalizing and externalizing adjustment problems (Branje, Van Doorn, Van der Valk, & Meeus, 2009). Overall, these studies suggest that adolescents´ greater reliance on conflict escalation and withdrawal is associated with poorer adjustment, when compared to constructive problem solving. It is therefore important to identify factors that might be associated with reduced conflict frequency, as well as more constructive conflict resolution behaviors during adolescence.

Studying adolescent-parent relationships is especially important, because adolescent-parent conflict is thought to provide a sort of "training ground" for conflict resolution in adolescents romantic and peer relationships. Compared to other relationships, the ties that bind adolescents and parents are obligatory and stable (Adams & Laursen, 2001). Therefore, most adolescent-parent conflict is unlikely to lead to relationships being irreparably harmed or dissolved. This is a real risk in adolescents' peer and romantic relationships, however, as these relationships are more voluntary, and there are usually alternative partners to choose from (Adams & Laursen, 2001). Thus, the adolescent-parent relationship is thought to provide a safe environment for adolescents to practice conflict resolution behavior without risking permanent harm to the relationship. In turn, this might prepare them for effective conflict resolution in future peer and romantic relationships. This idea harkens back to Bowlby's (1969)

attachment theory, which holds that parenting experiences shape children's models for future relationships, including the way they resolve conflicts with romantic partners. Recent empirical evidence supports this argument, as adolescents' conflict resolution behaviors towards parents was found to spill over into their later conflict resolution behaviors towards peers (Van Doorn, Branje, Van der Valk, De Goede, & Meeus, 2011). This formative role of adolescents' conflict resolution with parents further accentuates the importance of identifying factors which decrease adolescent-parent conflict frequency and promote constructive conflict resolution.

The Role of Empathy

Adolescents´ developing empathy likely plays a role in adolescent-parent conflict, by buffering conflict frequency and promoting the use of prosocial conflict resolution behaviors instead of destructive ones. This notion is supported by the aforementioned negative links between empathy and conflict-related constructs such as aggression and prosocial behavior, which have been well documented across different relationship contexts (for reviews, see Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). Among adolescents, as well, empathy has been linked to reduced aggression (De Kemp, Overbeek, De Wied, Engels, & Scholte, 2007). If these findings can be generalized to conflict with parents, higher-empathy adolescents might be expected to have fewer conflicts with parents than lower-empathy adolescents. Furthermore, theorists have claimed that children develop more mature conflict resolution behaviors in adolescence (Selman, 1980; Youniss & Smollar, 1987). Some have explicitly argued that adolescents' empathy development plays a role in this transition (e.g., Sandy & Cochran, 2000; Selman, 1980). Although empirical evidence for this notion is sparse, changes in adolescents' conflict resolution behaviors do appear to parallel the aforementioned developmental changes in empathic concern and perspective taking (e.g., Van der Graaff et al., 2014). Specifically, negative conflict resolution behaviors towards parents decreases, whereas constructive problem solving increases from early- to mid-adolescence (Van Doorn, Branje, & Meeus, 2011). Nevertheless, the development of adolescents´ empathic concern and perspective taking, on the one hand, and changes in specific conflict resolution behaviors towards parents, on the other hand, have not been jointly investigated.

Empathic concern and perspective taking are likely to hold common and unique associations with specific conflict resolution behaviors. For example, in discussing the links between empathy and aggressive behavior, Feshbach and Feshbach (2011) argued that affective empathy should reduce aggression directly, without necessitating any intervening processes, because observing a victim in distress should elicit an aversive emotional response in a high-empathy perpetrator (see also Blair, 1995). In line with this

view, others have found or argued that empathic concern directly inhibits aggression and motivates prosocial responding (Eisenberg & Miller, 1987; Miller & Eisenberg, 1988; Stocks, Lishner, & Decker, 2009). Cognitive empathy, on the other hand, is likely to facilitate constructive conflict resolution behaviors, but does not necessarily inhibit aggression directly (Feshbach & Feshbach, 2009). Although perspective taking, can promote prosocial behavior (e.g., Batson et al., 2003), it can also lead to egocentrism and devious antisocial behavior (Batanova & Loukas, 2011; Epley et al., 2006), depending on contextual factors. These findings suggest that perspective taking might function more akin to a "tool", which enables individuals to engage in *effective* prosocial behavior. With regards to adolescent-parent conflict, the notion that empathic concern rouses a motive to reduce others' distress (Stocks et al., 2009) suggests that it may increase adolescents' willingness to reduce parents' negative emotions and comply with their needs, even if that means they will lose ground in an argument. Perspective taking, on the other hand, might allow adolescents to take some emotional distance from the heat of a conflict, consider both sides of the argument, and engage in more constructive, mutually beneficial problem solving (Sandy & Cochran, 2000). Empirical evidence for such unique associations is sparse, however, because prior research on adolescents has focused primarily on affective empathy, without taking cognitive empathy into account. In correlational research, for instance, adolescents' greater affective empathy was found to be associated with reduced conflict escalation and greater problem solving with peers (De Wied et al., 2007), but also with increased withdrawal from conflicts, which might reflect empathic over-arousal (Björkqvist, Österman, & Kaukiainen, 2000).

Experimental research with college-aged participants, however, did address unique effects of cognitive and affective empathy on conflict-related behavior. In a series of negotiation studies, experimentally induced perspective taking helped participants reach mutually beneficial agreements with opponents, suggesting that they engaged in greater problem solving (Galinsky et al., 2008). Inducing empathic concern, while increasing opponents' satisfaction with the negotiation process, led to the poorest outcomes for participants, suggesting they complied more with the other's demands. If these findings can be generalized to adolescent-parent relationships, we might expect perspective taking to be more strongly associated with a pattern of constructive conflict resolution behavior than empathic concern. Nevertheless, it remains to be seen whether these experimental findings can be generalized to longitudinal associations between empathy development and changes in adolescents' conflict resolution behaviors. To address this issue, we investigated longitudinally whether the naturally occurring development of trait empathic concern and perspective taking was associated with changes in adolescents' self-reported conflict resolution behaviors with parents (Chapter 4).

Conversely, it is unclear whether findings from correlational research on adolescents' trait empathy and conflict resolution behavior towards peers will generalize to effects of state empathy in adolescent-mother conflict interactions. Recent research has revealed that individual differences in trait empathy show only small associations with state empathy, at least in response to emotional video clips (Van der Graaff et al., 2015). Therefore, an important next step in research is to study associations of state and trait empathy with specific behaviors in adolescent-mother conflict discussions. Furthermore, it is important to investigate whether affective and cognitive empathy are associated with similar patterns of conflict resolution behavior when studied in terms of trait empathy development versus state empathy, or whether trait and state empathy interact. To investigate these matters, we conducted an experimental study of the effects of induced *state* affective and cognitive empathy on adolescents' observed conflict resolution behaviors in discussions with mothers (Chapter 5). In this design, we also investigated contributions of trait empathy and interactions between state and trait empathy.

Empathy and Conflict Sensitivity

We have argued that empathy is likely to play a role in adolescent-parent conflict in terms of its frequency and in terms of adolescents' behavior. However, we have devoted relatively little attention to adolescents' perceptions of conflict and related emotional reactions. Shared or complementary emotions and a greater awareness of others' viewpoints are at the heart of the empathic experience (Davis, 1994a; Eisenberg et al., 1994; Hoffman, 1983; Preston & De Waal, 2002). Therefore, empathy is likely to be associated with greater sensitivity and reactivity to others' emotions and viewpoints in conflict-related situations. In line with this notion, high empathy has been linked higher emotional reactivity to negative social events (Nezlek, Feist, Wilson, & Plesko, 2001), and with greater sensitivity to partners' anger in conflicts (Richardson, Green, & Lago, 1998). Studies on the facial mimicry of emotions have similarly shown that high-empathy individuals copied angry facial expressions more readily than low-empathy individuals, even when presented at the pre-conscious level (Sonnby-Borgström, 2002). These findings suggest that high-empathy individuals might be more sensitive to social and emotional cues, including signs of conflict. On the one hand, such greater social sensitivity might facilitate the detection of disagreement in others, which implies high-empathy individuals might more accurately perceive points of contention than low-empathy individuals. In married couples, the ability to detect and address disagreements as soon as they arise, instead of letting them build into full-blown conflict, has been shown to be crucial for positive relationship maintenance (Gottman, Swanson, & Murray, 1999). On the other hand, high-empathic individuals' greater emotional reactivity

implies that they are likely to be more emotionally affected by social interactions with others, particularly when it comes to conflict. In support of this notion, high empathy has been linked to a greater tendency to experience greater guilt in the aftermath of conflicts (Leith & Baumeister, 1998). In conclusion, these studies suggest that high-empathy adolescents might be more sensitive to conflict, both in terms of the accurate identification of points of contention, and in terms of emotional reactivity to conflict. Two empirical chapters in the present dissertation addressed these different aspects of conflict sensitivity. Chapter 3 addressed the detection of disagreement, by investigating whether adolescents' higher empathy was associated with greater correspondence between adolescent-reported and parent-reported conflict. Chapter 6 addressed emotional reactivity to conflict, by investigating whether relatively more frequent conflict predicted emotion dysregulation more strongly for high-empathy adolescents than for average and low-empathy adolescents.

THE CURRENT DISSERTATION

Overview of the Empirical Chapters

The overarching goal of the present line of research was to study adolescents' empathy development in relation to conflict with parents. In doing so, we focused on three main research questions, namely:

RQ 1: How does empathy develop in adolescence?
RQ 2: How is adolescents' empathy related to adolescent-parent conflict?
RQ 3: Are highly empathic adolescents more sensitive to conflict with their parents?

The present dissertation contains five empirical chapters, which addressed these three main research questions in different ways. Figure 1 presents a schematic overview of the chapters of the dissertation, which encompasses all five studies.

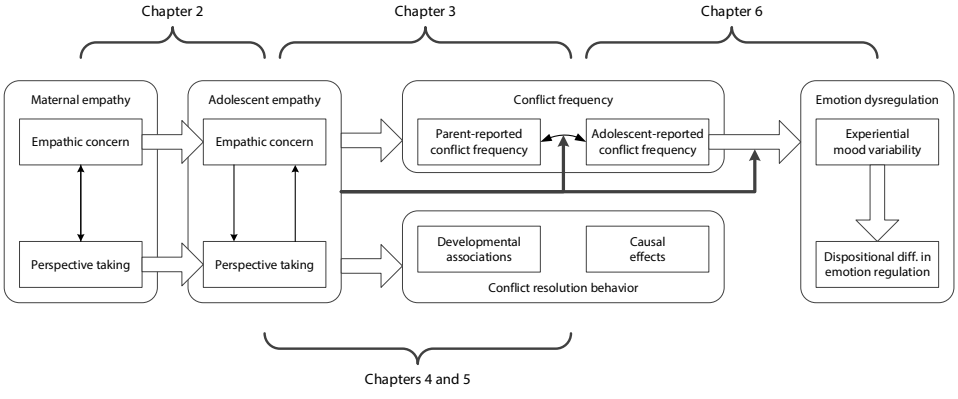

Figure 1. *Schematic overview of the dissertation*

Below, we will elaborate on the specific research questions addressed in the different empirical chapters. The main research questions introduced above are numbered, and the specific research questions addressed in each empirical chapter are identified by letters.

Chapter 2: The longitudinal interplay of cognitive and affective empathy within and between adolescents and mothers.

Chapter 2 describes a four-year longitudinal study (ages 14-17), in which we analyzed the longitudinal interplay between adolescents' and mothers' empathic concern and perspective taking. We formulated four specific research questions, which all related to the first main research question of this dissertation.

RQ 1: How does empathy develop in adolescence?

a. Does adolescents' empathic concern predict their development of perspective taking over time, and/or vice versa?
b. Does intergenerational empathy transmission occur between mothers and adolescents?
    i. Is this intergenerational transmission stronger between mothers and daughters than between mothers and sons?
c. Is empathic concern more stable in adolescents than perspective taking, and are these dispositions less stable for adolescents than for mothers?

Chapter 3: Divergence between adolescent and parental perceptions of conflict in relationship to adolescent empathy development

Chapter 3 describes a six-year longitudinal study (ages 13-18) of adolescents' empathy development in relation to adolescent- and parent-reported conflict frequency. The chapter addressed issues related to all three of the main research questions of the dissertation:

RQ 1: How does empathy develop in adolescence?

a. Do all adolescents follow similar trajectories of empathy development, or do some adolescents develop differently than others?

RQ 2: How is adolescents' empathy related to adolescent-parent conflict?

a. Are differences in adolescents' empathy development related to the frequency of adolescent- and parent-reported conflict?

RQ 3: Are highly empathic adolescents more sensitive to conflict with their parents?

a. Are differences in adolescents' empathy development related to their conflict sensitivity, as reflected in agreement between adolescent- and parent-reported conflict frequency?

Chapter 4: Common and Unique Associations of Adolescents' Affective and Cognitive Empathy Development with Conflict Resolution Behavior towards Parents

Chapter 4 describes a six-year longitudinal study (ages 13-18) of adolescents' developing empathic concern and perspective taking, in relation to changes in their specific conflict resolution behaviors towards both parents. The chapter focused on the second main research question of this dissertation:

RQ 2: How is adolescents' empathy related to adolescent-parent conflict?

a. What are the common and unique associations of the development of adolescents' empathic concern and perspective taking with their conflict resolution behaviors towards both parents?

Chapter 5: The Effects of Affective and Cognitive Empathy Manipulations on Behavior and Outcomes in Adolescent-Mother Conflicts

Chapter 5 describes an experimental replication of the previous chapter, to investigate causal effects of affective and cognitive empathy on adolescents' observed behaviors and self-reported outcomes in conflict discussions with mothers, which were conducted in the home. The chapter focused on the second main research question of the dissertation:

RQ 2: How is adolescents' empathy related to adolescent-parent conflict?

a. What are the common and unique effects of affective and cognitive empathy manipulations on adolescents' observed behavior and self-reported outcomes in conflict discussions with mothers?
b. How do these experimental manipulations of state affective and cognitive empathy interact with trait empathic concern and perspective taking?

Chapter 6: Longitudinal Effects of Conflict Frequency on Adolescents' State and Trait Emotion Dysregulation are Moderated by Adolescents' Empathy

Chapter 6 describes a six-year longitudinal study (ages 13-18) of the longitudinal interplay between adolescent-reported conflict frequency with both parents, day-to-day mood variability, and dispositional difficulties in emotion regulation. Using the different empathy classes identified in Chapter 3, we investigated whether empathy moderated over-time links between conflict frequency and adolescents' emotion dysregulation. The chapter addressed issues related to the third main research question of the dissertation:

RQ 3: Are highly empathic adolescents more sensitive to conflict with their parents?

a. Does more frequent adolescent-parent conflict predict greater emotion dysregulation for higher-empathy adolescents than for lower-empathy adolescents?
b. Does greater emotion dysregulation predict more frequent conflict with parents over time?
c. Does state day-to-day mood variability become consolidated into trait dispositional difficulties in emotion regulation over time?
d. Does conflict drive this dysregulation consolidation process for high-empathy adolescents?
e. For high-empathy adolescents, does conflict-related emotion dysregulation play a role in maintaining conflict frequency over time?

DESIGN AND DATA

Longitudinal Studies

The present dissertation describes four longitudinal studies (Chapters 2, 3, 4, and 6) based on data from the ongoing longitudinal RADAR-Y study (Research on Adolescent Development And Relationships - younger cohort, Van Lier et al., unpublished manuscript).

Participants. The RADAR-Y sample consists of 497 families, who were recruited when one of their children was approximately 13 years of age and followed for over six years. In order to be eligible for participation, the adolescents had to come from a family with both parents and a sibling present at the start of the study. Adolescents were all Dutch nationals, although a minority (4.28%, 1 missing) self-identified with a different ethnic background. Based on parents' reports of employment status and criteria of the Dutch census (Statistics-Netherlands, 1993), most of adolescents' families could be classified as medium- to high-SES (10% low-SES). The RADAR study aimed to include an oversampling of adolescents at risk for externalizing behavior. Teachers' ratings of adolescents' behavioral problems were used to include 206 at-risk adolescents, versus 291 normal-risk adolescents.

Recruitment. Potential participants were recruited from randomly selected schools in the province of Utrecht, and four other cities in The Netherlands. Families were randomly selected within schools, and included in the study if adolescents and parents provided informed consent. Of 1,081 families contacted, 470 refused and 114 failed to produce informed consent. Families received financial compensation for their participation in annual measurements, amounting to approximately €100 for all family members (mother, father, focal adolescent and sibling), of which adolescents received €15. Adolescents received additional compensation for each internet assessment (approximately €10).

Design of the study. From 2006 to 2012, trained interviewers conducted six annual home visits to collect questionnaire data. These questionnaires included the measures used in the present dissertation, namely: Adolescent-reported empathic concern and perspective taking; adolescent, mother, and father-reported conflict frequency, and adolescent-reported conflict resolution behaviors. From 2008 (age 15) onward, adolescent-reported difficulties in emotion regulation were also measured. Furthermore, adolescents completed three weeks' worth of daily mood diaries each year, equally spaced within the intervening year between annual measurements. These mood diaries were administered for 5 sequential days (i.e., Monday through Friday).

Measures and Materials

Below is an overview of the instruments used to measure the constructs used in the longitudinal studies. Because of the diverse and often complex statistical models analyzed in these different studies, we often had to strike a balance between completeness and parsimony. Therefore, measurement instruments were often treated slightly differently between studies. Please refer to the methods section of the empirical chapters for additional information. An overview of which measures were included in which studies and how they were treated can be found in Table 1.

Table 1. *Overview of RADAR waves and measures used in the empirical chapters.*

	Chapter 2	Chapter 3	Chapter 4	Chapter 6
RADAR waves	2-5	1-6	1-6	1-6
Empathy	Latent variables for EC and PT	Three latent classes, based on mean scores for EC and PT	Mean scores for EC and PT	Latent classes from Chapter 3
Conflict frequency	-	Mean scores for adol.-reported conflict with mother/father and mother/father-reported conflict with adolescent.	-	Mean score of adol.-reported CF with mother and father, taken together
Conflict resolution behavior	-	-	Mean scores for adol.-reported conflict behaviors towards mothers and fathers	-
Diff. in emotion regulation	-	-	-	Mean score
Mood diaries	-	-	-	Single mean score of mood variability per year

Adolescent empathy. We used two subscales of Davis' (1983) Interpersonal Reactivity Index (IRI) to measure adolescents' dispositional empathic concern (e.g., "I am often concerned about people less fortunate than me") and perspective taking (e.g., "I try to look at everybody's side of a disagreement before I make a decision"). The Dutch IRI has demonstrated adequate reliability and external validity in samples of adults and adolescents (De Corte et al., 2007; Hawk et al., 2013).

Conflict frequency. Conflict frequency was assessed using Laursen's (1993) Interpersonal Conflict Questionnaire (ICQ). Adolescents reported on conflicts with each parent separately, and parents both reported independently on their conflicts with the adolescent. Respondents reported how often they recalled having a conflicts about 10 common topics in the past seven days (e.g., "Autonomy, personal freedom", "school/ work", "criticism or teasing"). The Dutch version of this scale has been found to have high internal consistency and correlate with other variables in theoretically consistent ways (Van Doorn, Branje, & Meeus, 2008).

Conflict resolution behavior. Adolescents indicated how often they used four different conflict resolution styles towards each parent, using a Dutch adaptation of Kurdek's Conflict Resolution Styles Inventory (CRSI, Kurdek, 1994). This instrument distinguishes between conflict escalation ("Letting myself go, and saying things I do not really mean"), problem solving ("Trying to find solutions that are acceptable to both of us"), compliance

("Giving the other what he/she wants"), and withdrawal ("To stop responding and refuse to discuss the matter further"). The Dutch version of this scale has been found to have acceptable internal consistency and correlate with other variables in theoretically consistent ways (Van Doorn, Branje, & Meeus, 2008).

Difficulties in emotion regulation. From age 15 to 18, we administered the Difficulty in Emotion Regulation Scale (DERS, Gratz & Roemer, 2004). This 36-item scale distinguishes six aspects of difficulties in emotion regulation, including lack of emotional awareness ("I pay attention to how I feel", reverse coded), lack of emotional clarity ("I have difficulty making sense out of my feelings"), impulse control difficulties ("When I'm upset, I become out of control"), difficulties engaging in goal-directed behavior ("When I'm upset, I have difficulty thinking about anything else"), non-acceptance of emotional responses ("When I'm upset, I feel guilty for feeling that way"), and limited access to emotion regulation strategies ("When I'm upset, I start to feel very bad about myself"). The DERS has been found to have high internal consistency and validity in Dutch adolescents (Neumann, Van Lier, Gratz, & Koot, 2010).

Day-to-day mood variability. Adolescents' daily moods were assessed using an online adaptation of the Electronic Mood Device (Hoeksma et al., 2000). Three times a year, adolescents reported their levels of happiness, anger, anxiety, and sadness for five consecutive days on 9-point Likert scales, using three dictionary synonyms per emotion that were averaged into daily mood scores. From these time series data, we derived indices of day-to-day mood variability, using the mean squared successive distances (MSSD) between reports on consecutive days for each specific mood. This is a well-validated method, which captures both day-to-day variability and temporal dependency in the data (Jahng, Wood, & Trull, 2008). Based on a series of factor analyses, we collapsed the resulting MSSD scores across the three measurement weeks within each year and across moods, resulting in one index of mood variability per year (see Neumann, Van Lier, Frijns, Meeus, & Koot, 2011). Previous research has revealed excellent reliability for these daily mood assessments (Maciejewski et al., 2014).

Experimental Study

The present dissertation contains one experimental study (Chapter 5), for which a new dataset was collected.

Participants. We recruited 67 adolescent-mother dyads. Adolescents' (32 girls) mean age was 15.51 (*SD* = 1.16), and mothers' mean age was 48.48 (SD = 3.16). One adolescent was enrolled in preparatory vocational education (VMBO), 18 in higher general education (HAVO), and 48 in preparatory scholarly education (VWO). All adolescents were Dutch-born. Of the mothers, eight reported having vocational education, three had a high school education, and 56 had a college education or higher. Most mothers

were Dutch-born (64), two were European-born, and one Japanese-born. Mothers were recruited at parent-teacher nights at several schools. Adolescents and mothers each received €12.50 for their participation.

Procedure. Adolescents completed an online questionnaire measuring trait empathic concern, trait perspective taking, and perceived maternal support and power one week before the experiment was conducted. Participants were visited at home, where adolescents received an experimental manipulation of affective or cognitive empathy, or a control condition. Next, adolescents and mothers discuss a recent, unsolved conflict topic for eight minutes. These discussions were videotaped. Afterwards, adolescents completed a questionnaire of self-reported outcome satisfaction and perceived outcome fairness in relation to their conflict discussion.

Measures and Materials

Empathy. Participants completed the empathic concern (α = .61) and perspective taking (α = .80) subscales of the Interpersonal Reactivity Index, adapted to measure empathy toward mothers, on 5-point scales (IRI, Davis, 1983; Dutch translation validated by Hawk et al., 2013).

Relationship quality. Participants rated the support (α = .80, e.g.: "Does your mother like or approve of the things you do?") and power (α = .79, e.g.: "To what extent is your mother the boss in your relationship?") subscales of the Network of Relationships Inventory (Furman & Buhrmester, 1985) on five-point scales.

Empathy manipulation. Participants in the affective and cognitive empathy conditions were asked to write a description of their mother's emotions or perspective during a previous argument about the chosen conflict topic. Adolescents in the control condition wrote about the circumstances under which that discussion took place. Then, adolescents in the experimental conditions were asked to maintain this focus on the mother's emotions or perspective, respectively, during the upcoming discussion.

Behavioral observations. Conflict discussions were videotaped and content-coded for active negative behavior (similar to conflict escalation in the CRSI, Kurdek, 1994), active problem solving (similar to problem solving in the CRSI), and listening, a passive prosocial conflict resolution behavior not included in the CRSI, but which has been found to occur frequently in observation studies (Branje, 2008). Although we also coded for withdrawal and compliance, these behaviors occurred too infrequently to be included in analyses.

2

The Longitudinal Interplay of Affective and Cognitive Empathy Within and Between Adolescents and Mothers

Van Lissa C. J. Hawk S. T. de Wied, M. Koot, H. M. van Lier, P. & Meeus, W. (2014). The longitudinal interplay of affective and cognitive empathy within and between adolescents and mothers. *Developmental Psychology*, 50(4), 1219-1225. doi:10.1037/a0035050

ABSTRACT

This four-year study examined longitudinal interplays between adolescents' and mothers' self-reported empathic concern (EC) and perspective taking (PT). We investigated 1) whether adolescents' EC predicted rank-order change in their PT over time, or vice-versa; 2) whether mothers' empathy predicted relative increases in adolescents' empathy; 3) whether adolescent gender moderated the over-time links from mothers' to adolescents' empathy; and 4) whether the rank-order stability of EC and PT over time differed within and between respondents. Adolescents' EC positively predicted their PT over time, but not vice-versa. Mothers' PT positively predicted adolescent PT over time for girls, but not for boys. The rank-order stability of adolescents' EC was greater than their PT. Maternal PT and EC were equally stable, and more stable than for adolescents. This study contributes the first empirical evidence that the developmental order of adolescents' empathy runs from affective to cognitive empathy, in contrast to prior theoretical and experimental literature that has emphasized the reverse direction. It further provides the first longitudinal evidence of intergenerational empathy transmission. These findings support the notion that adolescence is a developmentally sensitive period for PT.

Keywords: empathy; perspective taking; empathic concern; intergenerational transmission; adolescence

THE LONGITUDINAL INTERPLAY OF AFFECTIVE AND COGNITIVE EMPATHY WITHIN AND BETWEEN ADOLESCENTS AND MOTHERS

One of the most important developments in adolescence is the transition from the relative self-centeredness of childhood to the increased capacity for empathic responding that characterizes adulthood (e.g., Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005; Hoffman, 2000). Mature empathy has both affective and cognitive dimensions. Empathic concern (EC) is an affective empathy dimension involving compassionate, sympathetic responses to others' misfortunes. Perspective taking (PT) is a cognitive empathy dimension that involves understanding others' viewpoints (Davis, 1983). Dispositional empathy is positively associated with prosocial behavior (Hoffman, 2000) and successful conflict resolution (De Wied, Branje, & Meeus, 2007). Although previous research has addressed *mean-level* empathy development in adolescence (Davis & Franzoi, 1991; Eisenberg et al., 2005), such studies describe only aggregate change, and cannot address how these empathy dimensions interact over time, within and between adolescents and mothers, in terms of *rank-order* change and stability.

Three important issues have remained unstudied in prior empathy development research. The first issue concerns the developmental order of EC and PT in adolescence: Whether adolescents' EC predicts rank-order change in their PT over time, or vice versa. Addressing this point empirically can provide useful information about the extent to which either dimension might predict relative change in the other over time, which could be used for the early identification of children who might benefit from support in developing their empathic dispositions. The second issue concerns the over-time transmission of empathy from mothers to adolescents, namely whether mothers' EC and PT predict rank-order change of these dispositions in their children over time. Understanding to what extent maternal empathy predicts adolescents' empathy might be of interest to parents or family therapists wishing to promote adolescents' empathy. The final issue concerns the rank-order stability of EC and PT in adolescents, as compared to their mothers. Studying rank-order stability can provide unique insight into the relative malleability of individual differences in EC and PT in adolescence (in addition to aggregate change). Because lower rank-order stability indicates greater potential for relative change, practitioners could use this information to focus interventions on different empathy dimensions at different ages. The present study addresses these gaps in the literature through a four-year longitudinal study.

The Longitudinal Interplay of Affective and Cognitive Empathy Dimensions

Although there is general consensus that affective and cognitive empathy dimensions are interdependent (Davis, 1983; De Corte et al., 2007; Hawk et al., 2012), these dimensions are still distinguishable in the sense that they rely on different brain circuits

(Singer, 2006), and are associated with distinct behavioral and relational outcomes (Davis, 1983; De Wied et al., 2007; Soenens, Duriez, Vansteenkiste, & Goossens, 2007). This raises the question of whether and how the development of these interrelated but distinct dimensions is associated over time. Some theories have emphasized a developmental order from the cognitive to the affective, by highlighting the importance of cognitive maturation for EC development (Eisenberg et al., 2005; Hoffman, 2000), or considering PT essential for experiencing EC (Decety, 2007; Lamm, Batson, & Decety, 2007). De Waal (2007) has argued against this emphasis on "top-down" development, instead suggesting that empathy develops in layers of increasing complexity that rely upon – and modulate – more primitive layers. Affective empathic processes probably have earlier phylogenetic origins than higher-order, cognitive processes; indeed, even rats engage in affectively-motivated prosocial behavior when confronted with a companion's distress (Bartal, Decety, & Mason, 2011). The emergence of affective and cognitive empathy components in humans might mirror this developmental order. Early in life, moral reasoning relies mostly on brain structures associated with emotion, which become increasingly coupled with cognition-related structures over time (Decety, Michalska, & Kinzler, 2012).

Different theories have thus emphasized different directions of over-time associations between EC and PT, but according to Preston and De Waal (2002) the emphasis in prior literature appears to be on a developmental order from cognitive to affective empathy. This could be related to the fact that experimental research has focused on the effects of perspective taking instructions on feelings of sympathy (e.g., Lamm et al., 2007). It is, after all, easier to instruct participants to engage in perspective taking than to sympathize with others. Nevertheless, some experimental studies have reported "spontaneous perspective taking" prompted by initial, affective responses to another's distress (e.g., Hawk, Fischer, & Van Kleef, 2011), which suggests that associations might run in either direction, even in the experimental context. Ultimately, only longitudinal research can speak to questions of developmental order. We addressed this issue by exploring whether adolescents' EC at one time point predicted rank-order change in their PT later on, and/or vice versa.

Intergenerational Empathy Transmission

Theorists have stressed the influence of parents on empathy development in childhood, and recent studies suggest that parents remain an important source of influence in adolescence (Miklikowska, Duriez, & Soenens, 2011; Soenens et al., 2007). Furthermore, adolescent and parental empathy are known to be correlated (Davis, 1983; Hawk et al., 2012; Soenens et al., 2007; cf. Strayer & Roberts, 2004). It has even been argued that empathic dispositions are transmitted from parents to their children (Soenens et al.,

2007), although heritability and parental socialization could play different roles for EC and PT, and at different ages. Heritability estimates are substantial for EC, but not for PT (Davis, Luce, & Kraus, 1994), and these genetic contributions emerge in the first years of life (Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008). Conversely, research shows that mother-adolescent PT correspondence is mediated by maternal support (Soenens et al., 2007), suggesting that PT is transmitted more gradually in adolescence by means of socialization processes. In adolescence, we therefore expected to find stronger mother-to-child transmission of PT, compared to EC. Furthermore, Eisenberg, Spinrad, and Sadovsky (2006) noted that children's empathic dispositions correspond primarily with same-sex parents and siblings. This might suggest same-sex modeling, as similarity is an important factor in the imitation of others' behavior (Preston & De Waal, 2002).We therefore predicted stronger mother-to-child empathy transmission for girls than for boys.

The Developmental Timing of EC and PT: Rank-Order Change and Stability

Different developmentally sensitive periods might exist for EC and PT (Singer, 2006). Limbic and para-limbic brain regions, associated with emotional processing, undergo a developmental spurt before adolescence. In contrast, pre-frontal brain regions that are implicated in PT continue to mature during adolescence (Casey, Jones, & Somerville, 2011; Choudhury, Blakemore, & Charman, 2006). If self-reports parallel these neurological findings, we might expect the rank-order stability of adolescents' PT to be lower than EC. Furthermore, we might expect rank-order stability of both dispositions to be lower in adolescents than in mothers, since various facets of personality tend to stabilize with increasing age (Roberts & DelVecchio, 2000). Because lower rank-order stability implies greater potential for inter-individual change, adolescents' EC might predict relative change in PT more strongly than vice versa, and mother-to-adolescent transmission might be stronger for PT than EC.

The Present Study

Using cross-lagged panel modeling, we addressed four specific issues in the present longitudinal study. First, we explored the developmental interplay between adolescents' EC and PT, providing the first investigation of the developmental interplay between EC and PT in adolescents. Bidirectional prediction is defensible, but over-time prediction from EC to PT would likely be stronger if adolescents' EC is more stable than PT. Second, we investigated whether mothers' empathy predicts adolescents' empathy over time, and third, whether adolescent gender moderates this "transmission". We expected to find stronger mother-to-adolescent transmission of PT than of EC, and stronger

transmission to daughters than sons. Finally, we compared the rank-order stability of EC and PT within and between respondents. We expected greater rank-order stability for adolescents' EC than for PT. We also predicted that the rank-order stability of PT and EC would be greater for mothers than for adolescents.

METHOD

Participants

Participants were 474 Dutch adolescents (271 boys, 203 girls; age at T1: M = 14.03, SD = 0.45) and their mothers (age at T1: M = 45.47, SD = 4.46), participating in an ongoing longitudinal study (RADAR; Van Lier et al., unpublished paper). Most adolescents had a Dutch ethnic background (N = 451), although some had a Surinamese/Antillean (N = 7), or other background (N = 14; 2 missing).

Procedure

Participants were recruited by telephone and visited by a trained interviewer. All participants provided informed consent. Each year, participants completed a large questionnaire. Although IRI data were collected in the RADAR study from 2006 to 2011, we used data from 2007 onward for the sake of measurement consistency, because two subscales (Fantasy and Personal Distress) were dropped after the first year[1]. We thus refer to the 2007 wave as T1.

Measures

Empathy. Adolescents' and mothers' self-reports on two seven-item subscales of the Interpersonal Reactivity Index (IRI) (Davis, 1983) respectively assessed EC (e.g., "I am often concerned about people less fortunate than me") and PT (e.g., "Sometimes I try to understand my friends better by imagining how they see things"). Each subscale was rated on a 5-point Likert scale (0 = *Doesn't describe me at all*; 4 = *Describes me very well*). The Dutch IRI has adequate internal consistency and validity, and an invariant factor structure between adolescents and mothers (Hawk et al., 2012). Latent variable reliability ranged from acceptable to good, with Raykov's (2001) ρ's between .71 and .84 for EC, and between .78 and .86 for PT. For descriptive statistics and latent variable correlations, see Table 1.

1 Preliminary tests showed that we could not establish factor loading invariance between mothers' PT in the wave of 2006 and mother's and adolescents' PT in the waves from 2007 onward. This might have been due to the reported changes in the questionnaires after 2006.

Strategy of Analyses

All analyses were conducted in Mplus (v. 7, Muthén & Muthén, 1998-2012). Because some variables were moderately skewed (lowest γ_1 = -1.72, *SE* = .11), we used robust maximum likelihood estimation (Satorra & Bentler, 1994). The percentage of missing values for each variable varied between 6.8% and 8% at T1, and between 15.3% and 15.5% at T4. Because data were missing completely at random, MCAR test $\chi^2(2118) = 2129.57$, χ^2/df ratio = 1.01, $p = .43$ (Little, 1988), we included respondents with partially missing data using full information maximum likelihood (FIML). We considered RMSEA ≤ .05, and CFI ≥ .95, supplemented by SRMR ≤ .08, to indicate good fit (Kline, 2011).

We took a model building approach, based on the two-step process suggested by Anderson and Gerbing (1988). Model fit at each step is displayed in Table 2. We first constructed a measurement model (M0), with latent variables representing EC and PT to partial out measurement error and establish measurement invariance between respondents (Kline, 2011). Given the complexity of the final model and the modest sample size (parameter-to-*N* ratio = 0.48), we used item parceling (Kline, 2011), with three parcels per latent variable[2]. Error variance of the same parcels was correlated over time within respondents. This measurement model had a good fit. Based on Chen's (2007) criteria (CFI decrease ≤ .01, and RMSEA increase ≤ .015), we were able to establish measurement invariance for each construct by constraining factor loadings over time and between respondents (M1)[3], indicating that the IRI scales were interpreted similarly at different ages and by mothers and adolescents. Standardized factor loadings varied between .62 and .80 for EC, and between .46 and .88 for PT.

Next, we constructed a baseline model with auto-regressive ("stability") paths and T1 within-time correlations (M2). This model had an acceptable fit. Adding within-time correlations at T2-T4 (M3) further improved fit. We then sequentially tested whether including within- and between-respondent crosspaths improved model fit as indicated by chi-square difference tests, retaining paths that significantly improved model fit before testing the next path. We added within-respondent crosspaths first, adolescent crosspaths before mother crosspaths, and paths from EC to PT before PT to EC. We then added between-respondent crosspaths predicting PT, first from mother to adolescent, and then the reverse. We then tested between-respondent crosspaths predicting EC in the same order. The resulting final model (M7) is displayed in Figure 1. This final model showed improved fit over the baseline model[4].

2 Details of this parceling solution can be found in Hawk et al. (2012).
3 We also tested these constraints for each variable separately using Wald tests, within and between respondents.
4 We arrived at the same model using a model pruning approach, beginning with a fully saturated model and then iteratively removing crosspaths with standardized coefficients smaller than .05.

Table 1. *Descriptive Statistics and Latent Variable Correlations*[5].

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. T1 Adolescent EC	2.46	0.62															
2. T2 Adolescent EC	2.44	0.65	.78***														
3. T3 Adolescent EC	2.39	0.66	.68***	.73***													
4. T4 Adolescent EC	2.45	0.58	.65***	.70***	.81***												
5. T1 Mother EC	2.97	0.47	.11	.10	.11	.14*											
6. T2 Mother EC	2.98	0.50	.14*	.12*	.16**	.10	.80***										
7. T3 Mother EC	2.95	0.49	.14*	.11	.18**	.13*	.85***	.83***									
8. T4 Mother EC	2.98	0.48	.13*	.10	.16*	.12*	.81***	.85***	.90***								
9. T1 Adolescent PT	2.11	0.58	.63***	.54***	.45***	.41***	.11	.11	.17**	.17**							
10. T2 Adolescent PT	2.11	0.63	.53***	.76***	.56***	.51***	.14*	.10	.21***	.19***	.64***						
11. T3 Adolescent PT	2.18	0.62	.54***	.56***	.69***	.56***	.04	.09	.16**	.14*	.59***	.64***					
12. T4 Adolescent PT	2.22	0.63	.48***	.52***	.52***	.64***	.13*	.13*	.23***	.18**	.59***	.61***	.68***				
13. T1 Mother PT	2.73	0.51	.07	.04	.08	.08	.59***	.47***	.47***	.50***	.15**	.12*	.15***	.17**			
14. T2 Mother PT	2.77	0.50	<.01	.01	.09	.06	.50***	.66***	.51***	.52***	.13*	.09	.18**	.18***	.78***		
15. T3 Mother PT	2.79	0.53	.06	.05	.10	.11	.50***	.55***	.66***	.60***	.14**	.18***	.20***	.16**	.75***	.74***	
16. T4 Mother PT	2.81	0.53	.02	.02	.06	.06	.52***	.52***	.54***	.64***	.12*	.08	.13*	.13*	.79***	.78***	.83***

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

5 Observed score correlations available upon request.

Table 2. *Overview of Model Fit Indices.*

Model	χ^2SB	df	c	RMSEA	CFI	SRMR	$\Delta\chi^2$SB	Δdf
M0: Measurement model	1165.01	888	1.049	0.026	0.975	0.041		
M1: Factor invariance model	1230.30	916	1.054	0.027	0.972	0.050	61.55**	28
M2: Stablility and T1 Correlation	1787.60	1012	1.053	0.040	0.930	0.086	561.22**	96
M3: Correlated Change	1481.17	1000	1.054	0.032	0.957	0.064	331.24**	12
M4: Adolescent EC to PT paths	1464.50	997	1.053	0.031	0.958	0.062	13.73**	3
M5: Adolescent EC to PT paths†	1465.43	999	1.054	0.031	0.958	0.062	1.57	2
M6: Mother PT to Adolescent PT paths	1457.69	996	1.054	0.031	0.959	0.059	7.73*	3
M7: Mother PT to Adolescent PT paths †	1458.91	998	1.054	0.031	0.959	0.059	1.22	2
M8: Gender Moderation	2676.56	2069	1.030	0.035	0.944	0.076	1209.92**	1071

Note. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$, † effect is constrained over time.

RESULTS

Within-Respondent Associations

We found large T1 correlations between EC and PT for adolescents and mothers. The only within-individual crosspaths that significantly improved model fit were those predicting adolescents' PT from EC (M4). A non-significant Wald test indicated that these coefficients could be constrained over time (M5). The positive regression coefficients indicated that adolescents' EC in one wave predicted their PT in the subsequent wave (βs = .19, *p*s < .01, see Figure 1). Adding crosspaths from adolescents' PT to EC did not improve model fit[6], nor did crosspaths between mothers' EC and PT.

Intergenerational Transmission

We found small, significant T1 associations between mothers' and adolescents' EC and PT. To examine intergenerational transmission, we assessed mother-to-adolescent crosspaths. Supporting predictions, adding crosspaths from mother PT to adolescent PT improved model fit (M6). Wald tests indicated that these coefficients could be constrained over time (M7). The positive path coefficients (βs between .05 and .07, *p*s ≤ .01) suggested that mothers' higher PT predicted higher adolescent PT in the subsequent year. Including mother-to-adolescent crosspaths for EC did not improve model fit, nor did any adolescent-to-mother crosspaths.

6 In order to directly compare the strengths of EC to PT crosspaths with those of PT to EC crosspaths, we tested a model that estimated both simultaneously. The EC to PT paths (βs between .18 and .19, *p*s < .001) were clearly superior to the PT to EC paths (βs < .01, *p*s = .95), and were significantly different from each other, $\chi^2_{Wald}(1) = 8.76$, $p < .01$.

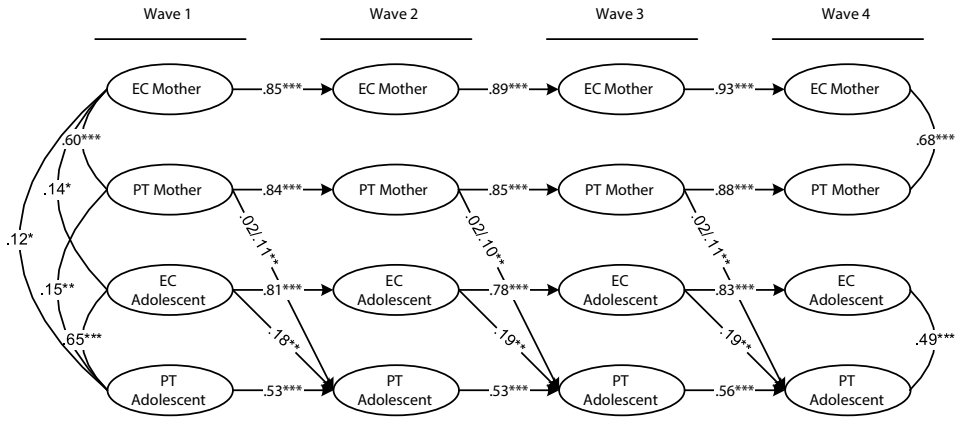

Figure 1. *Cross-lagged panel model of adolescents' and mothers' EC and PT over time*
Standardized estimates of significant effects are displayed. Observed variables, residuals, residual correlations and within-time correlations omitted for the sake of clarity. When two values are assigned to a path, the first refers to boys and the second to girls. Model fit indices: χ^2SB(998) = 1458.91, $p < .001$, RMSEA = .031, CFI = 0.959, SRMR = 0.059. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Gender Moderation of Mother-to-Adolescent PT Transmission

To examine whether PT transmission was stronger for girls than for boys, we tested for gender moderation using multi-group analysis. All path coefficients could be constrained between boys and girls, except crosspaths from mothers' PT to adolescents' PT, $\chi^2_{Wald}(1) = 3.96$, $p < .05$, suggesting that adolescent gender moderated PT transmission. The path coefficients were significant and positive for girls (βs between .10 and .11; *p*s = .003), but non-significant for boys (βs < .02; *p*s > .53). The resulting model (M8) had a good fit.

Comparing the Rank-Order Stability of EC and PT Within- and Between Respondents

To compare the rank-order stability of EC and PT within and between respondents, we temporarily constrained the stability coefficients of each variable over time (Wald test *p*s between .05 and .89). We then tested whether the rank-order stability of EC differed significantly from the rank-order stability of PT within respondents. Supporting predictions, the rank-order stability of adolescents' EC was higher than PT, $\chi^2_{Wald}(1) = 12.05$, $p < .001$, whereas the stabilities of mothers' EC and PT did not differ, $\chi^2_{Wald}(1) = 0.09$, $p = .76$. Finally, we tested whether the rank-order stability of EC and PT could be constrained between adolescents and mothers. As predicted, the rank-order stability of EC and PT was significantly lower in adolescents than mothers, $\chi^2_{Wald}(1) = 12.63$, $p < .001$ and $\chi^2_{Wald}(1) = 27.41$, $p < .001$, respectively.

DISCUSSION

Empathy is a multi-dimensional construct, with affective and cognitive components that are related both within individuals and between parents and their children. Although different theories have suggested a developmental interplay between empathic concern and perspective taking (e.g., Decety, 2007; De Waal, 2007; Eisenberg et al., 2005; Hoffman, 2000), the direction of their over-time associations has remained unexplored in earlier research. We found that adolescents' EC predicted PT over time, but not vice-versa. Furthermore, empathy is commonly found to be correlated between parents and their children (Eisenberg, Spinrad, & Sadovsky, 2006), and some have suggested that PT, in particular, is transmitted from mothers to adolescent children (Soenens et al., 2007). Longitudinal studies are uniquely suitable for demonstrating such intergenerational transmission over time. Extending upon previous work, we found that mothers' PT positively predicted PT for daughters, but not for sons. Finally, recent neurological insights suggest that adolescence is a developmentally sensitive period for brain regions integral to PT, whereas those underlying EC stabilize earlier in life. Our findings regarding the rank-order stability of EC and PT suggest that this developmental order is reflected in adolescents' self-reports, as well.

The Longitudinal Interplay between Affective and Cognitive Empathy Dimensions

Some developmental theories have emphasized the importance of cognitive maturation for EC development, suggesting a developmental order from PT to EC (e.g, Decety, 2007; Hoffman, 2000). In contrast, De Waal (2007) argued that cognitive components of empathy build upon affective components, based on insights from the phylogenetic development of empathy. In line with the latter account, we found that adolescents' EC predicted relative increases in their PT one year later. Although causality cannot be inferred from correlational data alone, these results suggest that adolescents' tendency to feel compassion for the misfortunes of others might promote their ability to understand others' points of view. Furthermore, these findings indicate that affective empathy provides an early marker of adolescents' relative level of cognitive empathy later on. This finding could prove useful for identifying children at risk of developing relatively lower levels of PT and supporting them in developing this important interpersonal skill. Our findings do not contradict existing experimental evidence, which has focused on how PT can enhance EC (Hawk et al., 2011), but they do indicate that such experimental studies cannot necessarily speak to the developmental interplay between cognitive and affective empathy, which should be addressed using longitudinal methods.

Intergenerational Transmission

There are known similarities between parents' and children's EC and PT, especially between parents and offspring of the same gender (Eisenberg et al., 2006). Previous authors have suggested that, for EC, these similarities might be hereditary and emerge in early childhood (Davis et al., 1994; Knafo et al., 2008), whereas PT might be transmitted more gradually throughout adolescence (Soenens et al., 2007). In line with these arguments, we found longitudinal evidence for mother-daughter PT transmission. Mothers' PT predicted relative increases in daughters' PT one year later. Although the absence of mother-to-son PT transmission is in line with previous research suggesting same-sex modeling (Eisenberg et al., 2006), this interpretation remains speculative because fathers were not included in our sample. Additionally, male adolescents might be less susceptible to parental influences. We found no evidence for EC transmission in adolescence, but prior research suggests that this might occur at an earlier age (Knafo et al., 2008). Alternatively, if some parenting behaviors stimulate EC while others reduce it, suppression might render the effect undetectable (Strayer & Roberts, 2004). Our findings suggest that the predictive value of maternal empathy is especially relevant in mother-daughter relationships. Though the present study cannot speak to the mechanisms by which mothers' higher PT predicted relative increases in daughters' PT, previous research suggests that mothers' empathy-related behaviors might play a role (Miklikowska et al., 2011). Such an interpretation implies that mothers wishing to stimulate PT in daughters would do well to practice it themselves.

The Developmental Timing of Affective and Cognitive Empathy

In line with neurological studies suggesting that brain structures underlying EC develop in childhood whereas those implicated in PT develop throughout adolescence (Singer, 2006), we found that the rank-order stability of adolescents' EC was significantly higher than PT. The rank-order stabilities of mothers' EC and PT did not differ, and were higher than for adolescents. This is in line with previous research indicating that empathic dispositions stabilize with age (Davis & Franzoi, 1991). For adolescents, individual differences in EC appeared to be quite stable compared to PT, which suggests that interventions or attempts to promote adolescents' empathy might be best targeted at PT, but also that any interventions targeting EC at a younger age might carry over to PT during adolescence.

Strengths and Limitations

This is the first empirical study to investigate the developmental order of cognitive and affective empathy in adolescence, offering an important complement to prior theoretical work on developmental order (Hoffman, 2000), longitudinal studies on trajectories of mean-level development (e.g., Davis & Franzoi, 1991; Eisenberg et al., 2005), and neuroimaging studies suggesting that brain regions underlying cognitive empathy continue to develop in adolescence (Singer, 2006). Furthermore, we were able to provide the first longitudinal evidence for mother-to-child PT transmission, which had heretofore been supported solely by cross-sectional data (Soenens et al., 2007). The robustness of the transmission effect is bolstered by the fact that respondents reported independently on their *general* empathic dispositions. The IRI was embedded in a large questionnaire packet, and neither respondent was primed to think specifically about their relationship with the other, which could have otherwise inflated the links between respondents. Although our effect sizes perhaps appear modest by conventional standards, they are in fact quite substantial for a cross-lagged panel model. Raaijmakers, Engels, and Van Hoof (2005) pointed out that coefficients in cross-lagged panel models are typically less than half the size of those found in cross-sectional studies, because cross-lagged panel models partial out many sources of shared variance, which cross-sectional and experimental studies typically do not do. Furthermore, time-lagged effects tend to weaken with longer time intervals, and the fact that we consistently found significant results with one-year measurement intervals suggests even more robust, short-term processes that deserve further study.

Nevertheless, certain limitations are noteworthy. Most importantly, causality cannot be inferred on the basis of this study alone, because the data are correlational (Kline, 2011). The results do suggest that it could be worthwhile for future researchers to conduct experiments to investigate whether early interventions promoting adolescent EC indirectly stimulate later PT, and whether promoting mothers' empathic behavior results in greater adolescent PT over time. Second, the IRI assesses individuals' *tendencies* to engage in EC and PT, and does not measure their empathic abilities or responses in specific situations. It might be more appropriate to examine this latter issue using behavioral measures. Including additional surveys could offer convergent evidence, and outside observer reports could safeguard against biased self-reporting. Parents can be poor judges of adolescent empathy, however, according to Cliffordson's (2001) findings that parent and adolescent reports of adolescents' EC were only moderately correlated ($r = .34$), and their reports of adolescents' PT were not significantly correlated at all. One reason self-reports are widely used is because empathy is an internal process, which may or may not be evident in behavior. We were unable to test whether PT is transmitted by the same-sex parent, because we did not assess fathers' empathy, and

future studies should aim to include whole-family assessments. Finally, we did not test for mediators that potentially drive the intergenerational transmission of PT, because our sample size was too modest for more complex modeling. Future studies should investigate these issues with larger samples.

Conclusion

This study is the first to demonstrate that dispositional EC predicts PT in adolescence, and provides longitudinal support for PT transmission from mothers to daughters. The fact that we found within- and between-respondent crosspaths predicting adolescent PT, combined with the relatively low rank-order stability of this disposition, supports the notion that adolescence is a developmentally sensitive period for PT.

3

Divergence between Adolescent and Parental Perceptions of Conflict in Relationship to Adolescent Empathy Development

Van Lissa, C., Hawk, S. T., Branje, S., Van Lier, P., Koot, H., & Meeus, W. (2015). Divergence between adolescent and parental perceptions of conflict in relationship to adolescent empathy development. *Journal of Youth and Adolescence*, 44, 48-61. doi:10.1007/s10964-014-0152-5

ABSTRACT

Adolescents' developing empathy may be associated with the frequency of conflict with parents, as well as the level of agreement between adolescent and parental perceptions of the frequency of such conflicts. This six-year longitudinal study investigated the link between adolescent empathy development and perceptions of the frequency of parent-child conflict, as reported by 467 adolescents (43% female, from age 13) and both parents. First, we investigated heterogeneity in empathy development by identifying classes of individuals with similar developmental trajectories. Adolescents were categorized into high-, average-, and low-empathy classes. Initial differences between these classes further increased from age 13 to 16, particularly for cognitive empathy. To assess the association between empathy and the frequency of conflict, we compared these empathy classes in terms of initial levels and over-time changes in the frequency of adolescent- and parent-reported conflict. Compared to the average- and high-empathy classes, the low-empathy class evidenced elevated conflict throughout adolescence. Furthermore, the low- and average-empathy classes demonstrated temporary divergence between adolescent- and parent-reported conflict from early- to mid-adolescence, with adolescents underreporting conflict compared to both parents. Adolescents' agreement with parents was moderated by empathy class, while parents were always in agreement with one another. This may suggest that these discrepancies are related to distortions in adolescents' perceptions, as opposed to biased parental reports. These findings highlight the potential importance of early detection and intervention in empathy deficiencies, and suggest that lower adolescent empathy may indicate elevated family conflict, even if a failure to consider parents' perspective leads adolescents to underreport it.

Keywords: empathy; conflict; adolescence; reporter discrepancies; longitudinal

ADOLESCENT EMPATHY DEVELOPMENT

During adolescence, parents and children do not always see eye to eye. Adolescent-parent conflict often occurs as youths strive for greater independence (Branje, Laursen, & Collins, 2013). The frequency of conflict subsides from early to late adolescence (Laursen, Coy, & Collins, 1998), which coincides with increasing adolescent empathy (Davis & Franzoi, 1991). Three fundamental issues remain unexplored, however. Although researchers have suggested that adolescence is a developmentally sensitive period for empathy (Choudhury, Blakemore, & Charman, 2006), longitudinal studies have only examined group-level change (e.g., Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005). Because developmentally sensitive periods are often characterized by further differentiation (Caspi & Moffitt, 1991), a person-centered approach might reveal different trajectories of empathy development. The second issue concerns links between empathy development and adolescent-parent conflict. Empathy promotes positive conflict resolution in adolescent friendships (De Wied, Branje, & Meeus, 2007), and inhibits aggression in adults (Richardson, Hammock, Smith, Gardner, & Signo, 1994). This suggests that adolescent empathy might also be related to conflict with parents. Third, adolescent and parental perceptions of their relationships often differ, including conflict perceptions (De Los Reyes & Kazdin, 2005). Because empathy involves taking others' perspectives and responding considerately to their emotions (Davis, 1983), reports of high-empathy adolescents should be more in line with those of their parents. Conversely, reports of low-empathy youths might deviate more strongly from parents'. We addressed these issues in a six-year longitudinal study, by investigating the link between developmental trajectories of adolescents' empathy and the frequency of conflict as reported by adolescents and both parents.

Empathy and the Frequency of Conflict

Even though many theorists now agree that adolescence is not the turbulent period of "storm and stress" it was once thought to be, some adolescent-parent conflict is normative and plays an integral part in the adolescent's individuation process (Branje et al., 2013; Grotevant & Cooper, 1986). Since adolescents typically expect increased autonomy before parents are ready to grant it (Deković, Noom, & Meeus, 1997), they might consider conflict as a legitimate means to renegotiate their role in the family (Smetana, 1989). Too much conflict is not adaptive, however, as frequent adolescent-parent conflict is correlated with adolescents' antisocial behavior (Klahr, Rueter, McGue, Iacono, & Burt, 2011), internalizing and externalizing problems (Branje, van Doorn, van der Valk, & Meeus, 2009), and later conduct problems (Klahr, McGue, Iacono, & Burt, 2011). It is therefore important to identify factors associated with lower levels of conflict.

Adolescent empathy might play a role in this regard. Empathy is a multi-dimensional construct, which encompasses both affective and cognitive dimensions (Davis, 1983). Two of these dimensions particularly have been linked to conflict-related constructs. Perspective taking, a cognitive empathy dimension, inhibits aggression in adults (Richardson et al., 1994), and promotes mutually beneficial outcomes in negotiations (Galinsky, Maddux, Gilin, & White, 2008). Empathic concern, an affective empathy dimension, rouses an urge in adults to reduce others' distress (Stocks, Lishner, & Decker, 2009). In adolescents, affective empathy has been linked to reduced aggression (De Kemp, Overbeek, De Wied, Engels, & Scholte, 2007), as well as greater positive conflict management and reduced escalation in conflicts with peers (De Wied et al., 2007). It remains to be seen whether these findings can be generalized to adolescent-parent relationships. Adolescents' developing empathy might help buffer adolescent-parent conflict, whereas a lack of perspective taking and concern for others might render some teenagers less able to recognize when they are crossing parents' boundaries, resulting in more frequent conflicts.

It is important to acknowledge that the association between adolescent empathy and adolescent-parent conflict might be reciprocal, because the adolescent-parent relationship plays a role in adolescents' empathy development. Adolescents' perceptions of parents' open communication (Heller, Robinson, Henry, & Plunkett, 2006) and support (Miklikowska, Duriez, & Soenens, 2011) predict adolescents' empathic dispositions, both cross-sectionally and over time. Furthermore, mothers' dispositional perspective taking predicts over-time increases in their daughters' perspective taking (Chapter 2). If supportive, communicative adolescent-parent relationships are positively associated with adolescent empathy development, then frequent adolescent-parent conflict is likely associated with diminished empathy development. The present study investigated the longitudinal association between adolescents' empathy development and the frequency of adolescent-parent conflict. We predicted that relatively greater adolescent empathy would be associated with less adolescent-parent conflict throughout adolescence.

Empathy and Reporter Discrepancies in Perceived Conflict

Obtaining multiple-informant data is generally considered desirable in family research, but discrepancies between different family members' reports are rarely explained (De Los Reyes & Kazdin, 2005). Perspectives on the adolescent-parent relationship may temporarily diverge, particularly in early adolescence (Branje et al., 2013; Steinberg, 2001), because adolescents strive towards increasing autonomy (Grotevant & Cooper, 1986), while parents are still concerned with instilling proper values in them (Steinberg, 2001). Sillars' (2010) theory of motivated misunderstanding in family conflicts suggests

that such divergent goals can lead parents and adolescents to interpret the same discussions very differently. A meta-analysis by Laursen, Coy, and Collins (1998) provides some empirical support for divergence, as adolescents reported a greater decrease in conflict from early- to late-adolescence than parents. An inspection of dual-reporter longitudinal studies suggests that, following initial agreement in early adolescence, adolescent- and parent reports diverge over time, with adolescents reporting stronger decreases in the frequency of conflict than their parents (Galambos & Almeida, 1992; Steinberg, 1988). In line with these findings, we predicted that that adolescent and parent reports of the frequency of conflict would diverge from early- to mid-adolescence. Discrepancies in adolescent- and parent-reported conflict may be a risk factor for adolescent adjustment problems, above and beyond those associated with the frequency of conflict. Previous research has shown that mother-adolescent discrepancies on different variables (including indices of relationship quality, parenting behavior, and adolescent problem behavior) predicts adolescent internalizing- and externalizing problems, both concurrently (Ohannessian, Lerner, Lerner, & von Eye, 2000) and over time (Pelton & Forehand, 2001; Pelton, Steele, Chance, & Forehand, 2001; Shek, 1998), as well legal, social, and mental health outcomes four years later (Ferdinand, Van der Ende, & Verhulst, 2004). These findings highlight the importance of identifying factors associated with larger discrepancies between adolescents' and parents' views of their interactions.

Empathy is likely to play a role in the extent to which different respondents in a family agree about the nature of their interactions. Perspective taking helps individuals understand others' putative states of mind even in the absence of overt signs (Hawk, Fischer, & Van Kleef, 2011), and might thus help adolescents understand their parents' point of view. Furthermore, affective empathy may enable adolescents to be more responsive to parents' emotional cues that signal anger and disagreement: Modest anger expressions draw attention to the importance of a disagreement, and prompt a focus on finding constructive solutions (Van Kleef, De Dreu, & Manstead, 2004). Low affective empathy is associated with reduced sensitivity to such cues, as indicated by decreased mimicry of angry facial expressions, even at the subliminal level (De Wied, Van Boxtel, Zaalberg, Goudena, & Matthys, 2006; Sonnby-Borgström, 2002). We thus expected to find a link between adolescent empathy and adolescent-parent discrepancies in reported conflict. Specifically, discrepancies might be larger for lower-empathy adolescents, who more likely fail to consider opposing perspectives and miss emotional cues signaling the importance of a conflict.

Individual Differences in Empathy Development

There is increasing consensus that adolescence is a developmentally sensitive period for empathy, especially perspective taking (e.g., Van der Graaff et al., 2013; Chapter 2). Neuro-imaging studies suggest that the mechanism underlying this sensitivity may be traced to developmental changes in the prefrontal cortex – an area integral to perspective taking (Choudhury et al., 2006; Singer, 2006). However, most studies of empathy development have examined mean-level change, aggregated on the level of an entire sample or separated by sex, and there is little agreement between these studies about the direction of change in adolescence. For example, one study found increases for both empathic concern and perspective taking (Davis & Franzoi, 1991), another for perspective taking only (Eisenberg et al., 2005), and one found no change at all (Grühn, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008). Finally, two studies found curvilinear trajectories, with an increase in empathy until age 12 and subsequent decline until age 14 (Lam, Solmeyer, & McHale, 2012), and a dip in empathy around age 16 (Van der Graaff et al., 2013), respectively.

Such diversity in findings might suggest that people differ in terms of their trajectories of empathy development. If that is the case, a person-centered analysis might be more appropriate than mean-level analysis, because it can reveal heterogeneity in developmental trajectories (Jung & Wickrama, 2008). In line with this explanation, studies using latent growth analysis usually find significant inter-individual variance in the slope of empathy development (e.g., Grühn et al., 2008), which means that participants differ in their rate of change, even if average change for the sample summed to zero. Similarly, cross-lagged panel modelling revealed substantial rank-order change in adolescents' dispositional perspective taking (Chapter 2), which means that some adolescents increased more than others. Therefore, it may be useful to identify subgroups, or *classes* of adolescents with distinct developmental trajectories of empathy, and to compare the frequency of adolescent- and parent-reported conflict between these classes.

The Present Study

We explored the association between individual differences in empathy development and adolescent- and parent-reported conflict in a six-year longitudinal study. First, we investigated heterogeneity in empathy development by identifying classes of individuals characterized by similar developmental trajectories. To address the association between empathy and the frequency of conflict, we compared these empathy classes in terms of initial levels and over-time changes in the frequency of adolescent- and parent-reported conflict. We predicted that adolescents with relatively higher empathy would be characterized by less frequent adolescent- and parent-

reported conflict over time, compared to adolescents with lower empathy. In order to address the association between empathy and discrepancies between adolescent and parental reports of conflict frequency, we compared the frequency of adolescent- and parent-reported conflict within each empathy class. We predicted that there would be temporary reporter divergence between adolescents and both parents from early- to mid-adolescence. We further expected that this divergence would be greater for adolescents with lower empathy than for those with higher empathy.

METHODS

Participants

Participants were 467 Dutch adolescents[1] (266 boys; age at T1: M =13.03, SD = 0.46), their mothers (N = 467, M_{age} at T1: M = 44.41, SD = 4.46), and fathers (N = 437, M_{age} = 46.74, SD = 5.10), participating in an ongoing longitudinal study (Van Lier et al., unpublished manuscript). Most adolescents had a Dutch ethnic background (N = 446), although some had a Surinamese/Antillean (N = 6), or other background (N = 14; 1 missing). Socio-economic status was based on parents' reports of employment status (Statistics-Netherlands, 1993). Ten percent of the families were classified as low-SES, and 90 percent were classified as medium- to high-SES.

Procedure

The RADAR sample was recruited from randomly selected schools in the province of Utrecht, and four main cities in The Netherlands. Families were randomly selected within these schools, and included in the study if adolescents and parents provided informed consent. Of 1,081 families contacted, 470 refused and 114 failed to produce informed consent. From 2006 to 2012, adolescents and both parents completed yearly questionnaires at home, in the presence of a trained researcher, which included the variables used in the present study. They received financial compensation for their participation at each wave (approximately $40). At wave six, 422 adolescents (90% of the sample) were still involved in the study. Average participation over the six waves was 95%.

1 Thirty adolescents were omitted from the original sample of 497, because they had completed the IRI fewer than three times (the minimum required for latent growth analysis) and could thus not be assigned a class membership based on their developmental trajectories. There were no significant differences between the deleted cases and the rest of the sample in terms of adolescent- or parent-reported conflict frequency at any time point (all p's between .09 and .84).

Measures

Empathy. We used two subscales of Davis' (1983) Interpersonal Reactivity Index (IRI) to assess adolescents' empathic concern (EC, "I am often concerned about people less fortunate than me") and perspective taking (PT, "Sometimes I try to understand my friends better by imagining how they see things"). Each subscale contains seven items, rated on a 5-point Likert scale (0 = *Doesn't describe me at all*; 4 = *Describes me very well*). Previous research found that the Dutch IRI has adequate reliability and external validity in different samples of adults and adolescents (De Corte et al., 2007; Hawk et al., 2012). In the present study, the reliability of empathic concern was acceptable in the first wave (α = .62) and good in all other waves (between .71 and .76). Reliability for perspective taking was good in waves four through six (αs between .75 and .78), and acceptable in waves one and two (α = .60 and .67). Concurrent correlations between EC and PT ranged between r = .43 and .69 (for concurrent correlations with conflict, see Table 1).

Two factors might have contributed to the relatively lower reliability of empathic concern and perspective taking in the first wave. First, Cronbach's alpha becomes lower when scale variance decreases. According to Levene's tests, the scale variance was significantly lower in wave one than in all other waves for both empathic concern, $F(5, 2679) = 3.26$, $p = .01$, and perspective taking, $F(5, 2679) = 3.05$, $p = .01$. Second, empathy is a multi-dimensional construct with highly correlated subscales. Under such circumstances, Cronbach's alpha can provide a strong underestimation of reliability, because the assumption of tau-equivalence is likely to be violated (Sijtsma, 2009). In such cases, the greatest lower bound of reliability may be a better indicator, as it indicates the lowest possible true reliability given the observable covariance matrix. The glb varied between .72 and .83 for empathic concern, and between .71 and .86 for perspective taking, which suggests good reliability at all waves.

The Frequency of Conflict. Self-reported conflict frequency was assessed using Laursen's (1993) Interpersonal Conflict Questionnaire (ICQ). Adolescents reported on conflicts with each parent separately, and parents both reported independently on their conflicts with the adolescent. Respondents reported how often conflicts occurred for each of 10 common conflict topics (e.g., "Autonomy, personal freedom", "school/work", "criticism or teasing") in the past seven days, on a 5-point Likert scale (1 = *Never*; 5 = *Often*). Cronbach's α of adolescent-reported conflict frequency with parents varied between .84 and .89, and Cronbach's α of parent-reported conflict frequency varied between .87 and .92. For concurrent correlations between reporters, see Table 1.

RESULTS

Strategy of Analyses

All analyses were conducted using structural equation modeling in MPlus (Muthén & Muthén, 1998-2012). Little's (1988) MCAR test was non-significant, indicating no systematic differences between participants with complete data and participants with partially missing data (between .8% at T1 and 15.5% at T6), $\chi^2(1322) = 1358.816$, $p = .24$. This indicates that the use of full information maximum likelihood estimation (FIML) was warranted. This procedure makes use of all available information, without estimating missing data. Covariance coverage ranged from .79 to .99, which is more than enough for reliable model estimation. We considered RMSEA ≤ .05, and CFI ≥ .95, supplemented by SRMR ≤ .08, to indicate good fit (Kline, 2011). The fit of each model is displayed in Table 2. Model fit was compared using χ^2-difference tests.

Table 1. *Ranges of Concurrent Correlations between Empathy and Conflict Variables*

Variable	1. EC	2. PT	3. Conflict AM	4. Conflict MA	5. Conflict AF
2. Perspective Taking	0.49, 0.62				
3. Conflict AM	-0.12, -0.07	-0.18, -0.07			
4. Conflict MA	-0.18, -0.06	-0.21, -0.05	0.29, 0.42		
5. Conflict AF	-0.12, -0.06	-0.17, -0.10	0.62, 0.73	0.33, 0.44	
6. Conflict FA	-0.21, -0.10	-0.23, -0.11	0.23, 0.34	0.40, 0.48	0.36, 0.46

Note. Empathic concern (EC), Perspective taking (PT), Adolescent about Mother (AM), Mother about Adolescent (MA), Adolescent about Father (AF), Father about Adolescent (FA).

Identifying Developmental Trajectories of Empathy

To identify classes of adolescents characterized by distinct developmental trajectories of empathic concern and perspective taking, we used Latent Class Growth Analysis (LCGA: Jung & Wickrama, 2008). The developmental trajectories of adolescents' empathic concern and perspective taking are represented with latent growth curve models, after which adolescents' class membership is estimated based on the parameters of these latent growth models (i.e., intercept, slope, and quadratic change). Because empathic concern and perspective taking were moderately- to highly correlated in each wave (*r*s between .47 and .62), we included both growth trajectories in a dual-process model, and accounted for shared error variance by correlating the residuals of empathic concern and perspective taking within each wave.

We established that a linear model (M_1, see Table 2) fit the data worse than a curvilinear model (M_2). We determined that a three-class model was optimal, by

selecting the model with the lowest BIC that still fit better than a model with one class less, based on a significant VLMR-test (see: Jung & Wickrama, 2008). Compared to a two- and four-class model, a three-class model also had the highest entropy (α = .85) and posterior probabilities (between .93 and .94), further indicating good fit. Moreover, the three classes each contained a sizeable number of participants, and their trajectories of empathy development were distinct (Figure 1). The parameter estimates were replicated twice with different starting values, suggesting that these were not local solutions. To account for known sex differences in empathy development (Van der Graaff et al., 2013)[2], we included sex (contrast coded) as a predictor of the developmental trajectories and class membership. This approach is similar to conducting the analyses for each sex separately and combining the resulting classes with the corresponding group of the other sex afterwards, with the added benefit that sex differences in developmental trajectories are explicitly modelled and reported. Girls had a significantly higher intercept than boys for empathic concern and perspective taking ($B = 0.23$ and $B = 0.10$, $ps < .001$), a greater slope on both variables ($B = 0.09$ and $B = 0.11$, $ps < .001$), and a more negative quadratic term ($Bs = -0.02$, $ps < .001$).

Table 2. *Overview of Model Fit Indices.*

Model	χ^2	df	BIC	RMSEA	CFI	SRMR	$\Delta\chi^2$	Δdf
LCGA of Empathy								
M1: Linear LCGA	145.01	58	6892.42	0.057	0.97	0.103		
M2: Quadratic LCGA	67.33	45	6853.38	0.033	0.992	0.048	77.68***	13
M3: Piecewise LGA	223.023	159	6169.32	0.051	0.973	0.088	155.69**	114
LGA of Adolescent-Mother Conflict								
M4: Linear LGA	391.02	192	8826.93	0.082	0.926	0.083		
M5: Quadratic LGA	304.98	171	8803.31	0.071	0.95	0.068	86.04***	21
M6: Piecewise	280.98	164	8800.12	0.068	0.957	0.062	24.00***	7
LGA of Adolescent-Father Conflict								
M7: Linear LGA	324.08	192	7984.69	0.067	0.947	0.073		
M8: Quadratic LGA	309.85	186	7988.20	0.066	0.951	0.074	14.23*	6
M9: Piecewise	259.71	170	7985.34	0.059	0.964	0.059	50.15***	16
LGA of Mother-Father Conflict								
M10: Linear LGA	469.40	194	7720.19	0.095	0.908	0.069		
M11: Quadratic LGA	448.52	195	7696.34	0.091	0.915	0.079	20.88***	1
M12: Piecewise	393.92	176	7698.22	0.089	0.927	0.061	54.60***	19

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

2 This article examined the influence of sex and pubertal development on developmental trajectories of empathy in the RADAR sample.

Because curvilinear trajectories are difficult to interpret and compare, we re-analyzed the latent growth part of the LCGA model using piece-wise latent growth analysis (Muthén & Muthén, 1998-2012). The curvilinear trajectory is split up into two linear segments, with a shared intercept and two separate slopes. The best fit was obtained when the transition between the two linear trajectories, or "knot", was made at age 16 (M_3). Thus, linear change is estimated from age 13-16, which we will refer to as "early-mid adolescence", and from age 16-18, or "mid-late adolescence" (the slope loadings are 0, 1, 2, 3, 3, 3, and 0, 0, 0, 0, 1, 2, respectively).

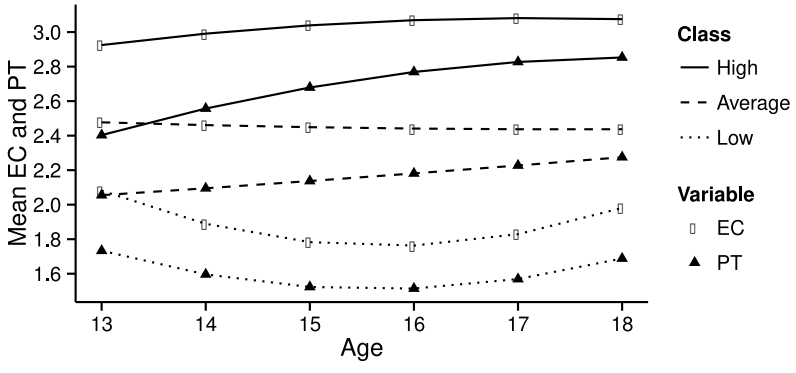

Figure 1. *Developmental trajectories of adolescents' empathic concern (EC) and perspective taking (PT) for the three empathy classes.*

Next, we interpreted the growth trajectories of the three classes (see Figure 1 and Table 3). A "high empathy" class (N = 105, 29% girls) was characterized by the highest intercepts for empathic concern and perspective taking, and the highest increase in perspective taking from early- to mid-adolescence. An "average empathy" class (N = 283, 42% girls) was characterized by lower, stable empathic concern and a slight increase in perspective taking throughout adolescence. Finally, a "low empathy" class (N = 79, 63% girls) was characterized by the lowest intercepts for empathic concern and perspective taking, as well as a decrease for both variables from early- to mid-adolescence, followed by a rebound from mid- to late-adolescence. This u-shaped curve suggests an "empathy dip" around age 16 (Van der Graaff et al., 2013). For empathic concern, only the developmental trajectory of the low-empathy class differed significantly from all other classes throughout adolescence, χ^2_{Wald}s between 14.41 and 23.10, $ps < .001$. The trajectories of the average- and high-empathy group did not differ significantly from one another, χ^2_{Wald}s(1) between 0.001 and 2.87, ps between .09 and .98. This suggests that low-empathy adolescents experience a temporary dip in empathic concern.

Table 3. *Latent variable means by empathy class.*

		Adolescent Empathy		Adolescent-Mother Conflict				Adolescent-Father Conflict			
Empathy Class	**Variable**	**EC**	**PT**	**Adolescent**	**Mother**	**$\Delta\chi^2$**	***p***		**Father**	**$\Delta\chi^2$**	***p***
Low	Intercept	2.06***	1.71***	2.43***	2.50***	0.56	0.45	2.39***	2.37***	0.08	0.79
	Slope 1	-0.13***	-0.08***	-0.07*	0.03	5.51	0.02	-0.05	0.02	4.34	0.04
	Slope 2	0.16***	0.11**	-0.03	-0.13***	3.13	0.08	-0.08*	-0.14***	1.35	0.25
Average	Intercept	2.48***	2.05***	2.17***	2.20***	0.53	0.47	2.15***	2.14***	0.09	0.76
	Slope 1	-0.02	0.04***	-0.04*	0.01	5.78	0.02	-0.04**	-0.01	3.46	0.06
	Slope 2	0.01	0.05**	-0.05*	-0.10***	3.13	0.08	-0.07***	-0.05*	0.57	0.45
High	Intercept	2.99***	2.46***	2.08***	2.12***	0.27	0.60	2.03***	2.08***	0.51	0.47
	Slope 1	0.03	0.12***	-0.03	0.02	2.45	0.12	-0.04	-0.02	0.63	0.43
	Slope 2	0.01	0.05	0.00	-0.08**	4.08	0.04	0.00	-0.03	0.62	0.43

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

For perspective taking, the trajectories of all classes differed significantly from early- to mid-adolescence, χ^2_{Wald}s between 8.65 and 35.56, *p*s < .003. High-empathy adolescents increased the most, followed by average-empathy adolescents, while low-empathy adolescents decreased in perspective taking. From mid- to late-adolescence, there were no significant differences between classes, χ^2_{Wald}s between = 0.001 and 2.04, *p*s between .15 and .97. This suggests that from early- to mid-adolescence, the classes became further differentiated in terms of PT, and that these amplified differences subsequently remained stable. The distribution of sex across classes was unequal, $\chi^2(2) = 22.19$, $p < .001$. After taking into account sex differences in empathy development, girls were relatively overrepresented in the low-empathy class. This suggests that, even though girls on average have greater empathy than boys, the distribution of empathy *within* gender was skewed. This means that, in comparison to girls whose empathy scores were around girls' average levels, there were relatively more girls with lower empathy.

Differences in Adolescent-Parent Conflict between Empathy Classes

We hypothesized that the frequency of adolescent-parent conflict would differ between the different empathy classes, and that there would be greater divergence between the frequencies of adolescent- and parent-reported conflict in lower-empathy classes than in higher-empathy classes. We conducted multi-group latent growth analyses of adolescent- and parent-reported conflict frequency. To account for the dyadic nature of the data, we again used a dual-process model, and correlated the latent growth factors of both respondents. Because of limited sample size, separate analyses were conducted to compare adolescent- and mother reports, adolescent- and father reports, and mother- and father reports. In all cases, curvilinear models (M_5, M_8, M_{11}) fit the data better than linear models (M_4, M_7, M_{10}). For the sake of interpretability, we re-analyzed the data using piece-wise latent growth analysis. In all cases, the best fit was obtained with linear trajectories from age 13-16 and 16-18 (M_6, M_9, M_{12}). In order to test our hypotheses, we then used Wald tests to compare the means of the growth curves' intercepts and slopes between adolescents and parents within each empathy class, and within adolescents and parents, respectively, between the empathy classes.

The Frequency of Conflict. We tested the hypothesis that adolescents with lower empathy and both of their parents would report greater conflict frequency than adolescents with higher empathy and their parents.

***Adolescents and Mothers*.** In line with our hypothesis, we found that the intercepts of conflict frequency were significantly higher for low-empathy adolescents and their mothers than for all others, all $\chi^2_{Wald}(1) \geq 8.53$, all *p*s ≤ .004. There were no significant differences in the intercepts of conflict frequency between average- and high-empathy adolescents, nor between the mothers in these groups, all $\chi^2_{Wald}(1) \geq 1.39$, all *p*s ≥ .24.

This suggests that, at age 13, low-empathy adolescents and their mothers reported significantly more frequent conflict than all others. For both adolescents and mothers, the slopes of conflict frequency did not differ significantly between the empathy classes, neither from early- to mid-adolescence (*p*s between .37 and .76), nor from mid-to late-adolescence (*p*s between .19 and .67), indicating that these initial differences persisted over time.

Adolescents and Fathers. As with mothers, we found that the intercepts of conflict frequency were significantly higher for low-empathy adolescents and their fathers than for all others, all $\chi^2_{Wald}(1) \geq 6.86$, all $ps < .01$. There were no significant differences between the intercepts of conflict frequency between average- and high-empathy adolescents ($p = .11$), nor between the fathers in these groups ($p = .38$). This suggests that, at age 13, low-empathy adolescents and their fathers reported significantly more frequent conflict than all other groups. From early- to mid-adolescence, the slopes of conflict frequency did not differ between the empathy classes for both adolescents and fathers (*p*s between .26 and .86). From mid-to late-adolescence, only the slopes of average- and high-empathy adolescents differed significantly, $\chi^2_{Wald}(1) = 3.944$, $p = .047$. Average-empathy adolescents displayed a significant decrease in conflict, whereas high-empathy adolescents' conflict remained stable. For fathers, only the slopes of fathers in the low-empathy class differed significantly from those in the high- and average-empathy classes, $\chi^2_{Wald}(1) = 4.37$, $p = .04$ and $\chi^2_{Wald}(1) = 3.70$, $p = .05$, respectively. Low-empathy fathers reported a significant decrease in conflict, whereas high-empathy fathers remained stable, and average-empathy fathers reported a smaller decline. This suggests that, from mid- to late-adolescence, low-empathy fathers' reported conflict decreased more than other fathers' conflict.

Reporter Discrepancies. We tested the hypothesis that there would be temporary divergence between the reports of adolescents and both parents, and that this divergence would be greater for adolescents with lower empathy than for those with higher empathy.

Adolescents and Mothers. There were no significant differences between the intercepts of mother- and adolescent-reported conflict in any of the classes (all *p*s > .45), which suggests that mothers and adolescents in all classes were in agreement about the frequency of conflict at age 13. From early- to mid-adolescence, however, in both the low- and the average-empathy classes, the slopes of conflict frequency of adolescents and their mothers significantly differed, $\chi^2_{Wald}(1) = 5.51$, $p = .02$ and $\chi^2_{Wald}(1) = 5.78$, $p = .02$, respectively. Specifically, low- and average-empathy adolescents reported a significant decrease in conflict, while their mothers reported stability (see Table 3). This indicates that, from early- to mid-adolescence, adolescent- and mother-reported conflict diverged for low- and average-empathy adolescents. Slopes did not differ significantly for high-empathy adolescents and their mothers, $\chi^2_{Wald}(1) = 2.45$, $p = .12$.

From mid- to late-adolescence, the difference between the slopes of adolescent- and mother-reported conflict bordered on significance for low- and average-empathy adolescents, both $\chi^2_{Wald}(1) = 3.13$, *p*s = .08. Low-empathy adolescents reported stability, whereas their mothers reported a decrease. Average-empathy adolescents and their mothers both reported a decrease, which was stronger for mothers than for adolescents. These results suggest a trend towards convergence in both classes. Finally, there was a significant difference in slopes for high-empathy adolescents and their mothers, χ^2Wald(1) = 4.08, p =.04, with adolescents reporting stability whereas their mothers reported a significant decrease. Although their reports of conflict were relatively stable from early- to mid-adolescence, their slopes were opposite in valence, leading them to drift apart slightly, but not significantly (see Figure 2). The significant difference in slopes from mid- to late-adolescence can be attributed to the sharp re-convergence of their reports, which occurred within a shorter period. These findings are in line with our hypothesis that adolescent- and parent-reported conflict would temporarily diverge, and that this divergence would be greater for adolescents with lower empathy than for those with higher empathy. Specifically, we found evidence of such divergence for low- and average-empathy adolescents, but not for high-empathy adolescents.

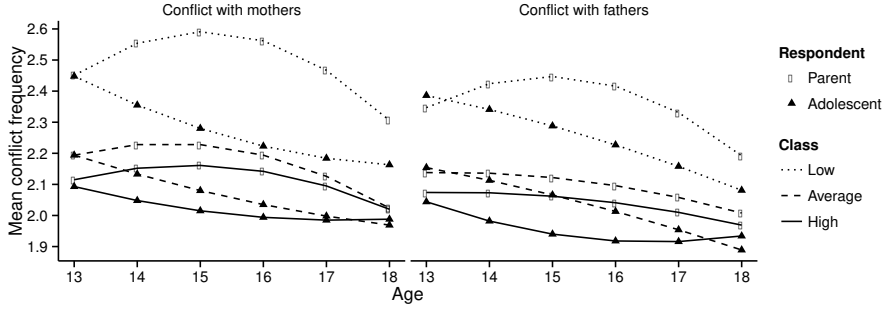

Figure 2. *The frequency of conflict reported by adolescents and their parents, grouped by empathy class.*

Adolescents and Fathers. There were no differences between the intercepts of father- and adolescent-reported conflict frequency in any of the classes (all *p*s > .47), indicating adolescent-father agreement about the frequency of conflict at age 13. From early- to mid-adolescence, however, the slopes of conflict frequency significantly differed for low-empathy adolescents and their fathers, $\chi^2_{Wald}(1) = 4.34$, p = .04. Although the slopes of low-empathy adolescents and their fathers were non-significant, they were opposite in valence, with a negative slope for adolescents, and a positive slope for fathers. For average-empathy adolescents and their fathers, the difference was only borderline significant, $\chi^2_{Wald}(1) = 3.46$, p = .06. Average-empathy adolescents demonstrated a

small, significant decrease in conflict from early- to mid-adolescence, while their fathers reported stability. These results suggest that adolescent-father perspectives on conflict diverged slightly from early- to mid-adolescence for the low- and average-empathy classes. High-empathy adolescents and their fathers' slopes did not differ significantly, $\chi^2_{Wald}(1) = 0.63$, $p = .43$, and their slopes were not significant, indicating that their reports of conflict were relatively stable in this period. This suggests that high-empathy adolescents and their fathers were in agreement about the frequency and (lack of) change in conflict from early- to mid-adolescence.

From mid- to late-adolescence, there were no significant differences between the slopes of adolescent- and father-reported conflict in any of the empathy classes, all $\chi^2_{Wald}(1) \leq 1.35$, $ps \geq .25$. Low- and average-empathy adolescents and their fathers all reported a significant decrease in conflict, which suggests that they were in agreement about the diminishing frequency of conflict. High-empathy adolescents and their fathers both reported stability. These findings offer partial support for our hypothesis that adolescent- and parent reports of the frequency of conflict would temporarily diverge, and that this divergence would be greater for adolescents with lower empathy than for those with higher empathy. Specifically, we found evidence for reporter divergence in the low- and average-empathy classes, but not the high-empathy class. Adolescent- and father-reported conflict did not re-converge from mid-to late-adolescence. Instead, adolescents and fathers were in agreement about the (lack of) change during this period.

Mothers and Fathers. There were no differences between mother- and father-reported conflict frequency within any of the classes in terms of the intercepts ($.11 \leq ps \leq .71$), slopes from early- to mid-adolescence ($.20 \leq ps \leq .93$), or slopes from mid- to late-adolescence ($.06 \leq ps \leq .75$). This suggests that parents within each empathy class were in agreement with one another about the frequency and change in conflict throughout adolescence.

DISCUSSION

The present study set out to examine the relationship between adolescents' developing empathy and the frequency of conflict with parents, as well as the level of agreement between adolescents and parents about the frequency of such conflicts. While some adolescent-parent conflict is normative, frequent conflict is associated with adolescent maladjustment (Branje, van Doorn, van der Valk, & Meeus, 2009). Empathy has been linked with conflict-related constructs in adult- and adolescent peer relationships (De Wied et al., 2007; Richardson et al., 1994), but the present study is the first to address this association in the adolescent-parent relationship. Because adolescent and parental reports on their relationship often differ (De Los Reyes & Kazdin, 2005), it is important to

obtain both adolescent and parent reports of the frequency of conflict. Discrepancies between their reports might be explained in part by adolescents' developing empathy. Our findings suggest that, particularly in early adolescence, individual differences in empathic dispositions become further amplified, and that these differences in empathic dispositions are associated with both the frequency of adolescent-parent conflict, and adolescent-parent agreement about the frequency of conflict. In particular, low-empathy adolescents and their parents reported significantly more conflict than all others throughout adolescence. Regarding reporter discrepancies, we found that mothers' and fathers' reports of the frequency of conflict were in agreement throughout adolescence in all empathy classes. High-empathy adolescents' reports were also in line with those of their parents. Low- and average-empathy adolescents' reports, however, diverged temporarily from their parents' from early- to mid-adolescence, with adolescents reporting decreasing conflict, while both parents agreed that conflict was higher and stable. The finding that low- and average-empathy adolescents' reports diverged from their parents' reports, but that their parents were in agreement with one another, may suggest that these discrepancies are related to distortions in adolescents' perceptions, as opposed to biased parental reports. Interestingly, our results showed that only low-empathy adolescents experienced elevated conflict, whereas only high-empathy adolescents were in agreement with parents about the frequency of conflict throughout adolescence. Average-empathy adolescents were similar to high-empathy adolescents in the sense that they did not show elevated conflict, and similar to low-empathy adolescents in the sense that their reports diverged from parents' over time. This suggests that only low empathy is associated with increased adolescent-parent conflict, while high empathy is required for adolescent-parent agreement.

Heterogeneity of Empathy Development

Whereas previous research on empathy development has typically examined mean-level change, the present study took a person-centered approach to identify classes of adolescents with similar developmental trajectories. We identified a "high-empathy" class, with high, stable empathic concern and high-increasing perspective taking, an "average-empathy" class with stable empathic concern and slightly increasing perspective taking, and a "low-empathy" class, with a dip in both variables around mid-adolescence. The differences between these trajectories suggest that initial differences in perspective taking become further amplified from early- to mid-adolescence. This finding builds on previous research that suggests adolescence is a developmentally sensitive period for perspective taking (e.g., Choudhury et al., 2006; Chapter 2) by indicating that development is not uniform for all adolescents, but that further differentiation between individuals occurs. This pattern is in line with the

process of "accentuation" proposed by Block (1982), by which individual differences are accentuated during times of transition. It might further be explained in the context of Choudhury and colleagues' (2006) suggestion that social experiences in adolescence interact with changes in the brain to hone the development of perspective taking strategies. These results suggest that early empathy levels may be a marker for their later developmental trajectory. For clinicians, this highlights the potential importance of detecting lower empathy at an early age, and providing interventions that support empathy development to prevent low-empathy adolescents from falling further behind their peers over time.

Our finding that girls were overrepresented in the low-empathy class may at first glance appear counterintuitive, in light of the well-established finding that girls often report being more empathic (Davis, 1983). However, we specifically controlled for sex differences in our analyses, to prevent class membership from being based primarily on known sex differences in developmental trajectories of empathy (Jung & Wickrama, 2008). Our low-empathy class therefore consists of girls whose empathy was low compared to other girls, and boys whose empathy was low relative to other boys. The overrepresentation of girls in the low-empathy class suggests that the distribution of empathy *within* each sex is slightly skewed: There may be relatively many boys with high empathy compared boys' average empathy level, and relatively many girls with low empathy compared to girls' average empathy level.

Empathy and the Frequency of Adolescent-Parent Conflict

The present study provides the first evidence for a link between adolescent empathy development, and the frequency of adolescent-parent conflict. Although previous research has linked empathy to different conflict-related constructs, such as reduced aggression and greater constructive conflict resolution behavior, in the context of adolescent peer- and adult relationships (De Wied et al., 2007; Richardson et al., 1994). The present research expands on this previous work by assessing the frequency of conflict directly, and demonstrating that the link between empathy and conflict can be generalized to the adolescent-parent context. These findings may be relevant for childcare officials and clinicians, because it suggests that lower adolescent empathy may be reflective of a problematic relationship with parents, or conversely, that promoting adolescents' empathy development may help them address conflict with parents more effectively.

Empathy and Discrepancies between Adolescent- and Parent-Reported Conflict

The present study builds upon earlier theoretical and empirical work about discrepancies between adolescent- and parent-reported conflict (De Los Reyes & Kazdin, 2005; Ehrlich, Cassidy, & Dykas, 2011), by suggesting that adolescents' empathic dispositions may play a role in explaining such discrepancies. Although discrepancies between adolescent- and parent-reported conflict emerged in the low- and average-empathy classes, high-empathy adolescents' reports were mostly in agreement with their parents' throughout adolescence. A relatively steeper increase in perspective taking set the high-empathy class apart from the low- and average-empathy classes. Perhaps this steeper increase in perspective taking allowed high-empathy adolescents to continue considering their parents' concerns, and maintain closer bonds while they navigate the road toward increased independence (Grotevant & Cooper, 1986). Low- and average-empathy adolescents, on the other hand, might focus more on their own autonomy gains when parents "give in" in conflicts, and afterwards no longer see the interaction as a conflict. Failure to consider their parents' different perspectives and negative emotions might render them relatively "conflict blind". Perspective taking increased more gradually in average-empathy adolescents than in high-empathy adolescents, and only increased from mid- to late- adolescence in low-empathy adolescents, which may explain the later re-convergence (for mothers) or agreement about change (for fathers) in adolescent- and parent-reported conflict for these empathy classes.

Although our finding that parents reported greater conflict than adolescents is in line with previous dual-reporter longitudinal studies (Galambos & Almeida, 1992; Steinberg, 1988), at least three notable studies have instead found that adolescents reported more conflict than parents (Molina & Chassin, 1996; Smetana, 1989). This illustrates that reporter discrepancies remain a complex matter that can stem from many factors. Ethnicity, for example, appears to affect the *direction* of reporter discrepancies (Walton, Johnson, & Algina, 1999), because cultures differ in the extent to which they perceive certain behaviors as problematic. Specifically, African-, Hispanic-, and Asian-American adolescents are known to perceive their parents as more authoritarian than Caucasian adolescents (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987), which might lead them to report greater adolescent-parent conflict. Molina and Chassin's (1996) sample contained a large amount of Hispanic families, and the sample of Gonzales, Caucé, and Mason (1996) consisted entirely of African-American mother-adolescent dyads, which might explain why they found greater adolescent- than parent-reported conflict. Our sample, in contrast, consisted largely of native Dutch participants, who may be less authoritarian than even Caucasian-American parents (e.g., Pels & Nijsten, 2003). Another factor shared by all three studies finding greater adolescent-reported

conflict is that the research was conducted in the presence of an interviewer (Molina & Chassin, 1996; Smetana, 1989) or a video camera (Gonzales et al., 1996). Family conflict is a delicate matter that is likely to be subject to social desirability bias, and parents especially may underplay conflicts if they are concerned with how their family comes across to researchers. This may especially play a role when parent participants originate from stigmatized populations, such as the alcoholic parents in Molina and Chassin's (1996) study. In our own research, adolescents and parents completed a questionnaire anonymously, which is likely to reduce the influence of social desirability.

The issue of reporter discrepancies is of prime importance in the clinical setting, and in fact most of the relevant literature has taken a clinical approach (see: De Los Reyes & Kadzin, 2005). De Los Reyes and Kadzin have argued that adolescent-parent agreement should be greater regarding externalizing- than internalizing problems, because externalizing symptoms are more readily observable. The present study nevertheless found significant discrepancies between conflict reported by low- and average-empathy adolescents and their parents. This suggests that reports can differ, even when it comes to readily observable behaviors. The fact that parents were always in agreement about the frequency of conflict, whereas only high-empathy adolescents were in agreement with their parents, may suggest that lower-empathy adolescents construe conflicts differently, or fail to notice when they cross their parents' boundaries. This highlights the importance of obtaining multiple informants' reports on adolescent behavior in the clinical setting.

Strengths and Limitations

One strength of the present study is that it included longitudinal data from multiple family members, spanning the entire period from early- to late-adolescence. This is important, because developmental changes in adolescence are known to occur for both empathy (Choudhury et al., 2006) and adolescent-parent conflict (Laursen et al., 1998). Independent assessments of conflict between adolescents and each parent provide a more complete understanding of the frequency of family conflict. Furthermore, although many researchers value the use of multiple-respondent data, these data are often aggregated without considering potentially meaningful discrepancies between them (De Los Reyes & Kazdin, 2005). We used dual-trajectory modeling for adolescent- and parent-reported conflict, which allowed us to study trajectories of conflict frequency and reporter discrepancies in a single model, while avoiding the problems associated with difference scores. Finally, De Los Reyes and Kadzin (2005) argued that reporter discrepancies are likely to be greater for less observable behaviors (like internalizing problems) than for highly observable behaviors (like externalizing problems). By that logic, an important strength of the present study is that we demonstrated that

adolescent empathy was associated with reporter discrepancies in adolescent-parent conflict, even though conflict is a highly observable behavior, which means that reporter discrepancies are likely to be small. Future research should therefore address whether empathy is related to discrepancies in other, less observable aspects of the adolescent-parent relationship, and whether these findings can be generalized to other close relationships.

One limitation of the present research is that it cannot speak to causality in the link between empathy and conflict. Future research might assess the directionality of this association, for example by investigating whether promoting adolescent empathy helps reduce adolescent-parent conflict, or whether reducing adolescent-parent conflict promotes empathy development. Second, it would have been interesting to investigate the interaction between adolescents' and parents' empathy levels, and to assess how different combinations of adolescent- and parent empathy are associated with perceptions of conflict. However, we were prevented from doing so by a lack of parental empathy measurements, and our limited sample size. Associations between adolescents' and parents' empathy are typically modest (correlations around .15; Hawk et al., 2012; Soenens, Park, Vansteenkiste, & Mouratidis, 2012; Chapter 2), which suggests that all different combinations of adolescent- and parent empathy might exist. To address this matter, future research would therefore require a far larger sample in order to investigate the interaction between parental empathy and adolescent empathy. Another potential limitation was that, according to Cronbach's alpha, the reliability of empathic concern and perspective taking was relatively low at wave one. This might be related to the lower scale variance in this wave, as Cronbach's alpha is contingent on scale variance. Indeed, according to the latent class analysis, the classes were most similar in the first wave (see Figure 1). Although the glb suggested that reliability might be good, future research should include a measure of empathic dispositions that is more sensitive to individual differences at younger ages, to ensure adequate reliability. Finally, we did not obtain independent observer reports on adolescent-parent conflict, to serve as a more objective measure of the frequency of conflict. This may have indicated whether the reporter discrepancies observed in the low- and average-empathy classes were a result of adolescents underreporting, or parents over-reporting conflict. However, the finding that parents were always in agreement with one another, whereas adolescents' agreement with parents was moderated by empathy class, seems to suggest that lower-empathy may be relatively "conflict blind".

CONCLUSION

Our findings suggest that initial empathy differences become amplified throughout adolescence. Those who started out with higher empathy increased the most, those who

started average remained relatively stable, and those who started low even decreased temporarily, and never reached the levels shown by other groups. Adolescent-parent conflict was more frequent in the low-empathy class than in the high- and average-empathy classes. Temporary reporter discrepancies emerged in the low- and average-empathy classes, as adolescents reported decreasing conflict, while their parents reported an increase or stability. These findings extend our understanding of the link between empathy and conflict to the context of adolescent-parent relationships. Furthermore, these results suggest that empathy may play a role in aligning adolescents' and parents' views on their relationship during a time when their goals diverge. These findings suggest the importance of detecting potential empathy deficiencies in childhood, and promoting empathy development before individual differences become amplified. Moreover, low empathy may be an indicator of elevated family conflict, and conversely, promoting adolescents' empathy may help them address conflict with parents more effectively. Finally, this study highlights the importance of obtaining multiple informant reports – especially when "the kids aren't all right". Even when it comes to aspects of the adolescent-parent relationship that appear to be highly observable, such as conflict, lower empathy may lead adolescents to fail to see their parents' side of things.

4

Common and Unique Associations of Adolescents' Affective and Cognitive Empathy Development with Conflict Behavior towards Parents

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ABSTRACT

Adolescents' developing empathy may be associated with a shift towards more constructive behaviors in conflict with parents. Two empathy dimensions, affective empathic concern and cognitive perspective taking, may have common and unique developmental associations with the conflict behaviors adolescents use. This six-year longitudinal study (ages 13-18) used multivariate latent growth curve modeling to investigate developmental associations between adolescents' (N = 497) empathic dispositions and conflict behaviors towards both parents. In support of common associations, both empathy dimensions were associated with reduced conflict escalation with mothers, and increased problem solving with both parents. However, these associations were all stronger for perspective taking than for empathic concern. Furthermore, compliance with mothers was uniquely associated with increasing empathic concern. Perspective taking was uniquely associated with a decreased tendency to withdraw from conflicts. Perspective taking thus appears to be more strongly associated with a pattern of constructive conflict behaviors.

Keywords: empathy, perspective taking, conflict resolution, adolescence, longitudinal

COMMON AND UNIQUE ASSOCIATIONS OF ADOLESCENTS' AFFECTIVE AND COGNITIVE EMPATHY DEVELOPMENT WITH CONFLICT BEHAVIOR TOWARDS PARENTS

Parent-child conflict is a natural part of adolescence, as youths endeavor to forge their own identities in the context of continued closeness with their parents (Laursen & Collins, 2004). Such conflicts are not inherently harmful; what is more important is the way adolescents learn to manage these conflicts (Branje, van Doorn, van der Valk, & Meeus, 2009). Experimental research has shown that empathy decreases aggression and increases pro-social behavior in conflicts (Galinsky, Maddux, Gilin, & White, 2008; Richardson, Hammock, Smith, Gardner, & Signo, 1994). However, the association between adolescents' naturally occurring empathy development and changes in their conflict behaviors towards parents remains unstudied. Studying these associations is important, because the obligatory and permanent nature of the adolescent-parent relationships provides a context for adolescents to practice adaptive conflict resolution skills (Adams & Laursen, 2001), future (Bowlby, 1969; Van Doorn, Branje, Van der Valk, Inge E., De Goede, & Meeus, 2011). Furthermore, empathy encompasses both affective and cognitive dimensions (e.g., Davis, 1983). Many interventions aim to promote the development of one or both of these dimensions in adolescents (Feshbach & Feshbach, 2011). However, little is known about the common and unique associations that these dimensions might hold with specific conflict resolution behaviors. The present six-year longitudinal study addressed these issues by investigating whether the development of adolescents' affective and cognitive empathy is associated with common and unique changes in their conflict behaviors towards parents over time.

Previous research has identified specific conflict resolution behaviors, such as conflict escalation (intensifying the conflict and losing control), problem solving (negotiating a compromise), compliance without defending one's own position, and withdrawal from the discussion (Kurdek, 1994). The conflict resolution behaviors adolescents use with parents are associated with concurrent and future adjustment. For example, studies have suggested that conflict escalation and withdrawal are maladaptive behaviors, as they are associated with internalizing and externalizing problems (Branje et al., 2009; Rubenstein & Feldman, 1993; Van Doorn et al., (2008). In contrast, engaging in compromise is associated with lower levels of problem behavior. Interestingly, compliance might be used in concert with either adaptive or maladaptive conflict behaviors (Branje et al., 2009), predicting internalizing difficulties when used in conjunction with escalation and withdrawal, but not when used in conjunction with problem solving. Overall, these studies suggest that conflict escalation and withdrawal are associated with adolescents' poorer adjustment, when compared to constructive

problem solving. It is therefore important to identify dispositional factors associated with a transition towards constructive conflict resolution behaviors during adolescence.

Empathy and Conflict Resolution Behavior

The development of two empathy dimensions, empathic concern and perspective taking (Davis, 1983), is likely to be associated with changes in adolescents' conflict behavior toward parents. Empathic concern involves sympathetic affective responses to the emotions of others. Cognitive perspective taking involves the tendency to consider different sides of a dilemma.

These two empathy dimensions might hold common and unique associations with specific conflict behavior: Empathic concern rouses a motive to reduce others' distress (Stocks, Lishner, & Decker, 2009), and might consequently increase adolescents' willingness reduce parents' negative emotions and accommodate their needs, even if that means they will lose ground in an argument. Perspective taking, on the other hand, might allow adolescents to take some emotional distance from the heat of a conflict, consider both sides of the argument, and engage in more constructive problem solving (e.g., Sandy & Cochran, 2000). However, the literature on adolescents has focused primarily on associations between affective empathy and conflict-related constructs, without taking into account potentially differential associations for cognitive empathy. For instance, adolescents' greater self-reported affective empathy was found to be associated with reduced conflict escalation and greater problem solving with peers (De Wied, Branje, & Meeus, 2007). A study using peer-reported measures found similar associations, and additionally found that adolescents' affective empathy was associated with increased withdrawal (Björkqvist, Österman, & Kaukiainen, 2000). Additional research is thus required to identify common and unique associations of adolescents' affective and cognitive empathy with their conflict resolution behaviors.

Supporting the notion of common and differential associations, a correlational study on college students found that empathic concern and perspective taking were both associated with reduced aggression in the face of provocation (Richardson et al., 1994). However, empathic concern was uniquely linked to elevated withdrawal and compliance in conflicts with friends, whereas perspective taking was associated with greater constructive problem solving with both friends and siblings. Additional support comes from the experimental literature, which has provided causal evidence for differential effects of empathic concern and perspective taking on conflict-related behavior. Experimentally-induced perspective taking has been shown to inhibit aggressive responses to provocation (e.g., Richardson et al., 1994). In negotiation experiments, perspective taking also helped participants reach mutually beneficial agreements with partners, and maximize both joint and individual gains, suggesting

that they engaged in greater problem solving (Galinsky et al., 2008). Inducing empathic concern, while increasing interaction partners' satisfaction with the negotiation process, led to the poorest outcomes for participants, suggesting greater compliance. This interpretation is further supported by the finding that experimentally-induced empathic concern motivated participants to cooperate in prisoner's dilemma games (Batson & Moran, 1999), even when their opponent's previous defection meant that cooperation would likely undermine their own outcomes (Batson & Ahmad, 2001). These findings suggest that both empathy dimensions reduced negative behavior and increased pro-social behavior. However, empathic concern can promote cooperation even to one's own detriment, whereas perspective taking promotes constructive conflict resolution and negotiation skills. If these aforementioned findings can inform hypotheses about the associations between naturally occurring empathy development and changes in adolescents' conflict behavior, we might expect the development of both empathy dimensions to be associated with decreased conflict engagement (Richardson et al., 1994). Furthermore, we might expect adolescents' developing perspective taking to be more positively associated with problem solving than empathic concern (Galinsky et al., 2008), and empathic concern to be more positively associated with compliance and withdrawal than perspective taking (Björkqvist et al., 2000; Richardson et al., 1994).

In addition to the associations demonstrated by cross-sectional and experimental studies, empathy and conflict resolution behavior might also be linked in terms of their *parallel development* over time. Adolescence is an important developmental period for both empathy (Chapter 2) and conflict behavior (Laursen, Finkelstein, & Betts, 2001). On average, empathic concern and perspective taking increase throughout adolescence, although empathic concern appears to stabilize at an earlier age (e.g., Davis & Franzoi, 1991; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005; Van der Graaff et al., 2014). This empathy development is mirrored by a shift in adolescents' conflict behavior towards parents, from predominantly negative exchanges that culminate in compliance by one party, to greater constructive problem solving and negotiation of compromises (Laursen et al., 2001; Van Doorn, Branje, & Meeus, 2011). These parallels might be a manifestation of developmental changes in shared neurological circuits. The prefrontal cortex and a network involving the prefrontal cortex and amygdala are central in many aspects of social cognition, including empathy (Frith & Frith, 2006; Singer, 2006), and conflict-related behavior, such as the regulation of aggression (Blair, 2004). Adolescence is a developmentally sensitive period for the prefrontal cortex, which is reflected by an increase in the efficiency of perspective taking (Choudhury, Blakemore, & Charman, 2006). Moreover, functional connections between the prefrontal cortex and amygdala become increasingly negative in adolescence, reflecting age-related improvements in top-down emotion regulation (Gee et al., 2013). These changes might be reflected

in parallel development of empathic dispositions and changing conflict behavior. However, developmental studies to date have focused on average, group-level change. To bolster the argument for developmental synchronicity, the present study aims to make the critical contribution of examining parallel development of two empathic dispositions and specific conflict behaviors *within individuals* over time.

The Role of Parent and Adolescent Sex

There are known differences between adolescents' relationships with mothers and fathers (see: Branje, Laursen, & Collins, 2013) that may be reflected in the pattern of developmental associations between empathy and conflict behaviors. Mothers are more often the primary attachment figure than fathers (Markiewicz, 2006). Furthermore, adolescents typically enjoy higher quality relationships with mothers than with fathers, which are characterized by greater support (De Goede, Branje, & Meeus, 2009), more shared activities, and expressions of emotion (Steinberg & Silk, 2002). At the same time, conflict and expressed negativity are typically higher in relationships with mothers, particularly in mother-daughter relationships (De Goede et al., 2009; Laursen & Collins, 1994). Although this may seem paradoxical, these conflicts are often about everyday hassles (Laursen, 1995), and are thus particularly likely to arise in close relationships. This combination of elevated conflict frequency and greater closeness might make adolescent-mother relationships a more conducive environment for adolescents' empathic dispositions to be expressed in concrete conflict behavior than adolescent-father relationships. Consequently, developmental associations with adolescents' empathic dispositions might be more prevalent for conflict behavior towards mothers than towards fathers.

Adolescent sex is known to play a role in the development of both empathy and conflict behavior. Girls are typically found to report higher levels of dispositional empathy than boys, especially when self-report measures are used (Eisenberg et al., 2006). Moreover, research suggests that girls' empathic dispositions increase and stabilize at an earlier age than boys' (Van der Graaff et al., 2014), which is in line with girls' earlier pubertal development (e.g., Silberman & Snarey, 1993). Evidence about sex differences in conflict behavior is less conclusive. Several studies have found that girls engage in more constructive conflict resolution with peers (Chow et al., 2013; De Wied et al., 2007). However, it is unclear whether these findings also apply to adolescent-parent conflict, as others have reported that girls experience more frequent conflict with parents than boys, and that the highest levels of negative affect occur in mother-daughter conflicts (Laursen & Collins, 1994). Some researchers have reported that daughters are less avoidant regarding conflict (Laursen, 1995), whereas boys engage in greater withdrawal and compliance (Smetana et al., 2003; Vuchinich, 1987). By contrast,

others have found that girls more often used conflict resolution styles characterized by high withdrawal than boys (Branje et al 2009). Because the focus of the present study was on developmental associations between empathic dispositions and conflict behaviors, and not on their mean-level development, we included adolescent sex as a covariate in all analyses, thereby controlling for sex differences in developmental trajectories.

The Present Study

This six-year longitudinal study examined whether developmental changes in adolescents' empathic concern and perspective taking were associated with changes in their conflict resolution behaviors with mothers and fathers. Although prior research indicates that empathy has correlational and causal links with conflict-related behaviors (e.g., De Wied et al., 2007; Galinsky et al., 2008; Hawk et al., 2012; Richardson et al., 1994), research to date has not investigated whether the natural development of adolescents' empathy is similarly associated with changing conflict behavior towards parents. More importantly, although many interventions promote either affective or cognitive empathy (see: Feshbach & Feshbach, 2011), relatively little is known about their common and unique associations with different pro-social outcomes, such as constructive conflict behavior. Therefore, we set out to investigate the common and unique associations of adolescents' developing empathic concern and perspective taking with specific conflict behaviors towards parents. In order to investigate these questions of parallel development, we estimated developmental trajectories for both empathic dispositions and conflict resolution behaviors for each adolescent. Parallel development is reflected by correlations between the intercepts (initial level) and slopes (over-time change) of these trajectories. We predicted that greater levels and over-time change of both empathy dimensions would be associated with reduced conflict escalation. We further expected perspective taking to be more positively associated with problem solving than empathic concern, and empathic concern to be more positively associated with compliance and withdrawal than perspective taking.

METHODS

Participants and Procedure

Participants were 497 Dutch adolescents (282 boys; initial age M =13.03, SD = 0.46), enrolled in an ongoing longitudinal study (Van Lier et al., 2011). Adolescents were recruited from randomly selected elementary schools using a multi-stage recruitment process, and informed consent was obtained from adolescents and both parents. Adolescents predominantly had a Dutch ethnic background (95%), and most (88%) came from medium- or high-SES families based on parents' reports of employment

status (Statistics-Netherlands, 1993). Six annual measurement waves were conducted from 2006 to 2012. Trained interviewers administered questionnaires at home, which included the variables used in the present study. Adolescents received financial compensation for their participation at each wave (approximately $40). The average participation rate across waves was 90.10%, and 425 adolescents (85.50%) were still involved in the study at Wave 6.

Measures

Empathy. We used two subscales of Davis' (1983) Interpersonal Reactivity Index (IRI), a widely used multi-dimensional self-report measure of empathy, to assess adolescents' empathic concern (EC; "I would describe myself as a pretty soft-hearted person") and perspective taking (PT; "I try to look at everybody's side of a disagreement before I make a decision"). Each subscale contained seven items, rated on a 5-point Likert scale (0 = Doesn't describe me at all; 4 = Describes me very well). The Dutch IRI has demonstrated adequate reliability and external validity in samples of adults and adolescents (De Corte et al., 2007; Hawk et al., 2013). In line with the recommendations of Revelle and Zinbarg (2009), we report both Cronbach's alpha, and McDonald's omega, because Cronbach's alpha is known to severely underestimate test reliability when scales are not strictly unidimensional. Omega reflects the proportion of test variance due to all common factors, and is interpreted the same as alpha. Reliability of empathic concern was acceptable in the first wave ($\alpha = .62$, $\omega_t = .70$) and good in all other waves (αs .72-.76, ω_ts .81-.85). Reliability for perspective taking was acceptable in waves one and two (αs = .60 and .67, $\omega_t = .70$ and .78) and good in all other waves (αs .75-.78, ω_ts .87-.82).

Conflict Resolution Styles. Adolescents indicated how often they used four different conflict resolution styles towards each parent, using a Dutch adaptation of Kurdek's Conflict Resolution Styles Inventory (CRSI, Kurdek, 1994). This instrument distinguishes between conflict escalation ("Letting myself go, and saying things I do not really mean"), problem solving ("Trying to find solutions that are acceptable to both of us"), compliance ("Giving the other what he/she wants"), and withdrawal ("To stop responding and refuse to discuss the matter further"). Each conflict resolution style is assessed with five items, on a 5-point Likert scale (1 = *Never*; 5 = *Always*). Each style was assessed on a yearly basis, except withdrawal, which was omitted from the questionnaire in wave 2 and 3 to make place for measures unrelated to the present study. Reliability was good in all waves for escalation (αs .76-.85, ω_ts .80-.92), problem solving (αs .82-.89, ω_ts .88-.91), and withdrawal (αs .70-.89, ω_ts .76-.90). Reliability for compliance ranged was lower in the first wave for compliance with mothers ($\alpha = .68$, $\omega_t = .76$), and in the first three waves for compliance with fathers (αs .64-.67, ω_ts .70-.77). In all other waves, reliability of compliance was good (αs .70-.85, ω_ts .76-.89).

Strategy of Analyses

We modeled developmental trajectories of empathic dispositions and conflict resolution behaviors using multivariate Latent Growth Curve modeling (Preacher, Wichman, MacCallum, & Briggs, 2008). Developmental trajectories are modeled using two latent variables: An intercept, which reflects the estimated level of the variable at age 13, and a slope, which reflects the amount of change over time. Because we had no specific hypotheses about the overall shape of developmental trajectories, we estimated the slope factor loadings freely, anchored at the first and last time points. To account for known sex differences in developmental trajectories, we controlled the latent growth parameters for adolescent sex (see Table 1). For the sake of power, we conducted analyses separately for the four conflict behaviors and for conflict with each parent. To address our hypotheses about parallel development, we investigated correlations between the intercepts (level) and slopes (change over time) of the developmental trajectories of empathic concern and perspective taking, and conflict resolution behaviors, displayed in Table 1. See Figure 1 for the resulting structural equation model.

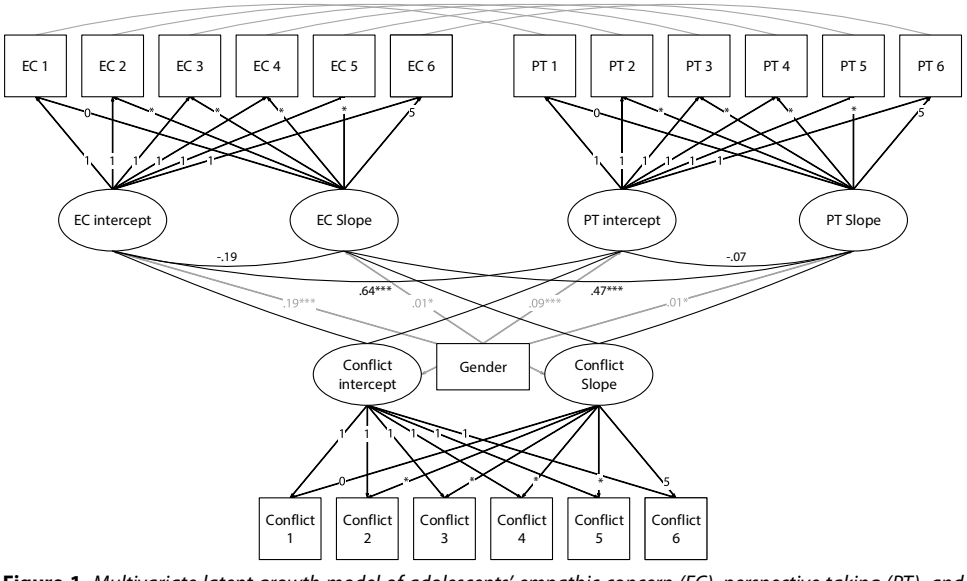

Figure 1. *Multivariate latent growth model of adolescents' empathic concern (EC), perspective taking (PT), and conflict resolution behavior.*
Note. * refers to freely estimated factor loadings.

Table 1. *Correlations between Adolescent Empathy and Conflict behavior towards parents.*

					Intercepts		Slopes		Intercept of
Intercepts		***M***	***s*²**	**Sex (*B*)**	**Empathic concern**	**Perspective taking**	**Empathic concern**	**Perspective taking**	**Conflict behavior**
Escalation	Mother	1.61***	0.28***	0.12*	-.21**	-.19*	.01	-.08	
	Father	1.64***	0.26***	0.10*	-.11	-.13†	-.05	-.17†	
Problem- solving	Mother	3.03***	0.41***	-0.10	.42***	.53***	-.02	.00	
	Father	2.94***	0.42***	-0.20**	.44***	.49***	-.07	.15	
Compliance	Mother	1.89***	0.15***	-0.04	-.05	.05	.20*	-.03	
	Father	1.92***	0.16***	0.00	.01	.06	.05	-.07	
Withdrawal	Mother	2.17***	0.27*	0.06	-.11	-.19*	-.14	-.08	
	Father	2.26***	0.21*	0.04	-.18	-.23*	-.01	-.17	
Slopes									
Escalation	Mother	-0.02***	0.01***	0.02†	.16†	.15†	-.17	-.22*	-.49***
	Father	-0.01	0.01***	0.02	-.06	-.03	.04	-.01	-.36***
Problem- solving	Mother	0.02*	0.01***	0.02	0.00	-.18*	.26*	.50***	-.27**
	Father	0.01	0.01***	0.02	-.18	-.23*	.37**	.41***	-.24*
Compliance	Mother	-0.04***	0.01***	0.02	-.01	-.05	.03	.09	-.40***
	Father	-0.04***	0.01***	0.00	-.08	-.02	.19	.22†	-.42***
Withdrawal	Mother	-0.05***	0.01*	0.04*	-.07	.06	.20	0.00	-.44†
	Father	-0.04***	0.02***	0.04**	.07	.03	-.01	.07	-.39†

Note. Sex differences refer to the mean difference between boys (0) and girls (1) in latent growth parameters.
*$p \leq .05$, ** $p < .01$, *** $p < .001$

We focused primarily on intercept-intercept and slope-slope correlations, because the interpretation of intercept-slope correlations between variables is complicated if there are also intercept-intercept or slope-slope correlations. If the intercepts of two variables are correlated, and there are negative intercept-slope correlations within variables, there are often also negative intercept-slope correlations between those variables. We used Bayesian model selection to evaluate our inequality-constrained hypotheses that both intercept-intercept and slope-slope correlations with specific conflict behaviors were greater perspective taking than for empathic concern (or vice versa), against the alternative hypothesis that any other order of correlations was true, also known as the hypothesis' complement (van de Schoot, Verhoeven, & Hoijtink, 2013). The resulting Bayes factors reflect the ratio of the extent to which the data support the hypothesis, rather than its complement. Therefore, $BF > 1$: more support for the hypothesis than for its complement; $BF \approx 1$: inconclusive; $BF < 1$: more support for the complement of the hypothesis.

Table 2. *Overview of Model Fit Indices.*

Model	χ^2	df	AIC	BIC	RMSEA	CFI	SRMR
Conflict resolution with mothers							
Engagement	264.30	138	10796.53	11086.92	0.043	0.971	0.054
Problem solving	267.11	138	12350.09	12640.48	0.043	0.971	0.061
Compliance	256.05	138	10956.48	11246.87	0.041	0.969	0.056
Withdrawal	177.20	103	10465.98	10739.54	0.038	0.979	0.059
Conflict resolution with fathers							
Engagement	280.68	138	10524.15	10814.54	0.046	0.968	0.059
Problem solving	252.48	138	12261.54	12551.94	0.041	0.974	0.061
Compliance	264.27	138	10759.21	11049.61	0.043	0.966	0.058
Withdrawal	178.24	103	10216.98	10490.54	0.038	0.978	0.058

RESULTS

Analyses were conducted using structural equation modeling in MPlus (Muthén & Muthén, 1998-2012). We made use of Full Information Maximum Likelihood (FIML) estimation, which makes use of all available information, without estimating missing data. Although Little's MCAR test was significant, $\chi^2(2610) = 3144.61$, $p < .001$), the χ^2/df ratio of 1.20 is well within the acceptable range for large samples (Bollen, 2014), and FIML does not assume MCAR. We considered RMSEA ≤ .05, and CFI ≥ .95, supplemented by SRMR ≤ .08, to indicate good fit (Kline, 2011). Fit indices for the resulting models are shown in Table 2.

Mean Developmental Trajectories of Conflict Resolution Behaviors

The means and standard deviations of the intercepts and slopes of the multivariate growth models can be found in Table 1. The mean developmental trajectories of empathic concern and perspective taking in this sample have been reported in detail by De Graaff and colleagues (2014). The mean level of empathic concern was higher than that of perspective taking. Although the average slope of empathic concern was not significant, there was an average increase in perspective taking. In line with previous research, problem solving was the most commonly used conflict resolution behavior with both mothers and fathers. On average, problem solving with mothers increased throughout adolescence, whereas problem solving with fathers remained stable. Withdrawal was the second most commonly used conflict behavior, followed by compliance. On average, withdrawal and compliance with mothers decreased over time, whereas withdrawal and compliance with fathers increased. Finally, conflict escalation was used least often with parents. On average, conflict escalation with mothers decreased over time, whereas escalation with fathers remained stable.

Developmental Links between Empathy and Conflict Resolution Behaviors

Conflict Escalation. In partial support of hypotheses, the intercepts of empathic concern and perspective taking were both negatively associated with the intercept of conflict escalation towards mothers. For fathers, only the intercept of perspective taking showed a trending negative association with escalation (p = .07). Furthermore, only the slope of perspective taking was negatively associated with the slope of escalation towards mothers. There were no significant slope-slope correlations for fathers. These results indicate that adolescents with higher levels of empathic concern or perspective taking displayed lower levels of escalation with mothers, and that adolescents with higher perspective taking displayed less escalation with fathers. Moreover, over-time increases in perspective taking were associated with decreasing escalation toward mothers. Although we hypothesized that associations with escalation would be the same for both empathy dimensions, there appeared to be more negative associations with perspective taking than with empathic concern. As a post-hoc comparison, we therefore tested the informative hypothesis that both the intercept-intercept and slope-slope correlations were more negative for perspective taking than for empathic concern against the complementary hypothesis that any other order of parameters was true. For escalation towards mothers, the Bayes factor was BF = 1.63, indicating that the data provided marginally more support for the hypothesis than for any other ordering of these correlations. For fathers, the data provided twice as much support for this hypothesis than for any other order, BF = 2.30. These post-hoc comparisons suggest

that perspective taking was more negatively associated with escalation than empathic concern.

Problem Solving. We expected that perspective taking would be more positively associated with problem solving than empathic concern. In partial support of hypotheses, intercepts of empathic concern and perspective taking were both positively associated with the intercepts of problem solving with both parents. Furthermore, the slopes of empathic concern and perspective taking were positively associated with the slope of problem solving with both parents. We compared our informative hypothesis that the intercept-intercept and slope-slope correlations were both greater for perspective taking than for empathic concern against the complementary hypothesis that any other order of parameters was true. In line with predictions, for mothers, the Bayes factor was $BF = 3.58$, indicating that the data provided three times more support for the hypothesis that correlations were larger for perspective taking than for empathic concern, as compared to any other ordering of these correlations. For fathers, the data provided twice as much support for our hypothesis than for any other order, $BF = 2.22$. These findings indicate that the levels and change over time in both empathic dispositions were positively associated with problem solving toward both parents, but also that these associations were stronger for perspective taking than empathic concern.

Compliance. We did not find the hypothesized intercept-intercept and slope-slope associations between empathic dispositions and compliance with either parent. However, the intercept of compliance with mothers was positively correlated with the slope of empathic concern. The interpretation of this particular intercept-slope correlation is straightforward, because of the absence of any other correlations between adolescents' empathic dispositions and compliance with mothers. High levels of compliance with mothers at age 13 were associated with over-time increasing empathic concern. For fathers, we found a trending association between the slope of perspective taking and compliance ($r = .22$, $p = .06$), suggesting that increasing perspective taking was associated with increasing compliance with fathers.

Withdrawal. In contrast to previous research, we did not find that empathic concern was positively related to withdrawal. Instead, we found that the intercept of perspective taking was negatively associated with the intercepts of withdrawal from both parents. This indicates that adolescents higher in perspective taking withdrew less frequently from conflicts with both parents. We compared our informative hypothesis that both the intercept-intercept and slope-slope correlations were more positive for empathic concern than for perspective taking against the complementary hypothesis that any other order of these parameters was true. In partial support of our hypothesis, the Bayes factor was $BF = 9.39$ for withdrawal from mothers. For withdrawal from fathers, $BF = 1.00$, which is inconclusive.

DISCUSSION

The purpose of the present study was to examine whether the development of adolescents' empathic concern and perspective taking is paralleled by changes in their conflict behaviors towards parents. Previous cross-sectional and experimental research has revealed correlational and causal links between empathy and reduced aggression, constructive problem-solving, and pro-social conflict resolution in adolescent-peer and adult relationships (Björkqvist et al., 2000; De Wied et al., 2007; Galinsky et al., 2008; Richardson et al., 1994). Furthermore, adolescence is a developmentally sensitive period for both empathy (e.g., Chapter 2) and conflict behavior (Laursen et al., 2001; Van Doorn et al., 2011). It is therefore important to investigate whether adolescents' naturally occurring empathy development is accompanied by similar changes in their conflict behavior towards parents. Our results provided evidence for both common and unique associations of empathic concern and perspective taking with specific conflict behaviors. These results extend previous correlational and experimental findings to a developmental context, and are relevant for interventions that aim to promote adolescents' empathy development and constructive conflict resolution behavior.

In partial support of our hypothesis that both empathic dispositions would have common associations with reduced conflict escalation, levels of empathic concern and perspective taking were both negatively correlated with levels of escalation towards mothers. Furthermore, both levels and changes in empathic concern and perspective taking were positively correlated with levels and changes in problem solving towards both parents. These results indicate that greater empathic concern and perspective taking had common negative associations with conflict escalation towards mothers, and common positive associations with problem solving with both parents. In addition to these common associations, we also found evidence for unique associations with conflict escalation. Specifically, change in perspective taking was negatively correlated with change in escalation towards mothers, and levels of perspective taking showed a trending negative correlation with levels of escalation towards fathers. Moreover, Bayesian model selection indicated that correlations with escalation and problem solving were always greater for perspective taking than for empathic concern. Thus, although we found support for common associations of both empathy dimensions with reduced escalation and increased problem solving, these associations were asymmetrical, in the sense that they were consistently greater for perspective taking than empathic concern. In further support of hypothesized unique associations, higher levels of compliance with mothers at age 13 were uniquely associated with over-time increasing empathic concern over time. Finally, greater levels of perspective taking were uniquely associated with lower levels of withdrawal from conflict with both parents. These findings, combined with the asymmetry of the associations with escalation and

problem solving, suggest that perspective taking is more strongly associated with the tendency to address conflict with parents in a constructive and egalitarian way, rather than simply withdrawing from conflict or complying with parents' desires.

There were notable differences in the pattern of results between mothers and fathers. For example, higher levels of both empathic dispositions were significantly associated with lower levels of conflict escalation with mothers, but not with fathers. These findings can be interpreted in the context of known qualitative differences between adolescents' relationships with mothers and fathers. Relationships with mothers are often characterized by greater support and emotion expression, but also by greater conflict than relationships with fathers (e.g., Branje et al., 2013; De Goede et al., 2009; Steinberg & Silk, 2002). Adolescents' empathy may be more strongly associated with reduced escalation when conflict is resolved in the context of support and emotional openness that is more common in relationships with mothers than with fathers. Secondly, higher levels of compliance with mothers – but not with fathers – were associated with increasing empathic concern over time. This is in line with the finding that high-quality relationships with mothers predict over-time increases in adolescents' empathic concern (Miklikowska, Duriez, & Soenens, 2011). Conflict with parents, on the other hand, diminishes adolescents' empathic concern (Batanova & Loukas, 2012). Some adolescents might therefore tend to comply with mothers in order to disarm conflicts without jeopardizing the relationship (Kurdek, 1994). This practice of mitigating conflicts with mothers through compliance could, in turn, set the stage for their development of greater empathic concern – the tendency to consider the emotions of others at a more general, dispositional level.

One clear limitation of the present study is the correlational nature of the data, which precludes making causal inferences about the direction of effects. However, the present multivariate growth curve approach is the most appropriate test for parallel development, because it reveals the extent to which change in empathic dispositions and conflict behaviors is associated within individuals. Previous empirical work demonstrated that experimentally induced empathy promotes prosocial conflict behaviour in bogus interactions (e.g., Galinsky et al., 2008; Richardson et al., 1994), and future research might replicate these findings in adolescent-parent conflict interactions. Another limitation is that all variables were measured using adolescent self-reports. This choice may be sensible for empathic dispositions, because empathy is an internal process that might not necessarily be expressed in behavior. Indeed, research indicates that parents' estimates of adolescents' empathy correlate poorly with adolescents' reports (Cliffordson, 2001). Because conflict resolution behavior is more readily observable, however, future research could include third party reports of adolescents' conflict resolution behavior, or even code observations of behavior in actual adolescent-

parent conflicts. Parents' reports about adolescents' conflict behavior might be biased, however, if parents are themselves involved in the conflict. Finally, a minor limitation of the present study is that the IRI assesses individuals' general tendencies to engage in empathic concern and perspective taking, and does not measure their specific responses toward their parents. Adolescents' empathic responses in specific situations – such as conflict with parents – could differ from their general empathic dispositions. Future research might therefore address the role of situational empathy in conflicts with parents.

Despite these limitations, the present research advances our understanding of the links between empathy and conflict resolution behavior. This study is the first to investigate the parallel development of empathic concern and perspective taking, and conflict resolution behaviors towards both parents, throughout adolescence. Prior experimental work has demonstrated that affective and cognitive empathy dimensions hold common and unique associations with particular conflict behaviors in bogus interactions (Galinsky et al., 2008; Richardson et al., 1994). The present study builds upon these findings, by showing that adolescents' naturally occurring development is accompanied by similar changes in conflict behavior towards parents. Our longitudinal approach improves upon previous research examining adolescents' empathy and conflict resolution behavior, which has been mostly cross-sectional, and has failed to address unique associations of empathic concern and perspective taking (Björkqvist et al., 2000; De Wied et al., 2007). Our results suggest that adolescents' developing perspective taking is more strongly associated with a pattern of increasing constructive and egalitarian conflict resolution behaviors towards parents than empathic concern. Interestingly, perspective taking also appears to be the empathy dimension most susceptible to developmental influences in adolescence (Chapter 2). Therefore, interventions focusing on perspective taking might be most beneficial in promoting adolescents' constructive conflict resolution behavior.

5

The Effects of Affective and Cognitive Empathy Manipulations on Behavior and Outcomes in Adolescent-Mother Conflicts

Van Lissa, C., Hawk, S. T., & Meeus, W. (2015). The effects of affective and cognitive empathy manipulations on behavior and outcomes in adolescent-mother conflicts. *Manuscript submitted for publication.*

ABSTRACT

Affective and cognitive empathy may have differential effects on observed behavior and self-reported outcomes in adolescent-mother conflicts. Although developmental research has shown that trait empathy is associated with adolescents' conflict behavior, few such studies have differentiated between affective and cognitive trait empathy. Experimental research has demonstrated differential effects of affective and cognitive empathy manipulations in bogus interactions, but it is unclear whether such findings will translate to meaningful conflicts in real relationships. The present study investigated effects of affective versus cognitive empathy manipulations on behavior and outcomes in adolescent-mother conflicts. To promote ecological validity, dyads discussed pre-existing conflicts at home. We explored the role of sex, age, trait empathy and perceived maternal support and power as covariates and moderators. Results indicated that the cognitive empathy manipulation reduced negative behavior, and promoted other-oriented listening for adolescents low in trait cognitive empathy. The affective manipulation instead promoted active problem solving (trending). For adolescents low in trait affective empathy, both manipulations promoted outcome satisfaction, but only the cognitive manipulation promoted perceived fairness. This suggests that cognitive empathy in particular allows adolescents to distance themselves from the emotional heat of a conflict and listen to mothers' point of view, leading to outcomes perceived as both satisfying and fair. These findings are relevant for interventions and clinicians, as they demonstrate unique effects of promoting affective versus cognitive empathy. As even these minimal manipulations promoted significant effects on observed behavior and self-reported outcomes, particularly for low-empathy adolescents, stronger structural interventions are likely to have marked benefits.

Keywords: empathy, perspective taking, conflict resolution, adolescence, experiment

THE EFFECTS OF AFFECTIVE AND COGNITIVE EMPATHY ON BEHAVIOR AND OUTCOMES IN ADOLESCENT-MOTHER CONFLICTS

Conflict with parents is a normative part of adolescents' move towards greater autonomy (Laursen & Collins, 2004). The way in which such conflict is resolved has important implications for adolescents' adjustment (Branje, van Doorn, van der Valk, & Meeus, 2009). Both developmental and experimental research suggests that empathy is associated with pro-social conflict resolution across different relationships. However, there is consensus in the literature that empathy involves affective and cognitive components (e.g., Davis, 1983; Hoffman, 2000). However, there are methodological differences between developmental and experimental approaches, and findings are sometimes at odds. Developmental research has focused on associations between *trait* empathy and self-reported conflict behaviors in real relationships, but has rarely investigated differential associations of affective and cognitive empathy. Experimental research has manipulated *state* affective and cognitive empathy in laboratory contexts, and has found differential effects on conflict-related behaviors and outcomes (Batson & Ahmad, 2001; Richardson, Hammock, Smith, Gardner, & Signo, 1994). Whether these experimental effects will translate to real conflicts in pre-existing relationships remains unclear. Adolescent-parent relationships are particularly relevant, because their obligatory and permanent nature allows adolescents to develop effective conflict resolution skills for other relationships (Adams & Laursen, 2001). The present study investigated whether experimentally induced affective and cognitive empathy have common or differential effects on behaviors and outcomes in actual adolescent-mother conflicts. Studying differential effects of affective and cognitive empathy has important implications for interventions and clinical practice. For example, different psychiatric disorders are accompanied by specific empathy deficits. Callous-unemotional (CU), disruptive behavior disorder (DBD), and psychopathic traits are more strongly associated with affective empathy deficits in adolescence, whereas autism spectrum disorder (ASD) symptoms are more strongly associated with cognitive empathy deficits (Blair, 2005; Brouns et al., 2013; de Wied, Goudena, & Matthys, 2005; Pasalich, Dadds, & Hawes, 2014). Moreover, although it has long been assumed that clinicians' empathy is important in therapy (Rogers, 1957), recent work indicates that clients' empathy is also crucial (Feshbach & Feshbach, 2011). Consequently, many adolescent intervention and treatment programs promote affective and/or cognitive aspects of empathy (e.g., Feshbach, Feshbach, Fauvre, & Ballard-Campbell, 1984; Frey, Nolen, Edstrom, & Hirschstein, 2005; Gibbs, Potter, & Goldstein, 1995; Lewis et al., 2013). However, little is known about differential effects of promoting affective versus cognitive empathic states, and ways in which interventions might interact with pre-existing differences in trait empathy.

Empathy and Conflict Resolution Behavior

Previous research has identified specific conflict behaviors, including negative behavior (i.e., conflict escalation) and withdrawing from the discussion, and different pro-social behaviors such as active problem solving (i.e., negotiating compromises) and compliance with the other person (Kurdek, 1994). Observational research (Branje, 2008) further identified *listening*, largely overlooked in self-report studies, as the pro-social behavior most frequently displayed by adolescent daughters in conflict discussions with mothers. Negative behavior and withdrawal in adolescent-parent conflicts have been linked to adolescent adjustment problems (Branje, 2008). Moreover, the way adolescents learn to manage conflict with parents predicts conflict behavior and relationship quality with peers and future romantic partners (Crockett & Randall, 2006; Van Doorn, Branje, VanderValk, De Goede, & Meeus, 2011). It is therefore important to identify factors which promote pro-social conflict resolution.

Affective and cognitive empathy might promote different conflict behaviors. Affective *empathic concern* refers to sympathetic responses to others' distress (Davis, 1983). It might therefore motivate adolescents to reduce parents' negative emotions through pro-social behaviors such as compliance or problem solving. Cognitive *perspective taking*, on the other hand, refers to the tendency to consider others' points of view. This implies that adolescents might take some emotional distance from the heat of a conflict and reflect upon both sides of the argument. Consequently, they might display less negative behavior, listen attentively, and engage in constructive problem solving. Developmental research supports the notion that empathic dispositions are associated with adolescents' conflict behaviors. For example, trait affective empathy was associated with reduced negative behavior and greater problem solving, but also with increased withdrawal from adolescent-peer conflicts (Björkqvist, Österman, & Kaukiainen, 2000; De Wied, Branje, & Meeus, 2007). As described in Chapter 4, a recent six-year longitudinal study found that the development of both empathic concern and perspective taking was linked with decreased negative behavior and increased problem solving. Furthermore, adolescents' empathic concern was positively associated with compliance with mothers, and perspective taking was associated with decreased withdrawal. Developmental support for differential associations remains limited, however, because some studies did not consider the role of cognitive empathy, and others found both common and differential associations of affective and cognitive empathy with specific conflict behaviors.

Experimental research provides clearer evidence for differential effects. For example, in response to provocation, only inductions of cognitive empathy inhibited negative behavior and increased interpersonal sensitivity (Richardson et al., 1994). In negotiations, cognitive empathy helped participants elicit crucial information from interaction partners that led to mutually beneficial agreements (Galinsky, Maddux,

Gilin, & White, 2008). Inducing affective empathy, on the other hand, did not promote mutually beneficial agreements and led to the poorest outcomes for participants, but increased negotiation partners' satisfaction with the discussion, suggesting that participants had complied with their partners to a greater extent. Affective empathy also motivated participants to cooperate with partners who had previously proven to be untrustworthy in prisoner's dilemma games (Batson & Moran, 1999). Experimental research thus suggests that cognitive empathy decreases negative behavior, increases interpersonal sensitivity, and helps individuals reach fairer outcomes in negotiations. Affective empathy instead promotes active pro-social behavior, and increases partners' satisfaction with the negotiation process. It remains unclear whether findings from these laboratory studies of simulated conflicts with strangers or fictitious partners will generalize to real conflicts in adolescent-mother relationships.

Although both empathic *traits* and *states* have been studied in relation to conflict-related constructs, few studies have examined potential state-trait interactions. Nevertheless, such interactions between individual differences and situational constraints present a well-known methodological challenge in psychology (Steyer, Schmitt, & Eid, 1999). A recent study suggests that the effectiveness of interventions promoting state empathy may depend on levels of trait empathy. Specifically, emotion recognition training promoted affective empathy in adolescents with high CU traits, which are associated with lower empathy, but not in adolescents with low CU traits (Dadds, Cauchi, Wimalaweera, Hawes, & Brennan, 2012). This suggests that the effects of empathy manipulations might be stronger for adolescents lower in trait empathy.

The Roles of Gender and Relationship Quality

Gender might predict the way adolescents express their empathic responses in behavior. Gender intensification theory suggests that socialization pressures encourage girls to display more emotional and caring behavior than boys (Pettitt, 2004). Indeed, girls report higher levels of dispositional empathy on questionnaire measures (Eisenberg, Spinrad, & Sadovsky, 2006; Hawk et al., 2013), and their empathic dispositions develop at an earlier age (Van der Graaff et al., 2014). Girls report greater pro-social conflict behavior towards peers (Chow, Ruhl, & Buhrmester, 2013; De Wied et al., 2007). With parents, however, girls report more conflict, and the highest levels of negativity occur in mother-daughter conflicts (Laursen & Collins, 1994). Furthermore, Van Lissa and colleagues (Chapter 4) further found more consistent links between empathic development and changes in conflict behaviors with parents for boys than girls, which might be related to girls' earlier empathy development (Van der Graaff et al., 2014). The literature thus indicates that it is important to investigate gender differences, but inconsistencies in the literature preclude the formulation of specific hypotheses.

Whether adolescent-parent conflict contributes to the constructive renegotiation of relationship roles depends in part on adolescent-parent relationship quality (Laursen & Collins, 2004). Support and adolescent-parent power imbalances both typically decrease over time, as adolescents' autonomy increases (De Goede, Branje, & Meeus, 2009). Supportive adolescent-mother relationships show less conflict, whereas the opposite holds when adolescents perceive power imbalances that favor mothers (De Goede et al., 2009; Laursen, DeLay, & Adams, 2010). This suggests that support and power may be important covariates to consider when examining conflict behavior. Furthermore, support and power might interact with empathy manipulations. Supportive mothers are likely to be more encouraging of the positive changes in adolescents' behavior induced by such manipulations, which could enhance their effects. When mothers are perceived as powerful, adolescents take a less active role in conflicts (Branje, 2008), in which case manipulations might have weaker effects.

The Present Study

The present study examined common and differential effects of affective and cognitive empathy on real conflicts in adolescent-parent relationships. Developmental research suggests mostly common effects, in that both empathy dimensions should decrease negative behavior and increase problem solving (Chapter 4). Experimental research, conversely, suggests differential effects, with cognitive empathy manipulations decreasing negative behavior, promoting interpersonal sensitivity, and increasing problem solving. Affective empathy should instead promote compliance (Batson & Ahmad, 2001; Galinsky et al., 2008). Cognitive empathy should further promote fairer outcomes, whereas affective empathy should promote greater outcome satisfaction (Galinsky et al., 2008). We also predicted state-trait interactions, expecting that effects would be stronger for adolescents who scored lower in dispositional empathy. Adolescents were randomly assigned to a control condition or one of two experimental conditions that induced affective or cognitive state empathy. We also explored the role of adolescents' sex, age, trait empathy and perceived maternal support and power as covariates and moderators.

METHODS

Participants

Participants were 67 adolescent-mother dyads, recruited at parent-teacher nights of seven Dutch schools between May 2012 and September 2013. Adolescents' (32 girls) mean age was 15.51 (*SD* = 1.16), and mothers' mean age was 48.48 (*SD* = 3.16). One adolescent was enrolled in preparatory vocational education (VMBO), 18 in higher general education (HAVO, 27%), and 48 in preparatory scholarly education (VWO, 72%). All adolescents were Dutch-born. Of the mothers, eight reported having vocational education, three had a high school education, and 56 had a college education or higher (84%). Most mothers were Dutch-born (96%), two were European-born, and one Japanese-born. Adolescents and mothers each received €12.50 for their participation.

Procedure

Adolescents completed the questionnaire measures online. A week later, a researcher conducted the remainder of the experiment during a home visit, to heighten ecological validity. First, mothers were asked in private to identify a recent, unsolved conflict, and to introduce this to the adolescent. The adolescent was asked to confirm this topic as a point of contention. The adolescent was then seated behind a laptop to receive the empathy priming manipulation. Next, dyads were asked to discuss the conflict topic and try to finish within eight minutes (based on Branje, 2008). These discussions were videotaped using an unobtrusive camera. To increase privacy, the experimenter waited in a separate room. Afterwards, adolescents and mothers were separated to complete post-questionnaires of outcome satisfaction and perceived fairness. Participants were fully debriefed.

MATERIALS

Questionnaires.

Dispositional trait empathy. Participants completed the empathic concern (α = .61) and perspective taking (α = .80) subscales of the Interpersonal Reactivity Index, adapted to measure empathy for mothers, on 5-point scales (IRI, Davis, 1983; Dutch translation validated by Hawk et al., 2012). For example, "I sometimes try to understand my *mother* (original: 'friends') better by imagining how things look from their perspective" (perspective taking), and "*My mother's* (original: 'Other people's') misfortunes do not usually disturb me a great deal" (empathic concern).

Relationship quality. Participants rated the support (α = .80, e.g.: "Does your mother like or approve of the things you do?") and power (α = .79, e.g.: "To what extent is your

mother the boss in your relationship?") subscales of the Network of Relationships Inventory (Furman & Buhrmester, 1985) on five-point scales, which ranged from "not at all" to "very much".

Empathy manipulation. The empathy manipulation intended to maximize the difference between affective and cognitive empathy by avoiding the use of cognitive language in the affective empathy manipulation. Existing manipulations often appear to prescribe a cognitive process, even when attempting to promote affective empathy (e.g., "Try to understand what they are feeling", Galinsky et al., 2008). Our manipulation proceeded in two steps. First, adolescents were asked to write a short essay about the last time they discussed the conflict topic with their mothers. Participants in the control condition were asked to describe the objective circumstances (e.g., the conflict location, who was present, i.a.). Participants in the affective and cognitive empathy conditions were asked to write about their mother's emotions or perspective during the discussion, respectively. Second, adolescents in the experimental conditions were asked to maintain this focus on the mother's emotions or perspective during the upcoming discussion. The instruction to focus on mothers' emotions was intended to increase empathy and sympathy, whereas the focus on her perspective was intended to increase perspective taking and understanding. As a manipulation check, three coders rated the essays for the number of references to mothers' emotions (α = .99) and cognitions (α = .91). Adolescents in the affective empathy condition mentioned significantly more emotions ($M = 3.00$, $SD = 2.47$) than those in the control ($M = .45$, $SD = .50$) and cognitive empathy condition, $M = .23$, $SD = .53$; $F(2, 63) = 18.12$, $p < .001$. Adolescents mentioned significantly more cognitions in the cognitive condition ($M = 2.36$, $SD = 1.56$) than those in the affective ($M = 1.41$, $SD = .96$) and control conditions ($M = .32$, $SD = 1.71$), and the affective and control conditions also differed significantly, $F(2, 63) = 11.07$, $p < .001$.

Behavioral observations. Conflict discussions were videotaped and content-coded by a trained observer, blind to condition, in Noldus Observer (Noldus Information Technology, 2009). We used a modified version of Dishion and colleagues' (2002) Relationship Process Code Training Manual (see Branje, 2008). Active *negative behavior* refers to personal attacks, anger, and conflict escalation. Passive *withdrawal* refers to refusing to discuss the problem further. Pro-social behavior was coded as *problem solving* when adolescents actively and constructively addressed the problem, as *listening* when they were passive but attentive, and as *compliance* when they agreed with mothers. Two additional coders each coded a subset, with very good reliability ($\bar{\kappa}_1 = .81$, $N = 31$; $\bar{\kappa}_2 = .80$, $N = 19$). To control for variations in discussion length and frequency of "turn-taking", we analyzed the percentage of time each actor spent in each behavioral category.

RESULTS

Because of the small sample size, we used a model building approach in order to retain statistical power. The baseline regression model included experimental condition, dispositional empathy, demographics (age and gender), and perceived support and power. The effect of condition was analyzed using two dummy variables, which can be interpreted as the difference between the control condition and the affective condition (*affective contrast*) and between control and the cognitive condition (*cognitive contrast*). We tested whether explained variance increased significantly when adding single interactions of condition with trait empathy, demographics, or relationship variables, and interactions of demographics with relationship variables. In step two, interactions which significantly increased explained variance were added. For the sake of parsimony, the resulting model was pruned by removing non-significant effects if model fit remained unaffected. We explored significant interactions with continuous variables using a simple slopes approach, testing the effect size of the predictor at ±1 SD (low and high levels) of the moderating variable.

Behavioral Data

For mothers' conflict resolution behaviors, none of the predictors yielded a model that predicted significant variance. We therefore report only the models for adolescents' behavioral data (Table 1).

Negative behavior. The best fitting model for adolescents' negative behavior included main effects of condition, gender, and perceived maternal power and support. In partial support of our hypothesis, the significant cognitive contrast indicated that the cognitive empathy manipulation significantly reduced negative behavior compared to the control condition. The affective contrast, however, was non-significant (Figure 1a). Girls displayed more negative behavior (M = 8.38) than boys (M = 3.88), on average. Finally, greater maternal support and power both predicted less negative behavior.

Problem solving behavior. The best fitting model for adolescents' problem solving behavior included main effects of the affective contrast, dispositional perspective taking, and age. In partial support of hypotheses, a trending effect of the affective contrast indicated that the affective empathy manipulation increased problem solving behavior compared to the control condition (Figure 1b). Furthermore, dispositional perspective taking and age both positively predicted problem solving.

Table 1 *Summary of Regression Analyses on Adolescent Conflict Behavior*

Model	Predictor	*B*	*SE*	β	*p*
Negative behavior, $R^2 = .58$, $F(5, 19) = 5.22$, $p = .004$					
	Main effects				
	Intercept	6.13	1.33		0.000
	Affective contrast	-3.86	2.51	-0.26	0.142
	Cognitive contrast	-5.92	2.48	-0.39	0.028
	Sex	2.25	1.03	0.35	0.041
	Support	-8.20	2.03	-0.74	0.001
	Power	-4.21	1.72	-0.43	0.024
Problem solving behavior, $R^2 = .17$, $F(3, 58) = 3.96$, $p = .01$					
	Main effects				
	Intercept	28.05	2.47		0.000
	PT	7.11	2.27	0.38	0.003
	Affective contrast	6.65	3.49	0.27	0.062
	Cognitive contrast	2.44	3.45	0.10	0.482
Listening behavior, $R^2 = .55$, $F(14, 47) = 4.05$, $p < .001$					
	Main effects				
	Intercept	61.99	2.00		0.000
	Affective contrast	-1.56	2.85	-0.07	0.587
	Cognitive contrast	1.52	2.78	0.07	0.588
	EC	2.81	3.20	0.12	0.384
	PT	2.70	3.56	0.16	0.452
	Sex	-7.16	2.01	-0.66	0.001
	Support	-5.99	3.01	-0.26	0.052
	Power	0.85	3.05	0.05	0.782
	Interactions				
	Affective contrast * PT	2.21	6.11	0.07	0.719
	Cognitive contrast * PT	-11.32	4.48	-0.40	0.015
	Affective contr. * Sex	4.44	2.80	0.24	0.119
	Cognitive contr. * Sex	6.00	2.58	0.26	0.024
	Affective con. * Power	20.87	7.42	0.44	0.007
	Cognitive con. * Power	-9.27	4.59	-0.30	0.049
	EC * Sex	12.48	3.22	0.67	0.000

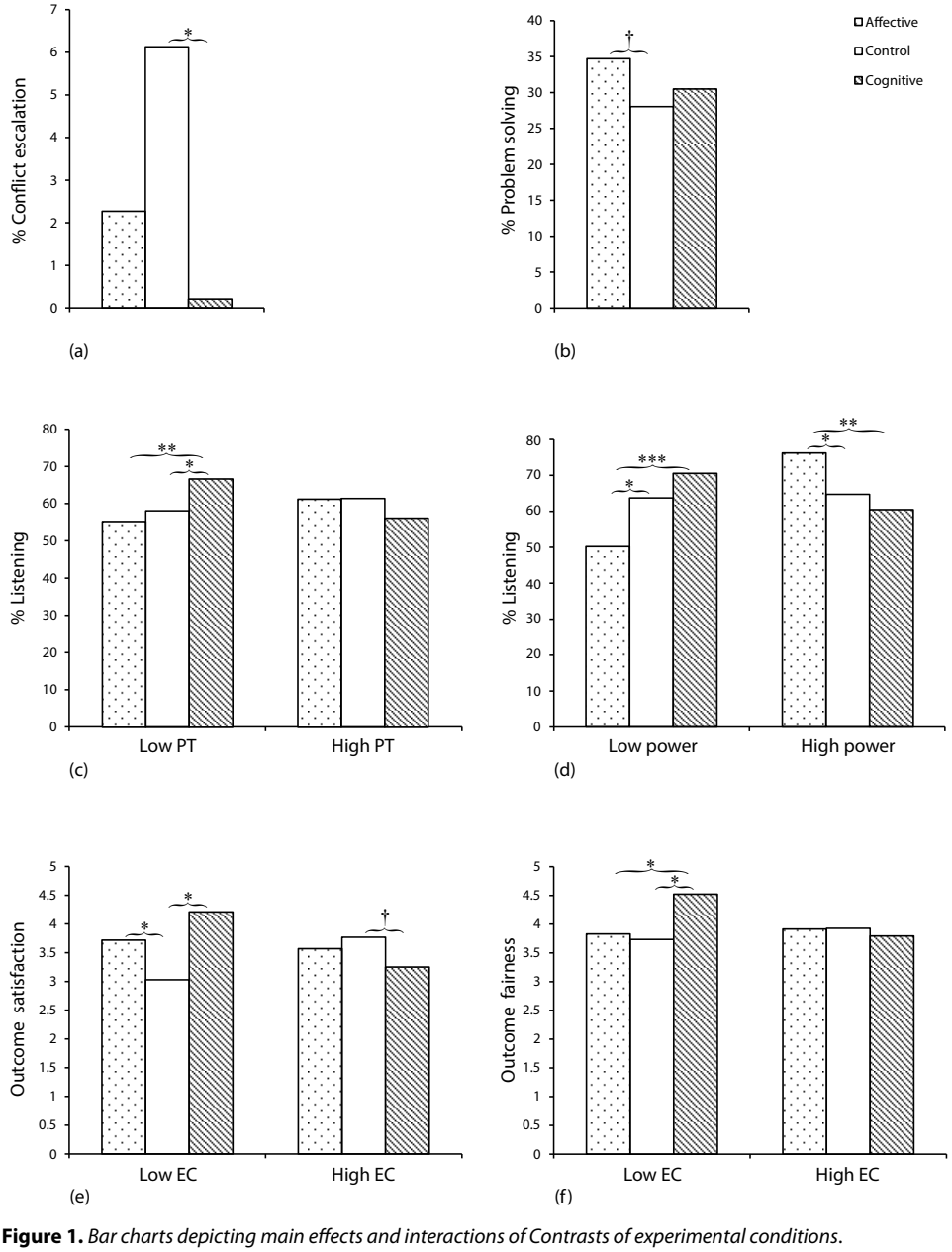

Figure 1. *Bar charts depicting main effects and interactions of Contrasts of experimental conditions*.
Note. Graphs involving interactions show the effect of condition at low and high levels (±1*SD*) of the continuous moderator. Figure 1c depicts an interaction with perspective taking (PT); 1e and 1f depict interactions with empathic concern (EC). Significance (*p*-values) of contrasts indicated in figure: † ≤ .06, * < .05, ** < .01, *** < .001.

Listening behavior. The multiple regression for adolescents' listening behavior yielded no main effects of condition, but did show significant interactions of condition with dispositional perspective taking, sex, and perceived maternal power. The interaction between the cognitive contrast and perspective taking indicated that the cognitive manipulation significantly increased listening behavior for adolescents low in dispositional perspective taking (B = 8.74, t = 2.05, p < 0.05), but not for those higher in perspective taking (B = -5.70, t = -1.55, p = 0.13; Figure 1c). The interaction between the affective contrast and sex indicated that boys and girls responded differently to the affective empathy manipulation. The affective manipulation reduced listening behavior for boys (B = -14.04, t = -3.54, p < 0.001), but increased listening for girls (B = 10.92, t = 2.37, p = 0.02). Similarly, an interaction between dispositional empathic concern and sex indicated that empathic concern positively predicted listening behavior for girls (B = 8.81, t = 1.99, p = 0.05), but not for boys (B = -3.19, t = -0.85, p = 0.40). Finally, the interaction between the cognitive contrast and maternal power revealed no significant differences between the control and cognitive condition at ±1 *SD* of maternal power. The affective empathy manipulation, on the other hand, decreased listening behavior when maternal power was low (B = -13.45, t = -2.58, p = 0.01), and increased listening behavior when power was high (B = 10.33, t = 2.07, p = 0.04; Figure 1d).

Compliance and withdrawal. None of the predictors explained significant variance in adolescents' compliance. On average, compliance occurred in 33 dyads ($M_{\text{percentage of observation}}$ = 0.99) and withdrawal occurred in 41 dyads ($M_{\text{percentage of observation}}$ = 5.30).

Self-Report Data

Adolescents' outcome satisfaction. The multiple regression for adolescents' outcome satisfaction yielded no main effects of condition, but did show a significant interaction between dispositional empathic concern and condition (Table 2). Specifically, both the affective (B = .69, t = 2.51, p = .02) and cognitive (B = 1.17, t = 4.18, p < .001) empathy manipulations increased outcome satisfaction for individuals with lower, but not higher, dispositional empathic concern (Figure 1e). We further found a significant interaction between sex and maternal support, which indicated that maternal support was more positively associated with outcome satisfaction for boys, B = 1.49, t = 4.83, p < .001, than for girls, B = .55, t = 2.02, p < 0.05. Finally, we found an interaction between age and support, which indicated that perceived maternal support positively predicted outcome satisfaction for older adolescents (B = 1.98, t = 5.35, p < .001), but not for younger adolescents (B = .06, t = .24, p = .81).

Mothers' outcome satisfaction. Multiple regression analyses yielded no significant predictors.

Adolescents' outcome fairness. The multiple regression for adolescents' perceived outcome fairness yielded no main effects of condition, but did show a significant interaction between dispositional empathic concern and condition (Table 2). The cognitive empathy manipulation significantly increased outcome fairness for individuals with lower empathic concern (B = .79, t = 2.78, p < .01), but not for those with higher empathic concern (B = -.13, t = -.44, p = .66; Figure 1f). The affective empathy manipulation did not have a significant effect on outcome fairness. An interaction between age and support indicated that maternal support positively predicted outcome fairness for older adolescents (B = 1.46, t = 3.68, p = .001), but not for younger adolescents (B = .21, t = .78, p = .44).

Table 2 *Summary of Regression Analyses on Adolescents' Conflict Outcomes*

Model	Predictor		*B*	*SE*	β	*p*
Outcome satisfaction, R^2 = .47, F(10, 55) = 4.92, p < .001						
	Main effects	Intercept	3.41	0.14		0.000
		Affective contrast	0.23	0.19	0.14	0.223
		Cognitive contrast	0.30	0.19	0.19	0.116
		EC	0.76	0.35	0.47	0.031
		Sex	0.09	0.08	0.11	0.273
		Age	0.07	0.07	0.11	0.301
		Support	1.02	0.23	0.63	0.000
	Interactions	Affective contrast* EC	-0.91	0.43	-0.33	0.036
		Cognitive contrast * EC	-1.75	0.43	-0.63	0.000
		Support * Sex	-0.47	0.18	-0.29	0.012
		Support * Age	0.83	0.19	0.56	0.000
Outcome fairness, R^2 = .29, F(8, 57) = 2.85, p = .01						
	Main effects	Intercept	3.83	0.15		0.000
		Affective contrast	0.04	0.20	0.03	0.838
		Cognitive contrast	0.33	0.20	0.21	0.112
		EC	0.20	0.36	0.13	0.588
		Age	0.07	0.07	0.11	0.329
		Support	0.83	0.24	0.55	0.001
	Interactions	Affective contrast* EC	-0.11	0.44	-0.04	0.803
		Cognitive contrast * EC	-0.93	0.42	-0.35	0.032
		Age * Support	0.54	0.20	0.38	0.009

Table 3. *Summary of Regression Analyses on mothers' Conflict Outcomes*

Model	Predictor	Predictor	*B*	*SE*	β	*p*
Outcome fairness, $R^2 = .12$, $F(3, 62) = 2.83$, $p < .05$						
	Intercept	Intercept	3.91	0.08		0.000
	Age	Age	-0.06	0.07	-0.10	0.397
	Support	Support	0.22	0.20	0.16	0.281
	Support * Age	Age * Support	0.50	0.18	0.40	0.008

Mothers' outcome fairness. The multiple regression for mothers' outcome fairness revealed only a similar interaction between adolescents' age and perceived maternal support (Table 3), which indicated that support predicted increased mothers' perceived outcome fairness for older adolescents ($B = .79$, $t = 2.17$, $p = .03$), but not for younger adolescents ($B = -.36$, $t = -1.88$, $p = .07$).

DISCUSSION

The aim of the present study was to examine common and unique effects of affective and cognitive empathy on behavior and perceived outcomes in adolescent-mother conflicts. We examined two competing hypotheses. Developmental research suggests that both empathy dimensions might decrease negative behavior and increase problem solving. In contrast, experimental research suggests that cognitive empathy, in particular, should decrease negative behavior, increase problem solving, and promote interpersonal sensitivity (examined here in terms of attentive listening), whereas affective empathy should promote compliance (Batson & Ahmad, 2001). Moreover, we expected cognitive empathy to promote fairer outcomes, and affective empathy to promote outcome satisfaction (Galinsky et al., 2008). We further predicted state-trait interactions, meaning that effects would be stronger for adolescents who scored lower in dispositional empathy. In line with predictions, we found that only the cognitive manipulation decreased negative behavior, and the two manipulations promoted different pro-social behaviors. Although both manipulations promoted outcome satisfaction, only cognitive empathy promoted perceived fairness of those outcomes. These findings were therefore more in line with prior experimental research than with developmental research, which found mostly common associations. We also found several state-trait interactions, which we detail below. These results provide the first causal evidence that affective and cognitive empathy manipulations promote different behaviors in adolescent-mother conflicts.

Effects on Observed Conflict Behavior

Our results indicated that cognitive empathy decreased negative behavior, and promoted listening for adolescents low in dispositional perspective taking. Previous research similarly found that cognitive empathy decreases aggressive responding and is associated with greater interpersonal sensitivity (Richardson et al., 1994). This suggests that adolescents attempted to take emotional distance from the conflict and gathered information about mothers' perspectives before acting. Affective empathy, instead, had a trending effect on problem solving. This is in line with findings that affective empathy promotes compliance and cooperation (Batson & Ahmad, 2001; Galinsky et al., 2008). Affective empathy thus might motivate adolescents to engage in active pro-social behavior to reduce parents' negative emotions.

The cognitive empathy manipulation promoted listening only for adolescents low in dispositional perspective taking, suggesting that they relied on listening as a strategy to gather information about their mothers' viewpoints. There are multiple pathways through which individuals can achieve empathic understanding of another's point of view, including reliance on prior experience, imagining the self in the other's position, and attention to others' verbal and nonverbal cues (Hawk, Fischer, & Van Kleef, 2011; Hoffman, 2000). Adolescents high in perspective taking habitually tend to imagine themselves in others' positions (Davis, 1983), and are sensitive to interpersonal cues (Richardson et al., 1994). They likely have clear working models of their mothers' perspectives that they can fall back on when instructed to consider their mother's viewpoints. Adolescents low in perspective taking, in response to the cognitive empathy manipulation, might attempt to compensate for their lack of preexisting insight by attentively listening to their mother. As dispositional perspective taking also predicted greater problem-solving, these results together suggest that adolescents who habitually take their mother's perspective might know how to anticipate her concerns and more readily negotiate a compromise. Low-perspective taking adolescents instead responded to the cognitive empathy manipulation by listening to their mothers, presumably to better understand her thoughts.

Effects on self-reported conflict outcomes

In partial support of predictions, we found that both affective and cognitive empathy promoted greater outcome satisfaction, but, as expected, only cognitive empathy promoted greater perceived outcome fairness. Previous experimental work has instead found that affective empathy increased satisfaction with negotiation processes, whereas cognitive empathy promoted fairer outcomes (Galinsky et al., 2008). Furthermore, state-trait interactions indicated that these effects were significant only for adolescents low in dispositional empathic concern. This might reflect a ceiling effect, as high-

empathic concern adolescents might already have been motivated to maintain a good relationship with mothers, regardless of the manipulations. After all, empathic concern is associated with agreeableness (Hawk et al., 2012) and greater sensitivity to oxytocin, a neurotransmitter and hormone that is central to affiliation motivation (Rodrigues, Saslow, Garcia, John, & Keltner, 2009). Low-empathic concern adolescents, on the other hand, might have benefitted more from an additional empathy induction.

Gender differences

We found that girls displayed more negative behavior towards mothers than boys, in line with previous research suggesting that mother-daughter conflicts are the most negative of all parent-adolescent gender combinations (Laursen & Collins, 1994; Chapter 4). Furthermore, we found that both the affective empathy manipulation and dispositional empathic concern promoted listening behavior for girls, but not for boys. Compared to boys, girls might more readily express their emotional responses in behavior. This is in line with gender intensification theory, which suggests that socialization pressures encourage girls to show more emotional and caring behavior than boys (Pettitt, 2004). For girls, then, listening attentively while their mother expresses her point of view might be a way to express empathic concern and maintain relationship quality. Together, these findings suggest that both positive and negative emotions might play a more central role in girls' conflict behaviors with mothers than boys'.

Associations with relationship quality

Our results indicated that relationship quality predicted both adolescents' behavior and perceptions of conflict outcomes. Although higher levels of maternal support and power both predicted less negative behavior towards mothers, they likely do so for different reasons. De Goede and colleagues (2009) found negative associations between support and conflict over time, which suggests that supportive adolescent-mother relationships are more harmonious. Maternal power, however, was positively associated with conflict frequency in that study. Perhaps adolescents who perceive their mothers as powerful display less negative behavior to avoid further escalating the situation. In the present study, adolescents who perceived their mother as powerful also responded to the affective empathy manipulation by listening more, whereas adolescents who perceived their mother to be low in power responded by listening less. This might reflect the well-established finding that in negotiations, powerful individuals are less considerate for those less powerful than vice versa (Keltner, Gruenfeld, & Anderson, 2003). Similarly, Branje and colleagues (2008) found that daughters took a more active role in conflicts with mothers when they perceived a smaller power discrepancy.

Support predicted increased outcome satisfaction and fairness for older adolescents. This effect was also found for mother-reported fairness, indicating that support becomes more strongly associated with outcome satisfaction and both respondents' fairness perceptions as adolescents mature. There is consensus in the literature that adolescents develop increasing autonomy with age, and that the adolescent-parent relationship gradually shifts from being hierarchical to more egalitarian (De Goede et al., 2009). Therefore, high levels of autonomy support for young adolescents might be premature; at a younger age, adolescents might benefit from clear boundaries. If mothers are supportive of older adolescents' autonomy, however, conflicts might proceed with less negativity, and lead to satisfying and mutually acceptable outcomes.

Strengths and Limitations

The present study had several strengths relative to previous research. Although the distinction between affective and cognitive empathy is widely acknowledged, this was the first attempt to study differential effects of these empathy dimensions in the context of real conflicts in actual relationships, rather than the discussion of hypothetical scenarios between strangers. The present study had high in-vivo ecological validity, as the discussions were conducted in participants' homes, rather than in a lab setting. Furthermore, the present study used video observations of actual conflict behaviors, whereas previous studies often relied exclusively on self-report (c.f. Chapter 4) or objectively measured whether a deal was reached (Galinsky et al., 2008). The inclusion of both adolescent and mother behaviors and self-reported outcomes allowed us to investigate whether manipulations affected adolescents' behavior and self-reports only, or mothers' as well. Finally, the inclusion of both measures of trait empathy and experimental inductions of state empathy allowed for the investigation of similarities and differences in the pattern of associations for dispositional versus situational empathy, and state-trait interactions.

Despite these benefits, the present study had several shortcomings which should be addressed in future research. The primary limitation is the sample size of 67 dyads, which did not allow for testing more complex models, such as examining whether conflict behaviors mediated the effects of the empathy manipulations, or including potential three-way interactions. Furthermore, the present study did not include fathers. This may limit generalizability of the results, because there are known differences between conflicts with mothers and fathers (Laursen & Collins, 1994). Another limitation is that withdrawal and compliance occurred too infrequently to analyze, despite the fact that adolescents typically report engaging in both of these behaviors using self-report measures (Chapter 4). A likely explanation for the low incidence of withdrawal is that dyads received explicit instructions to discuss the topic, which implicitly restricts

withdrawal behaviors such as walking away. Compliance, on the other hand, may be more of an outcome than a process variable in conflict discussions; adolescents who self-report engaging in compliance behaviors may refer back to discussions that *ended* in compliance, even if they did not engage in frequent compliance throughout.

Future Research Directions and Implications

The present study reveals several potential directions for future research. First of all, the pattern of associations we found for dispositional empathy differed from the effects of the empathy manipulations, which might suggest that these measures and manipulations relate to different aspects of empathy. Although both attempted to differentiate between affective and cognitive empathy, the convergent validity of these scales and manipulations remains to be investigated. Moreover, our manipulation check revealed that the affective empathy manipulation prompted an increase in spontaneous cognitions about mothers, whereas the reverse did not apply. Many theorists consider perspective taking to be a pathway to empathic concern (e.g., Decety, 2005). However, several studies have now reported spontaneous perspective taking in response to emotional stimuli (e.g., Gruen & Mendelsohn, 1986; Hawk et al., 2011), and one recent study found that development of empathic concern precedes and predicts the development of perspective taking in adolescence (Chapter 2). Together, these findings might suggest that a focus on emotions can also motivate individuals to engage in spontaneous perspective taking.

Several effects of our manipulations were significant only for low-empathy adolescents. Although previous studies successfully used similar manipulations (Batson & Ahmad, 2001; Galinsky et al., 2008), those studies focused on empathy for strangers or fictitious characters. By comparison, the long-standing interaction patterns between adolescents and mothers might be less affected. Future research should address boundary conditions that influence the relative strength of such manipulations. Alternatively, these interactions might reflect a ceiling effect similar to that found by Dadds and colleagues (2012), whose empathy intervention only benefited high-CU trait adolescents. If a threshold level of dispositional empathy is required for constructive conflict behavior and beneficial outcomes, explicit empathy inductions might only benefit those adolescents who fall below the threshold. This notion is supported by a recent study, which found that moderate- and high-empathy adolescents experienced equally low conflict with parents, whereas low-empathy adolescents reported elevated conflict, suggesting they fell below the threshold (Chapter 3). Future research might investigate whether empathy interventions, when applied to a broader sample, are particularly beneficial for low-empathy adolescents.

CONCLUSIONS

We set out to examine common and unique effects of affective and cognitive empathy manipulations on observed behavior and self-reported outcomes in the context of real adolescent-mother conflicts. Affective empathy motivated adolescents to engage in problem solving, but only cognitive empathy reduced negative behavior, and promoted other-oriented listening for adolescents low in dispositional perspective taking. For low-empathic concern adolescents, both manipulations promoted outcome satisfaction, but only cognitive empathy made adolescents feel that outcomes were also fairer, without mothers feeling like their outcomes were less fair. Over time, conflict frequency might decrease if adolescents are less likely to revisit conflict topics that they feel have been adequately addressed. The present study has important implications for many child- and family-based interventions that include empathy as a central construct, but do not distinguish between affective and cognitive empathy, or between trait and state empathy. These findings highlight the importance of defining, measuring, and promoting *specific* components of empathy. State-trait interactions indicated that low-empathy adolescents particularly benefited from the empathy manipulations. As even a minimal manipulation had significant effects on observed behavior and self-reported outcomes, a stronger structural intervention is likely to have marked benefits for low-empathy adolescents.

6

The cost of empathy: Parent-adolescent conflict predicts emotion dysregulation for highly empathic youth

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ABSTRACT

Empathy plays a key role in maintaining positive close relationships and engaging in pro-social conflict resolution. However, research has not addressed the potential emotional cost of high empathy, particularly when relationships are characterized by relatively more frequent conflict. The present six-year longitudinal study (N = 467) investigated whether empathy moderated over-time links between adolescents' conflict frequency with parents and their emotion dysregulation. Emotion dysregulation was operationalized at both the experiential level, using three weeks of mood diary data collected each year, and at the dispositional level, using annual self-report measures. In line with predictions, we found that more frequent adolescent-parent conflict predicted greater day-to-day mood variability and dispositional difficulties in emotion regulation for high-empathy adolescents, but not for average- and low-empathy adolescents. Mood variability and difficulties in emotion regulation, in turn, also predicted increased conflict with parents. These links were consistent regardless of empathy level. Moreover, our research presented a novel investigation of the interplay between experiential and dispositional emotion dysregulation. Results suggested a dysregulation consolidation process, whereby day-to-day mood variability predicted increasing dispositional difficulties in emotion regulation over time. Furthermore, moderated mediational effects revealed that conflict might be a driver of the dysregulation consolidation process for high-empathy adolescents. Finally, emotion dysregulation played a role in over-time conflict maintenance for high-empathy adolescents. This suggests that, through emotion dysregulation, high empathy may paradoxically also play a role in maintaining negative adolescent-parent interactions. Our research indicates that high empathy comes at a cost when close relationships are characterized by greater negativity.
Keywords: empathy, conflict, emotion regulation, mood variability, longitudinal

THE COST OF EMPATHY: PARENT-ADOLESCENT CONFLICT PREDICTS EMOTION DYSREGULATION FOR HIGHLY EMPATHIC YOUTH

Empathy is widely considered to be an adaptive trait that facilitates social bonding and helps people maintain positive close relationships (Davis & Oathout, 1987; Hoffman, 2000; McCullough, Worthington Jr., & Rachal, 1997). A substantial body of work has shown that empathy is associated with pro-social interpersonal behavior and outcomes across different relationship contexts (Eisenberg & Miller, 1987). In adolescent-parent relationships, as well, greater empathy is associated with lower average conflict frequency and with adolescents' increased pro-social conflict behavior towards parents (Chapters 3-5). However, relatively little research has addressed the potential downsides of high empathy. In the present article, we argue that highly empathic adolescents might be more susceptible to affective disturbance and emotion dysregulation when relationships with their parents are characterized by relatively more frequent conflict. To test this hypothesis, we investigated whether over-time predictive effects from adolescent-parent conflict frequency to emotion dysregulation were stronger for high-empathy adolescents, compared to average- and low-empathy adolescents. We investigated emotion dysregulation both at the experiential level and at the dispositional level. While there is broad consensus about the pro-social, interpersonal benefits of empathy for adolescents, this research represents the first investigation of the potential costs related to high empathy.

Empathy is a multidimensional construct, which includes the affective tendency to experience *empathic concern* for the emotions of others, as well as the cognitive ability to engage in *perspective taking* and consider others' points of view (Davis, 1983). Across different relationship contexts, higher empathy has been found to hold correlational and causal associations with decreased aggression and greater pro-social conflict resolution behaviors in college-aged samples (Galinsky, Maddux, Gilin, & White, 2008; Miller & Eisenberg, 1988; Richardson, Hammock, Smith, Gardner, & Signo, 1994). Among adolescents, higher empathy is correlated with constructive conflict resolution with peers (De Wied, Branje, & Meeus, 2007). Moreover, recent experimental research has demonstrated that both experimentally induced and naturally developing empathy are associated with adolescents' pro-social conflict behavior towards parents (Chapters 4 and 5). In general, higher empathy is thus associated with lower mean levels of conflict frequency, as well as more pro-social conflict behaviors in adolescent-parent relationships.

One key way in which high empathy likely facilitates effective conflict resolution and positive relationship maintenance is through greater sensitivity to interaction partners' emotions. According to many theorists, shared or complementary emotions are at the

heart of the empathic experience (Eisenberg et al., 1994; Hoffman, 2000; Preston & De Waal, 2002). These emotions can be fostered either through observation of others' emotional states and emotional contagion, or through perspective taking and mental simulation of others' experiences and points of view (Hawk, Fischer, & Van Kleef, 2011; Keysers & Gazzola, 2007). Indeed, research suggests that highly empathic individuals are more emotionally affected in social interactions. For example, high-empathy individuals mimic angry facial expressions, even when presented at the pre-conscious level (Sonnby-Borgström, 2002). Low-empathy individuals, on the other hand, show the opposite reaction, smiling in response to angry faces. The author suggested that this response might inhibit the contagion of negative emotions. In another study, experimentally induced empathy was shown to increase sensitivity to partners' anger in conflicts (Richardson, Green, & Lago, 1998). Finally, high empathy has been linked to the tendency to experience greater guilt in the aftermath of conflicts (Leith & Baumeister, 1998). These findings suggest that high-empathy individuals are generally more sensitive and emotionally reactive to social and emotional stimuli, and particularly to signs of conflict.

A recent longitudinal investigation conducted on the same sample as the present study offered preliminary evidence for the notion that high-empathy adolescents are more sensitive to the detection of disagreement with parents. Specifically, high-empathy adolescents' perceptions of conflict frequency were in line with their parents' reports throughout adolescence (Chapter 3). Low- and average-empathy adolescents, on the other hand, under-reported conflict frequency in comparison to both parents, suggesting they might be relatively more "conflict-blind". The interpretation that these differences are a manifestation of differences in conflict sensitivity would be strengthened, however, if high-empathy adolescents' conflict perceptions were also more strongly associated with emotional outcomes. Specifically, high empathy might become a liability when relationships with parents are characterized by relatively more frequent conflict, as conflict-related empathic emotions might more strongly affect these adolescents' moods and tax their emotion regulation abilities.

Adolescent-Parent Conflict and Emotion Dysregulation

Adolescence is a period characterized by intense and frequently changing emotions (Silk, Morris, & Steinberg, 2003), because age-related social and physical changes pose new challenges to adolescents' emotion regulation abilities (Gross, 2013; Larson, Moneta, Richards, & Wilson, 2002; Zimmermann & Iwanski, 2014). The term "emotion dysregulation" refers to maladaptive patterns of emotion regulation (Cole, Hall, & Hajal, 2008). Emotion dysregulation has been operationalized at both the experiential level and the dispositional level. At the experiential level, recent years have seen a

surge in research using mood diary or experience sampling methods to capture day-to-day mood variability (e.g., see: Houben, Van Den Noortgate, & Kuppens, 2015). At the dispositional level, questionnaire measures provide more global indications of individuals' dispositional difficulties in emotion regulation (Gratz & Roemer, 2004; Neumann, van Lier, Gratz, & Koot, 2010). Experiential and dispositional measures of emotion dysregulation are both known to be associated with, and predictive of, adolescents' decreased well-being, lower-quality close relationships, and internalizing and externalizing behavior (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Cole et al., 2008; Eisenberg & Fabes, 1992; Gross & John, 2003; Gross, 2013; Houben et al., 2015). Therefore, it is important to identify risk- and protective factors related to these aspects of emotion dysregulation.

Adolescent-parent conflict is one factor likely to be related to adolescents' emotion dysregulation. Conflict is known to be a source of emotional variability (Bolger, Davis, & Rafaeli, 2003). Furthermore, mood diary studies have revealed that mothers' harsh parenting incited more anger in their children (Downey, Purdie, & Schaffer-Neitz, 1999), and that conflict with parents promoted adolescents' emotional distress (Chung, Flook, & Fuligni, 2009). Finally, a systematic review suggested that negative parenting behavior is associated with children's poorer dispositional emotion regulation (Morris, Silk, Steinberg, Myers, & Robinson, 2007). These studies thus suggest that more frequent adolescent-parent conflict contributes to adolescents' mood variability and, in the long run, difficulties in emotion regulation. Moreover, such associations might be stronger for high-empathy adolescents, because of the greater interpersonal sensitivity and reactivity associated with higher empathy (Nezlek, Feist, Wilson, & Plesko, 2001; Richardson et al., 1998; Sonnby-Borgström, 2002). We therefore hypothesized that adolescent-parent conflict would predict increases in day-to-day mood variability and difficulties in emotion regulation more strongly for high-empathy adolescents than for average- or low-empathy adolescents.

Although conflict is thus likely to predict emotion dysregulation, greater dysregulation might also predict increased conflict with parents. Emotion regulation is considered to be an important factor in conflict resolution (Gross, 2013), which suggests conflicts might persist or increase if adolescents have difficulty regulating their emotions. In support of this argument, one longitudinal study found that adolescents' day-to-day mood variability predicted increased negative interactions with parents over time (Maciejewski et al., 2014). Another study reported bi-directional time-lagged associations between adolescents' difficulties in emotion regulation and maternal criticism (Skripkauskaite et al., 2015). Based on these findings, we hypothesized that adolescents' emotion dysregulation would also predict greater adolescent-parent conflict frequency over time. However, we did not expect these links to be moderated

by empathy, as we reasoned that adolescents' emotion dysregulation would exert similar effects on negative adolescent-parent interactions, regardless of the source of dysregulation.

The longitudinal interplay between experiential and dispositional dysregulation

Although emotion dysregulation has been operationalized at both the experiential level of day-to-day mood variability and the level of dispositional difficulties in emotion regulation, research to date has not investigated the over-time interplay between these two levels of measurement. Emotion regulation is a costly, cognitively demanding process (Richards & Gross, 1999). According to the strength model of self-regulation, each regulatory action temporarily depletes mental resources available for regulation across various domains (Baumeister, Vohs, & Tice, 2007). Adolescents experiencing greater day-to-day mood variability will likely have to draw on these regulatory resources more frequently. This might, over time, deplete adolescents' regulatory resources, leading to greater dispositional difficulties in emotion regulation, even outside of the adolescent-parent relationship context. We therefore proposed a *dysregulation consolidation* hypothesis, which holds that greater day-to-day mood variability would, over time, become consolidated into increased dispositional difficulties in emotion regulation. Although it was not a focus of our study, greater dispositional difficulties in emotion regulation might also predict increased mood variability over time. For example, children who report greater difficulties in emotion regulation might, over time, come to experience greater mood fluctuations, as everyday life events tax their regulatory abilities. We therefore explored the potential for bidirectional effects.

Indirect effects

We have proposed that elevated adolescent-parent conflict would predict greater mood variability, and that mood variability would in turn predict greater dispositional difficulties in emotion regulation. If this is indeed the case, then conflict will likely have indirect effects on difficulties in emotion regulation, mediated by mood variability. Moreover, as we argued that links between conflict frequency and mood variability would be moderated by adolescents' empathy, this mediational effect is also likely to be moderated by empathy. We therefore hypothesized that indirect effects from conflict frequency to difficulties in emotion regulation, mediated by mood variability, would be especially prominent for high-empathy adolescents, as compared to average- and low-empathy adolescents. Such moderated mediation could explain the process by which high-empathy adolescents, who are generally found to have better emotion regulation

skills (Eisenberg, 2000), might develop greater difficulties in emotion regulation over time.

Finally, we investigated whether emotion dysregulation played a mediating role in maintaining the relative stability of conflict frequency over time. As adolescents' elevated emotion dysregulation is known to predict parents' greater negativity over time (Maciejewski et al., 2014; Skripkauskaite et al., 2015), the dysregulation adolescents experience as a result of frequent conflict might, in turn, lead to further conflict with parents later on. We therefore proposed a *conflict maintenance hypothesis*, namely that emotion dysregulation would mediate the over-time stability of adolescent-parent conflict frequency. Again, as we hypothesized that links from conflict to emotion dysregulation would be stronger for high-empathy adolescents, we also predicted that these conflict maintenance effects would be especially prominent for high-empathy adolescents, as compared to average- and low-empathy adolescents. This moderated mediational effect could thus explain why high-empathy adolescents, who generally display more prosocial conflict resolution behaviors towards parents (Chapter 4), might nevertheless experience relatively stable levels of adolescent-parent conflict over time.

The Present Study

The present six-year longitudinal study set out to investigate the moderating role of empathy on the interplay between adolescent-parent conflict and adolescents' experiential and dispositional emotion dysregulation. Our study had five goals (graphically depicted in Figure 1). The first goal was to investigate whether more frequent adolescent-parent conflict predicted adolescents' increased day-to-day mood variability (Hypothesis 1a) and difficulties in emotion regulation (Hypothesis 1b) over time. Based on the greater social sensitivity and emotional reactivity associated with high empathy, we expected these effects to be stronger for high-empathy adolescents than for average- and low-empathy adolescents. Second, we set out to investigate whether greater day-to-day mood variability (Hypothesis 2a) and difficulties in emotion regulation (Hypothesis 2b) elicited greater conflict with parents over time. We did not expect these links to be moderated by empathy. Although many studies have investigated pro-social effects of empathy on conflict resolution, the present study contributes to the literature by investigating potential emotional costs of high empathy. Regarding the over-time interplay between experiential and dispositional emotion dysregulation, we proposed a *dysregulation consolidation* hypothesis, according to which day-to-day mood variability would predict greater dispositional difficulties in emotion regulation over time (Hypothesis 3). This represents the first investigation of the longitudinal

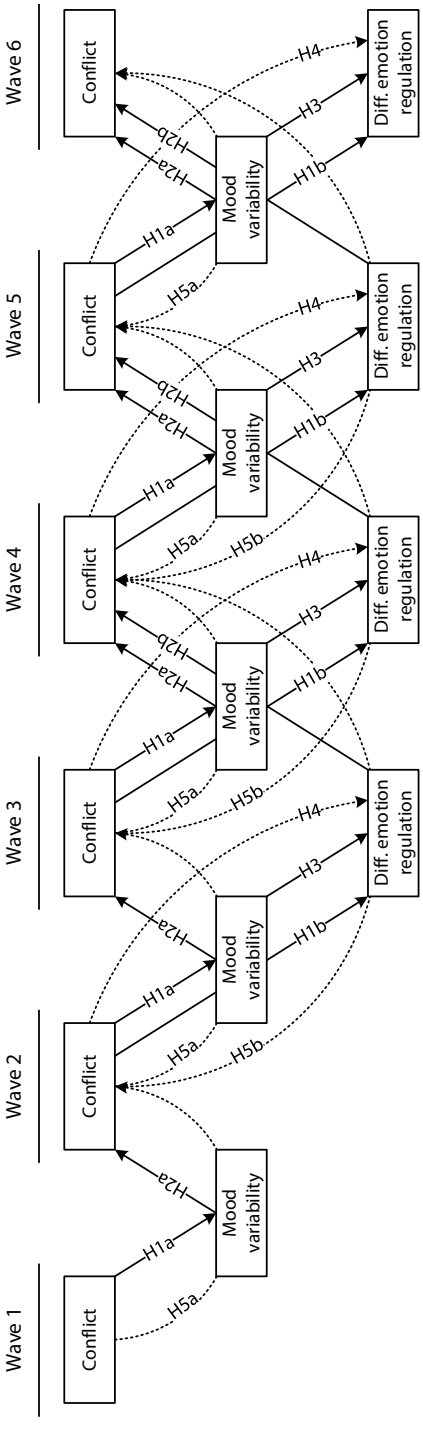

Figure 1. *Graphical overview of hypotheses*
Note. Label names refer to hypothesis (H) numbers. Straight, solid arrows represent direct effects. Curved, dotted arrows represent indirect effects.

interplay between experiential and dispositional indices of emotion dysregulation, as previous studies of emotion dysregulation have tended to focus on a single level of analysis. Moreover, we proposed that mood variability would play a mediating role in the over-time links between conflict frequency and difficulties in emotion regulation (Hypothesis 4). Because we hypothesized that links from conflict to mood variability and difficulties in emotion regulation would be moderated by empathy, we predicted that these indirect effects would be especially prominent for high-empathy adolescents. Finally, according to the *conflict maintenance* hypothesis, we predicted that mood variability (Hypothesis 5a) and difficulties in emotion regulation (Hypothesis 5b) would both mediate the stability of conflict over time. Again, because we hypothesized that links from conflict to mood variability and difficulties in emotion regulation would be moderated by empathy, we predicted that these indirect effects would be especially prominent for high-empathy adolescents. Such mediational effects might elucidate why relatively higher levels of conflict persist over time, even for high-empathy adolescents, considering that earlier literature has consistently suggested that such youths typically have better conflict resolution abilities and experience more harmonious family relationships.

METHODS

Participants

Participants were 467[1] Dutch adolescents (266 boys; age at T1: M =13.03, SD = 0.46) enrolled in the longitudinal RADAR study. Adolescents were all Dutch nationals, although a minority (4.28%, 1 missing) indicated having a different ethnic background. Based on parents' reports of employment status and criteria of the Dutch census (Statistics-Netherlands, 1993), most of adolescents' families were classified as medium- to high-SES (10% low-SES).

Procedure and design

The RADAR sample was recruited from randomly selected schools in the province of Utrecht, and four main cities in The Netherlands. Of 1,081 families contacted, 470 refused and 114 failed to produce informed consent. From 2006 to 2012, trained interviewers conducted six annual home visits to collect questionnaire data on adolescents' dispositional empathy and conflict frequency with parents. Adolescent-perceived conflict frequency was measured during each of these visits. From 2008 (age 15), dispositional difficulties in emotion regulation were also measured. For the entire

1 Thirty adolescents were omitted from the sample, because it was not possible to estimate their empathy class membership due to insufficient data.

duration of the study, adolescents additionally completed three weeks of daily mood diaries (5 sequential days, i.e. Monday through Friday). These three diary assessments were equally spaced within the intervening year between two home visits. E-mail invitations were sent each day at approximately 5:30 pm. To reduce attrition, email reminders, text messages, and phone calls were used. Adolescents received financial compensation for their participation in annual measurements (approximately $17 USD), and additional compensation for each internet assessment (approximately $13 USD).

Measures

Empathy. We assessed adolescents' affective empathic concern ("I am often concerned about people less fortunate than me") and perspective taking ("Sometimes I try to understand my friends better by imagining how they see things") using Davis' (1983) Interpersonal Reactivity Index (IRI). Each subscale contains seven items, rated on a 5-point Likert scale (0 = *Doesn't describe me at all*; 4 = *Describes me very well*). Previous research reported adequate reliability and external validity for the Dutch IRI (Hawk et al., 2012). In addition to Cronbach's alpha, we will report McDonald's omega, because Cronbach's alpha is known to severely underestimate test reliability, particularly when a scale is not strictly unidimensional (see: Revelle & Zinbarg, 2009). Omega reflects the proportion of test variance due to all common factors. Reliability of empathic concern was acceptable in Wave 1 ($\alpha = .62$, $\omega_t = .70$) and good in all other waves (αs between .72 and .76, ω_t between .81 and .85). Reliability for perspective taking was acceptable in Waves 1 and 2 (αs = .60 and .67, $\omega_t = .70$ and .78) and good in all other waves (αs between .75 and .78, ω_t between .87 and .82).

Empathy as a moderator. In previous research using the same sample as the present study (Chapter 3), we used latent class growth analysis to identify three groups, or "classes", of adolescents, based on their developmental trajectories of empathic concern and perspective taking, whilst controlling for known gender differences in empathy (see Van der Graaff, De Wied, Hawk, Van Lier, & Meeus, 2014). We found that adolescents' developmental trajectories of empathy showed substantial heterogeneity in terms of levels and development over time. In our previous work, we identified one class of "high-empathy" adolescents with high, stable empathic concern and high-increasing perspective taking ($N = 105$, 29% girls), an "average-empathy" class with stable empathic concern and slightly increasing perspective taking ($N = 283$, 42% girls), and a "low-empathy" class ($N = 79$, 63% girls), whose empathic concern and perspective taking decreased from age 13 to 16, and subsequently showed a slight recovery. In the present study, we used this empathy classification as the moderator in multi-group analysis.

Perceived conflict frequency. Adolescents reported on their perceived frequency of conflict with parents regarding 10 common topics with each parent separately (e.g.,

"Autonomy, personal freedom", "school/work", "criticism or teasing"), using Laursen's (1993) Interpersonal Conflict Questionnaire (ICQ) on 5-point Likert scales (1 = Never; 5 = Often). The internal consistency of adolescents' reports of conflict with both parents taken together was excellent, indicating they could be used as a single index of perceived conflict frequency (αs between .90 and .92, ω_ts between .92 and .94).

Day-to-day mood variability. Adolescents completed an online daily mood diary on five consecutive days, three times a year. Based on the Electronic Mood Device (Hoeksma et al., 2000), adolescents reported their levels of happiness, anger, anxiety, and sadness on 9-point Likert scales, ranging from "not at all" to "very much", using three dictionary synonyms per emotion which were averaged into daily mood scores. From these time series data, we derived indices of day-to-day mood variability for each emotion, using the mean squared successive distances (MSSD) between reports on consecutive days. This is a well-validated method, which captures both day-to-day variability and temporal dependency in the data (Jahng, Wood, & Trull, 2008). We averaged the resulting MSSD scores over the three measurement weeks within each year, resulting in one index of variability per emotion per year (Neumann, van Lier, Frijns, Meeus, & Koot, 2011). Because mood variability has been linked to maladjustment, irrespective of mood valence (although effects are typically smaller for positive mood variability, they are in the same direction as effects for negative mood variability, see: Gruber, Kogan, Quoidbach, & Mauss, 2013; Houben et al., 2015), and because we had no hypotheses about specific emotions, we calculated day-to-day mood variability as the mean of variability across the four emotions. Reliability ranged from good to excellent (αs between .81and .93, ωt between .89 and .95).

Difficulties in emotion regulation. From age 15 to 18, we administered the difficulty in emotion regulation scale (DERS, Gratz & Roemer, 2004). This 36-item scale distinguishes six aspects of difficulties in emotion regulation, including lack of emotional awareness ("I pay attention to how I feel", reverse coded), lack of emotional clarity ("I have difficulty making sense out of my feelings"), impulse control difficulties ("When I'm upset, I become out of control"), difficulties engaging in goal-directed behavior ("When I'm upset, I have difficulty thinking about anything else"), nonacceptance of emotional responses ("When I'm upset, I feel guilty for feeling that way"), and limited access to emotion regulation strategies ("When I'm upset, I start to feel very bad about myself"). Reliability analyses indicated that items measuring lack of emotional awareness correlated low or negatively with the total scale, and diminished Cronbach's alpha. Exploratory factor analysis with Oblimin rotation similarly indicated that two factors explained most of the variance (explained variance: 38% and 11%, Eigenvalues 12.16 and 3.62). The first factor contained all items except those related to lack of emotional awareness, and the second factor contained all items related to lack of emotional awareness. We therefore omitted

the items related to emotional awareness from the total score for difficulties in emotion regulation, with excellent reliability (αs between .95 and .96, ωt between .96 and .97).

Strategy of analyses

We used cross-lagged panel modeling (Selig & Little, 2012) to investigate over-time predictive effects between conflict frequency, day-to-day mood variability, and difficulties in emotion regulation. To derive the best fitting, most parsimonious models, we used multigroup analyses with sequential constraints (Kline, 2011). First, we estimated a single-group path model with autoregressive and cross-lagged paths, as well as within-time correlations for concurrent measurements (Model 1, see Table 1). Then we introduced empathy (high, average, low) as a moderator in a multi-group model, with parameters free to vary between groups (Model 2). We used Wald χ^2 tests to evaluate whether model fit improved by constraining the same parameters over time and between groups. If two models fit the data approximately equally well, we retained the most parsimonious model. We tested our hypotheses on the resulting final model (Model 3), displayed in Figure 2. Hypotheses involving moderation were investigated using Wald tests, and hypotheses involving mediation were investigated using indirect effects with bootstrapped standard errors (10,000 resamples). Attrition for the annual measurements ranged from 0.40% at age 13 to 14.50% at age 18, and attrition for the daily mood diaries ranged from 3.40% to 23.40%. These data were missing completely at random, Little's (1988) MCAR test $\chi^2(2179) = 2124.07$, $p = .80$. Therefore, full information maximum likelihood estimation (FIML) was warranted to make use of all available information without estimating missing data. All analyses were conducted in Mplus Version 7 (Muthén & Muthén, 1998–2012). Per the developers' recommendation, we used robust maximum-likelihood estimation, which yields a Satorra-Bentler scaled χ^2 value to account for potential non-normality (Satorra, 2000). Model fit was evaluated using the Comparative Fit Index and Tucker–Lewis Index (CFI and TLI, acceptable fit = 0.90-0.95, Bentler & Bonett, 1980), and Root Mean Square Error of Approximation (RMSEA, close fit = 0.01-0.06, acceptable fit = 0.06-0.08, Browne & Cudeck, 1993).

Table 1. *Model fit indices*

Model	AIC	Adj BIC	χ^2	df	scf	RMSEA	CFI	TLI
Model 1	10063.11	10137.60	183.49	63	1.207	0.062	0.945	0.909
Model 2	10008.90	10210.21	482.78	198	1.065	0.096	0.886	0.820
Model 3	9830.35	9872.17	567.78	362	1.169	0.060	0.919	0.929

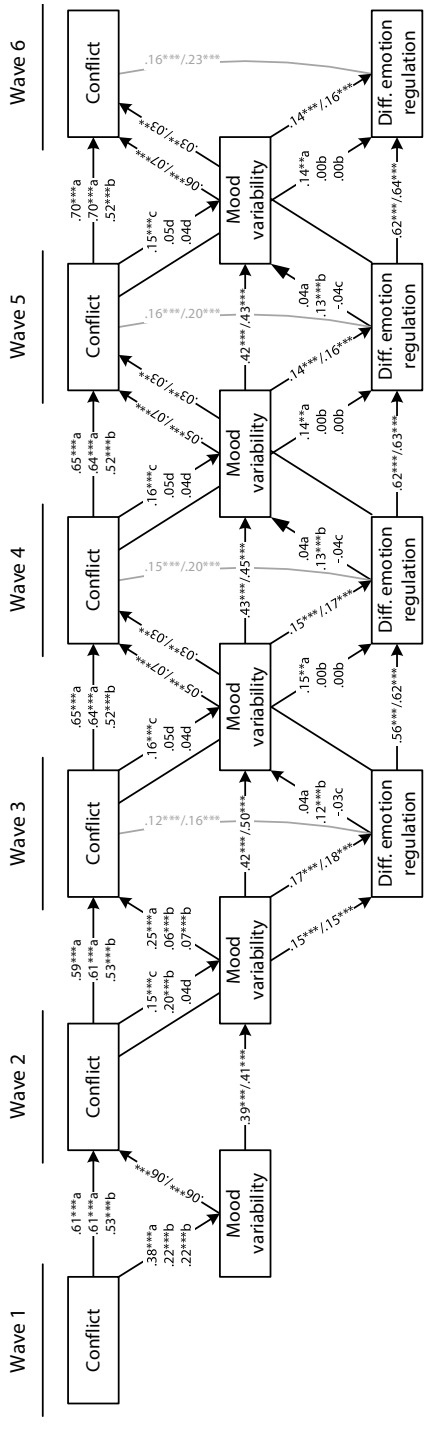

Figure 2. *Final multi-group cross-lagged panel model*
Note. Coefficients constrained over time and between empathy classes are indicated as a range (e.g., .03**/.03**). In case of significant differences between empathy classes, coefficients are printed on separate lines (from top to bottom: high, average, and low empathy). Constraints between groups and/or over time are identified by lowercase letters. Straight black arrows represent direct effects, gray curved lines represent correlated residuals

RESULTS

Descriptive statistics

Descriptive statistics for conflict frequency, mood variability and difficulties in emotion regulation are presented by age and empathy class in Table 2. We used repeated measures GLM to explore mean-level differences by empathy class and age. Empathy class and age did not interact for any of the variables. Regarding mean differences between empathy classes, conflict frequency was significantly higher for low-empathy adolescents compared to average- and high-empathy adolescents, $F(2, 367) = 8.86$, $p < .001$. High and average empathy adolescents did not differ significantly in terms of conflict frequency. Furthermore, mood variability was significantly greater for low-empathy adolescents than for average-empathy adolescents, $F(2, 353) = 3.17$, $p = .04$, with no further significant between-class differences. Finally, there were no significant between-class differences in difficulties in emotion regulation. Regarding mean-level differences based on age, there were significant age differences in conflict frequency, $F(5, 1835) = 10.12$, $p < .001$. Post-hoc tests suggested significant linear and cubic change over time. There were also age differences in mood variability, $F(4, 1412) = 10.39$, $p < .001$, and post-hoc tests suggested significant linear change over time. There were no significant age differences in difficulties in difficulties in emotion regulation.

Table 2. *Descriptive statistics by empathy class and age*

Conflict	**Wave 1**	**Wave 2**	**Wave 3**	**Wave 4**	**Wave 5**	**Wave 6**
Overall	2.23 (0.64)	2.06 (0.65)	2.09 (0.68)	2.08 (0.65)	2.02 (0.67)	1.95 (0.63)
High	2.10 (0.63)	1.92 (0.62)	2.01 (0.72)	1.98 (0.72)	1.95 (0.71)	1.90 (0.66)
Avg	2.21 (0.63)	2.06 (0.64)	2.09 (0.66)	2.07 (0.64)	1.97 (0.64)	1.94 (0.64)
Low	2.46 (0.65)	2.28 (0.65)	2.22 (0.70)	2.23 (0.61)	2.27 (0.69)	2.06 (0.57)
Mood variability						
Overall	3.67 (0.60)	4.31 (0.64)	3.01 (0.53)	4.08 (0.56)	3.50 (0.55)	
High	0.81 (0.65)	0.71 (0.58)	0.69 (0.57)	0.67 (0.61)	0.68 (0.60)	
Avg	0.75 (0.58)	0.78 (0.65)	0.69 (0.51)	0.64 (0.52)	0.60 (0.50)	
Low	0.96 (0.60)	0.97 (0.67)	0.80 (0.57)	0.71 (0.60)	0.73 (0.62)	
Difficulties in emotion regulation						
Overall			1.99 (0.68)	2.00 (0.70)	2.00 (0.69)	2.05 (0.73)
High			1.96 (0.74)	1.97 (0.76)	1.95 (0.72)	1.96 (0.75)
Avg			1.99 (0.67)	1.98 (0.66)	1.97 (0.64)	2.03 (0.69)
Low			2.03 (0.64)	2.10 (0.73)	2.20 (0.81)	2.20 (0.80)

Note. Means and *SD* (in parentheses) for overall sample and by empathy group (high, average, and low).

Links from conflict frequency to emotion dysregulation, moderated by empathy

According to Hypotheses 1a and 1b (see Figure 1), we predicted that cross-lagged effects from conflict frequency to mood variability and difficulties in emotion regulation would be stronger for high-empathy adolescents compared to average and low-empathy adolescents. However, cross-lagged effects are likely to be inflated for all empathy classes in the first wave that mood variability and difficulties in emotion regulation were included in the model, due to the absence of an autoregressive effect controlling for prior levels. The first crosspaths thus include both covariance due to time-lagged effects, and any pre-existing covariance.

Mood variability. In support of Hypothesis 1a, paths from conflict frequency to mood variability were significantly greater for high-empathy adolescents than for average-and low-empathy adolescents, both in the Wave 1, $\chi^2(1) = 25.46$, $p < .001$, and all other waves except Wave 2, $\chi^2(1) = 13.76$, $p < .001$. In Wave 2, crosspaths did not differ significantly between high- and average-empathy adolescents, $\chi^2(1) = 3.58$, $p = .058$, and the crosspath for average-empathy adolescents differed significantly from low-empathy adolescents, $\chi^2(1) = 47.95$, $p < .001$. Overall, in support of Hypothesis 1a, relatively greater conflict frequency predicted significantly greater increases in mood variability for high-empathy adolescents than for average- and low-empathy adolescents in all waves except Waves 1 and 2, where crosspaths were equal for high- and average-empathy adolescents.

Difficulties in emotion regulation. In support of Hypothesis 1b, relatively more frequent conflict predicted significantly stronger increases in difficulties in emotion regulation for high-empathy adolescents than for average- and low-empathy adolescents in all waves except the first, $\chi^2(1) = 12.37$, $p < .001$.

Links from emotion dysregulation to conflict frequency

According to Hypotheses 2a and 2b, we predicted that greater mood variability and difficulties in emotion regulation would predict increased conflict frequency over time. In full support of these hypotheses, both mood variability and difficulties in emotion regulation predicted increased conflict with parents over time, and these effects were largely consistent over time and across empathy classes (see Figure 2). The only exception was that, in Wave 2, mood variability predicted greater conflict for high-empathy adolescents than for average and low-empathy adolescents, $\chi^2(1) = 10.83$, $p < .001$.

Links between mood variability and difficulties in emotion regulation

We predicted that greater day-to-day mood variability would, over time, be consolidated into dispositional difficulties in emotion regulation (Hypothesis 3). In full support of this hypothesis, mood variability predicted increased difficulties in emotion regulation over time, and this effect was consistent over time and across empathy classes (Figure 2). Although we did not formulate hypotheses about effects in the reverse direction, analyses revealed that greater dispositional difficulties in emotion regulation predicted increased day-to-day mood variability, but only for average-empathy adolescents. These effects were consistent over time. Although these paths were non-significant for high and low-empathy adolescents, they differed significantly between all three empathy classes, $\chi^2(1)$s > 6.37, *p*s < .01.

Indirect effects

According to the dysregulation consolidation hypothesis, we predicted that mood variability would mediate the aforementioned links between conflict frequency and difficulties in emotion regulation, particularly for high-empathy adolescents (Hypothesis 4). In support of this hypothesis, we found that effects from conflict to difficulties in emotion regulation were partially mediated by day-to-day mood variability across all waves for high-empathy adolescents, indirect effect βs = .03, *p*s = .001. For average-empathy adolescents, this mediational effect was also significant in the first wave that difficulties in emotion regulation were included, β = .04, *p* < .001, but not in other waves. However, this indirect effect for average-empathy adolescents should be interpreted with caution, because paths from mood variability to difficulties in emotion regulation are inflated in the first wave. Thus, in support of Hypothesis 4, we found that predictive effects of conflict on dispositional difficulties in emotion regulation were mediated by day-to-day mood variability for high-empathy adolescents, suggesting that conflict might be a driver of the dysregulation consolidation process for these youths.

Finally, we hypothesized that emotion dysregulation would play a role in conflict maintenance over time, particularly for high-empathy adolescents. To test this hypothesis, we investigated whether mood variability (Hypothesis 5a) and difficulties in emotion regulation (Hypothesis 5b) mediated the over-time stability of conflict frequency, particularly for high-empathy adolescents. In support of Hypothesis 5a, we found that the over-time stability of conflict was partially mediated by mood variability across all waves for high-empathy adolescents, with βs for the indirect effect between .01 and .04, *p*s between .01 and .002. This indirect effect was also significant in the first two waves for average-empathy adolescents, and in the first wave for low-empathy adolescents, βs = .01, *p*s = .003. However, these indirect effects in the first wave are likely to be inflated due to the absence of autoregressive paths.

Difficulties in emotion regulation. In support of Hypothesis 5b, we found that the over-time stability of conflict was also partially mediated by difficulties in emotion regulation across all waves for high-empathy adolescents, with βs for the indirect effect between .01 and .04, *p*s between .01 and .003. This indirect effect was also significant for average- and low-empathy adolescents in the first wave that difficulties in emotion regulation were included in the model, βs = .004, *p*s = .03.

DISCUSSION

The aim of the present study was to investigate whether adolescent empathy plays a moderating role in the longitudinal interplay between conflict with parents and emotion dysregulation. In full support of Hypothesis 1a (see Figure 1), we found that more frequent adolescent-parent conflict predicted greater day-to-day mood variability, and these effects were significantly stronger for high-empathy adolescents than for average- or low-empathy adolescents. Similarly, in line with Hypothesis 1b, greater conflict frequency predicted greater dispositional difficulties in emotion regulation only for high-empathy adolescents. In line with Hypotheses 2a and 2b, greater day-to-day mood variability and difficulties in emotion regulation, in turn, also predicted increased conflict frequency with parents over time, and these links were consistent for adolescents in all empathy classes. In support Hypothesis 3, day-to-day mood variability predicted increasing dispositional difficulties in emotion regulation over time, suggesting that fluctuations in daily mood became consolidated into dispositional emotion regulation problems over time. Furthermore, in line with Hypothesis 4, day-to-day mood variability mediated links between conflict frequency and dispositional difficulties in emotion regulation for high-empathy adolescents. This suggests that, for high-empathy adolescents, conflict might be a driver of the dysregulation consolidation process. Finally, in line with Hypotheses 5a and 5b, day-to-day mood variability and dispositional difficulties in emotion regulation mediated the over-time stability of conflict for high-empathy adolescents, which suggests that emotion dysregulation played a role in conflict maintenance over time.

The downsides of high empathy

Previous research has shown that empathy is associated with reduced conflict, and promotes positive conflict behavior and outcomes in adolescent-parent relationships. The present study contributes to that literature by demonstrating that high empathy is not exclusively associated with beneficial outcomes; indeed, our results suggest that high-empathy adolescents are susceptible to greater emotion dysregulation when relationships with parents are characterized by relatively more frequent conflict. The

robustness of these findings is highlighted by the fact that, within a large sample, these findings were consistent over time, and across two dependent variables, which were measured in different ways and at different assessment occasions. Moreover, these results cannot be explained by mean-level differences between the empathy classes. Analysis of the descriptive statistics revealed that high-empathy adolescents did not differ significantly from average-empathy adolescents in terms of any of the variables under study. Thus, although high and average-empathy adolescents had similar mean levels of conflict and emotion dysregulation, the processes linking these variables differed significantly for high-empathy adolescents. This further supports our interpretation that high-empathy adolescents' greater interpersonal sensitivity renders them more susceptible to conflict-related emotion dysregulation.

The finding that conflict frequency predicted greater emotion dysregulation for high-empathy adolescents suggests that high-empathy might involve a trade-off: On the one hand, the interpersonal sensitivity associated with high empathy may enable adolescents to detect even minor disagreements with parents and address them adequately (Chapter 3). On the other hand, the same sensitivity may leave them vulnerable to emotion dysregulation when conflicts occur frequently. Conversely, low-empathy adolescents may be less adept at addressing conflicts constructively (Chapters 4 and 5). However, their low empathy may serve as a buffer when conflicts occur relatively more frequently, protecting them from any further increase in emotion dysregulation in connection with these conflicts. This reasoning is in line with the notion that even apparently negative characteristics, such as avoidant attachment, may confer benefits to children who are born into unpredictable and unsupportive environments (Ein-Dor, Mikulincer, Doron, & Shaver, 2010). Future research might therefore investigate whether adverse experiences in particular developmental periods lead children to develop poorer empathic abilities, which in turn serve as a partial buffer against further adverse emotional consequences resulting from conflict with parents in adolescence.

These findings have implications for research and practice, as they highlight the importance of considering the interplay between empathy and the relationship context. Although empathy is generally associated with pro-social behaviors, our findings reveal that high-empathy individuals may also experience more aversive emotional consequences when close relationships are characterized by higher negativity. Many interventions currently exist that aim to promote adolescents' empathy (see: Feshbach & Feshbach, 2011). Based on prior research, one might expect such interventions to be beneficial for reducing adolescent-parent conflict. However, the present results suggest that promoting empathy might leave adolescents vulnerable to emotional dysregulation when conflicts with parents are relatively more frequent. Clinicians should take this interplay between empathy and relationship context into account by

attempting to explicitly reduce family conflict in conjunction with attempts to increase empathy, or at least be mindful of adolescents' conflict frequency with parents and monitor adolescents' emotional adjustment. Moreover, if high-empathy adolescents present with problems due to more frequent conflict with parents, clinicians might focus on helping adolescents develop effective emotion regulation skills to minimize the adverse effects of these disagreements.

The interplay between experiential and dispositional indices of emotion dysregulation

The present study provided the first investigation of the over-time interplay between experiential and dispositional indices of emotion dysregulation. Our results supported the dysregulation consolidation hypothesis, as adolescents' greater day-to-day mood variability predicted increased dispositional difficulties in emotion regulation over time. These findings are important, because they suggest that experiencing emotional turmoil in adolescence can interfere with the development of adaptive emotion regulation strategies. Thus, it is important for parents and practitioners to be aware of any mood swings adolescents are experiencing, as these might be an indicator and a precursor of more stable dispositional emotion regulation problems. Moreover, in line with social baseline theory (Beckes & Coan, 2011) and the literature on emotion co-regulation (Gee et al., 2013), parents and clinicians might play an important role in helping adolescents regulate volatile emotions, breaking the cycle of dysregulation consolidation.

Although it was not a focus of our study, we also found that average-empathy adolescents' dispositional difficulties in emotion regulation predicted increased day-to-day mood variability over time. These effects were not present for high- or low-empathy adolescents, which might suggest a non-linear effect. If conflict with parents is considered an external source of day-to-day mood variability, and dispositional difficulties in emotion regulation as a potential internal source of mood variability, then the results seem to suggest that high-empathy adolescents' external relationships with others is a more important source of mood variability than internal sources. For low-empathy adolescents, neither internal nor external sources strongly predicted mood variability, which might suggest they are more callous. Average-empathy adolescents might lack both the greater social sensitivity associated with high-empathy, and the relative callousness associated with low empathy. In that case, internal sources of variance, such as difficulties in emotion regulation, might become a more important predictor of their day-to-day mood variability. Future research is required to address such non-linear effects.

Empathy and conflict maintenance

Finally, we found that both indices of emotion dysregulation played a mediating role in maintaining the stability of conflict over time for high-empathy adolescents. Although previous research has implicated empathy in the maintenance of positive close relationships (Davis & Oathout, 1987), this represents the first evidence that empathy can also play a role in maintaining negativity in relationships over time. One implication of the finding that conflict stability was mediated by mood variability is that conflict frequency might be reduced if conflict-related mood variability is reduced. This could be accomplished at an individual level by helping adolescents to regulate and cope with conflict-related emotions, or at a dyadic level, by teaching adolescents and parents to negotiate conflicts in a less emotionally volatile manner.

Strengths and limitations

The present study has several important strengths. First, our six-year longitudinal design allowed us to investigate links between conflict and emotion dysregulation throughout the entire period of adolescence, which is an important developmental period for both of these constructs (Branje, Laursen, & Collins, 2013; Zimmermann & Iwanski, 2014). Second, the present study offers high ecological validity by investigating real conflicts in stable, close relationships. Thirdly, we found the same pattern using two widely different operationalizations of emotion dysregulation, namely online diaries administered during three random weeks in each year adolescents participated, as well as annual questionnaire measures of difficulties in emotion regulation. The fact that we replicated our findings using different measures highlights the robustness of the results, and indicates that the effects of conflict with parents are salient in adolescents' daily experience, as well as retrospectively, one year later. Finally, and most importantly, the longitudinal nature of the study reveals that, for high-empathy adolescents, effects from conflict to dispositional difficulties in emotion regulation are substantial, even with a one-year time lag. These findings were consistent over time, and across two different dependent variables that were recorded at different assessment occasions. Such consistency is important, because it suggests a high likelihood that these findings can be replicated.

Nevertheless, the study also has several limitations. Firstly, because of the correlational nature of the data, future experimental research is required to validate the causal nature of the effects reported in the present study. Another limitation is that all measurements were adolescent-reported. Previous research, however, has indicated that parents' reports of adolescents' empathy often correlate poorly with adolescents' self-reported empathy (Cliffordson, 2001), which may be because empathy is a largely

internal process. Emotion dysregulation might also be difficult for outside observers to detect, particularly with regard to day-to-day emotions. Adolescent-parent conflict appears at first glance to be a fairly overt behavior, and parents might be expected to be reliable sources because they are involved in its occurrence. However, previous research has demonstrated that high-empathy adolescents and their parents report similar levels of conflict frequency, whereas average and low-empathy adolescents report lower levels of conflict frequency than both parents (Chapter 3). This suggests that, when it comes to adolescent-parent conflict, empathy might be confounded with inter-rater reliability. Future research might address this issue by using measures of adolescent-parent conflict that would not present such confounds, such as outside reporter ratings. In light of this caveat, the results of the present study should be interpreted as stemming from adolescents´ *perceptions* of conflict with parents, rather than absolute levels of conflict.

CONCLUSIONS

The major contribution of the present study is that it demonstrated, for the first time, the potential downsides of high empathy. Specifically, high-empathy adolescents experienced greater emotion dysregulation over time when relationships with their parents were characterized by frequent conflict. Because the greater interpersonal sensitivity associated with high empathy is not limited to adolescence (Nezlek et al., 2001; Richardson et al., 1998), we propose that these findings are likely to generalize to other close relationships, such as romantic relationships. Moreover, these findings highlight the fact that empathy is a social process, and therefore, the nature of the relationships in which it occurs should be taken into account. Furthermore, we found that day-to-day mood variability became consolidated into dispositional difficulties in emotion regulation over time. For high-empathy adolescents, mediational effects indicated that conflict with parents was a driver of this dysregulation consolidation process. Finally, we found that, high-empathy adolescents' mood variability and difficulties in emotion regulation contributed to the maintenance of conflict frequency over time. Although empathy is known to play a role in positive relationship maintenance, this is the first evidence that empathy can also play a role in the maintenance of negative relationship characteristics. Our research revealed that high empathy might come at a cost, as for high-empathy adolescents, conflict and emotion dysregulation tend to go hand in hand.

7

General Discussion

The general aim of the research described in this dissertation was to study adolescents' empathy development in relation to conflict with parents. More specifically, the first goal of the present dissertation was to investigate how empathy develops in adolescence. In order to address this goal, we investigated the longitudinal interplay between empathic concern and perspective taking in adolescence, the relative stability of these empathy dimensions, and the potential intergenerational transmission of empathy from mothers to adolescents (Chapter 2). We further addressed this goal by investigating whether developmental trajectories of empathy were similar for all adolescents, or whether several classes of adolescents showed different developmental trajectories (Chapter 3). The second goal was to investigate how adolescents' empathy is related to adolescent-parent conflict, both in terms of conflict frequency and links with specific conflict resolution behaviors. We addressed this goal longitudinally, by investigating whether differences in adolescents' empathy development were related to the frequency of adolescent- and parent-reported conflict (Chapter 3). Furthermore, we analyzed the common and unique associations of adolescents' developing empathic concern and perspective taking with changes in their conflict resolution behaviors towards both parents (Chapter 4). In order to investigate whether there are causal links between adolescents' empathy and conflict resolution behaviors towards parents, we also studied these associations in an experimental study (Chapter 5). We addressed the effects of experimentally induced affective and cognitive empathy on adolescents' observed conflict resolution behavior and outcomes, and studied interactions between these experimental manipulations of state empathy with adolescents pre-existing levels of trait empathic concern and perspective taking.

Finally, the third goal was to assess whether high-empathy adolescents are more sensitive to conflict with parents. We addressed this goal in two longitudinal studies. In the first, we conceptualized conflict sensitivity as the level of agreement about conflict frequency between adolescents and their parents (Chapter 3). We then investigated whether adolescents' empathy was related to discrepancies between adolescent-reported and parent-reported conflict frequency. In the second study, we conceptualized conflict sensitivity as conflict-related emotion dysregulation. We then studied whether conflict with parents predicted emotion dysregulation more strongly for high-empathy adolescents than for average- and low-empathy adolescents, both in terms of state-level, day-to-day mood variability and in terms of trait-level, dispositional difficulties in emotion regulation. The following discussion relates the main findings from the five empirical chapters to the three main research questions, and describes their implications for research, interventions, and clinical practice. Finally, we address the strengths and limitations of the present studies, and propose future directions for research.

SUMMARY OF MAIN FINDINGS

Empathy Development in Adolescence

Adolescence has been described as a developmentally sensitive period for empathy, as synaptic reorganization in prefrontal areas of the brain enable the development of more mature empathic abilities (Blakemore & Choudhury, 2006; Gee et al., 2013; Singer, 2006). Several important areas of enquiry have received little attention in prior research. First of all, although several developmental theorists have proposed that cognitive development in adolescence should facilitate adolescents' ability to experience empathic concern (e.g., Hoffman, 2000), the longitudinal interplay between empathic concern and perspective taking in adolescence has not yet been investigated empirically. We addressed this issue in Chapter 2. Secondly, parents have been hypothesized to transmit their empathic dispositions to adolescent children through modeling, particularly with regard to perspective taking (Soenens, Duriez, Vansteenkiste, & Goossens, 2007). However, this intergenerational transmission had not heretofore been tested longitudinally. We therefore investigated whether mothers' empathic dispositions predicted empathy development in adolescents (Chapter 2). Finally, although substantial research has investigated mean-level developmental trajectories of empathic concern and perspective taking in adolescence (e.g., Davis & Franzoi, 1991; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005; Grühn, Rebucal, Diehl, Lumley, & Labouvie-Vief, 2008), there is substantial divergence between the findings of these studies, and substantial unexplained variability of developmental trajectories within studies. One potential explanation for this phenomenon might be that subgroups of adolescents develop differently from each other. This research question was addressed in Chapter 3.

Longitudinal interplay between empathic concern and perspective taking. Several developmental theories have emphasized the importance of cognitive development for adolescents' increasing ability to experience empathic concern (e.g., Hoffman, 2000). In Chapter 2, we instead found that adolescents' empathic concern was significantly more stable over time than their perspective taking, and that empathic concern predicted the development of perspective taking over time. Taken together, these findings suggest that, compared to empathic concern, perspective taking is more open to developmental influences in adolescence. These findings are in line with neurological accounts of empathy development, according to which the neural circuits underlying empathic concern develop at an earlier age, whereas adolescence is a developmentally sensitive period for the neural circuits which support perspective taking (e.g., Singer, 2006). Thus, our findings contribute to a literature which suggests that, in adolescence, perspective taking is more susceptible to various developmental influences than empathic concern, and might thus be a better target for interventions than empathic concern.

Intergenerational transmission of empathy. We further investigated whether our data provided support for the intergenerational transmission hypothesis, namely that parents transmit their empathic dispositions to their children in adolescence. Such transmission has been hypothesized to occur primarily for perspective taking (Soenens et al., 2007). In partial support of this hypothesis, we found that mothers' perspective taking predicted the development of daughters' – but not on sons' – perspective taking over time. Although this result is in line with prior findings that empathy correspondence is greater between parents and same-sex children (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Fabes, Eisenberg, & Miller, 1990), we were unable to test whether empathy transmission was stronger for same-sex adolescent-parent dyads, because fathers were not included in the study.

Heterogeneity in empathy development. In Chapter 3, we sought to explain the substantial heterogeneity in empathy development found in previous studies (e.g., Davis & Franzoi, 1991; Eisenberg et al., 2005; Grühn et al., 2008), by investigating whether some adolescents developed differently than others in terms of empathic concern and perspective taking. Using person-centered methods, we identified a "high-empathy" class, which was characterized by high, stable empathic concern and high-increasing perspective taking; an "average-empathy" class with stable empathic concern and slightly increasing perspective taking; and a "low-empathy" class, with a dip in both variables around mid-adolescence. The differences between these three classes indicate that initial differences became further amplified over time. This pattern is in line with the process of *accentuation* proposed by Block (1982; see also Caspi & Moffitt, 1991), by which individual differences are amplified during transitional periods in life. The fact that we found stronger divergence for perspective taking than for empathic concern again reinforces the notion that adolescence is a developmentally sensitive period for perspective taking, as discussed in the previous section. The finding of increased differentiation of dispositional empathy has implications for diagnosis and interventions, because it suggests that low empathy in early adolescence might predict further decreases over time. This highlights the importance of identifying adolescents' low empathy at an early age, and supporting the development of perspective taking to prevent adolescents from falling further behind their peers.

To conclude, the present research advanced the understanding of empathy development in two important ways. Although prior studies have identified adolescence as a developmentally sensitive period for perspective taking, the drivers of perspective taking development have been poorly understood (but see Miklikowska, Duriez, & Soenens, 2011; Soenens et al., 2007). The present research revealed that empathic concern is a driver of perspective taking development. Furthermore, for girls, mothers' perspective taking held additional developmental significance. Secondly, our findings

provide an explanation for the substantial variance in developmental trajectories found in previous studies, which has heretofore remained largely unexplained (e.g., Davis & Franzoi, 1991; Eisenberg et al., 2005; Grühn et al., 2008). Our results indicate that empathy development in adolescence might reflect a further augmentation of pre-existing differences between individuals.

The Role of Adolescent Empathy in Adolescent-Parent Conflict

Empathy has been linked with conflict-related behaviors across relationship contexts, most notably reduced aggression (Miller & Eisenberg, 1988) and greater prosocial behavior (Eisenberg & Miller, 1987), including constructive conflict resolution behavior (Björkqvist, Österman, & Kaukiainen, 2000; De Wied, Branje, & Meeus, 2007; Richardson, Hammock, Smith, Gardner, & Signo, 1994). However, the role of adolescent empathy in adolescent-parent conflict has received relatively little attention, to date. Our research aimed to contribute to this literature, by investigating links between adolescents' empathy development and adolescent-parent conflict, both in terms of conflict frequency (Chapter 3) and the specific conflict resolution behaviors used by adolescents (Chapters 4 and 5). Furthermore, previous developmental research on empathy and conflict resolution behavior has focused primarily on affective empathy (Björkqvist et al., 2000; De Wied et al., 2007). Our research instead addressed the theoretical distinction between affective and cognitive empathy (see: Feshbach & Feshbach, 2009), by investigating common and unique associations of these different empathy dimensions with specific conflict resolution behaviors. We used both longitudinal (Chapter 4) and experimental (Chapter 5) methods to study these links between empathy and conflict resolution behaviors. The use of longitudinal methods allowed us to investigate whether adolescents' naturally occurring development of trait empathic concern and perspective taking showed associations with the development of specific conflict resolution behaviors. The experimental study additionally allowed us to replicate these associations in causal terms using inductions of state affective and cognitive empathy. This also allowed us to investigate whether these state empathy manipulations interacted with trait empathy in producing specific conflict resolution behaviors and outcomes.

Adolescent empathy and adolescent-parent conflict frequency. In order to study the link between adolescent empathy and adolescent-parent conflict frequency, we compared the high-, average-, and low-empathy classes identified in Chapter 3 in terms of conflict frequency, reported independently by adolescents and both parents. We found that low-empathy adolescents and their parents reported significantly more conflict than all others throughout adolescence. Previous research has linked adolescents' empathy to different conflict-related constructs in the context of adolescent peer and

adult relationships (De Wied et al., 2007; Richardson et al., 1994). Our findings expand on this research by demonstrating that adolescents' lower empathy is associated with more frequent conflict with parents.

Adolescent empathy and conflict resolution behavior towards parents. In Chapter 4, we investigated whether adolescents' development of empathic concern and perspective taking showed common or unique associations with four specific conflict resolution behaviors towards parents: Negative escalation and withdrawal, and prosocial problem solving and compliance. Although theorists have argued that adolescents' empathy development might be associated with a shift towards more constructive conflict resolution behaviors towards parents (Sandy & Cochran, 2000), this question has remained unaddressed, to date.

In a six-year longitudinal study (Chapter 4), we found that adolescents' increasing empathic concern and perspective taking were both associated with decreasing conflict escalation with mothers, and increasing problem solving with both parents. However, these associations were consistently stronger for perspective taking than for empathic concern. Furthermore, adolescents who engaged in greater compliance with mothers developed increasing empathic concern over time. Perspective taking was uniquely associated with a decreased tendency to withdraw from conflicts. In conclusion, these findings suggest that, although empathic concern and perspective taking are both associated with decreased escalation and increased problem solving, associations with constructive conflict resolution behaviors are generally stronger and more consistent for perspective taking than for empathic concern.

This study improved upon the prior literature on adolescents' empathy and conflict resolution behavior in several ways. First of all, previous research has been mostly cross-sectional (e.g., Björkqvist et al., 2000; De Wied et al., 2007). Although these studies have demonstrated that higher levels of empathy typically coincide with more prosocial conflict resolution behavior, they cannot speak to potential developmental associations. Using a multivariate growth curve design, we were able to demonstrate, for the first time, within-individual *parallel development* of empathic dispositions and conflict resolution behaviors. Secondly, prior research on children has failed to address potential unique associations of empathic concern and perspective taking with particular conflict resolution behaviors (Björkqvist et al., 2000; De Wied et al., 2007). Experimental work on young adults found that experimentally induced perspective taking was associated with more constructive negotiation behaviors than empathic concern in bogus interactions between strangers (Galinsky, Maddux, Gilin, & White, 2008). Because our study included both empathy dimensions, we were able to compare the relative size and consistency of associations with conflict resolution behaviors between the two. In doing so, our study was the first to demonstrate that adolescents' naturally occurring development

of empathic concern and perspective taking are accompanied by common and unique associations with changes in their conflict behavior towards parents.

We also conducted an experimental study of the effects of affective and cognitive empathy manipulations on adolescents' behaviors and outcomes in conflict discussions with mothers, which took place in the home. As mentioned before, prior experimental research has demonstrated unique effects of affective and cognitive empathy on behavior in negotiations (e.g., Galinsky et al., 2008). However, because these negotiations were staged and took place in interactions with (bogus) strangers, it has remained unclear whether such findings would generalize to meaningful conflicts in real relationships. Although we had previously demonstrated that the naturally occurring development of adolescents' empathic concern and perspective taking is accompanied by specific changes in their conflict resolution behaviors towards parents (Chapter 4), such research cannot speak to questions of causality. The experimental study described in Chapter 5 therefore aimed to demonstrate causal effects of adolescents' empathy upon conflict resolution behaviors. Results indicated that the cognitive empathy manipulation reduced conflict escalation, and promoted other-oriented listening for adolescents low in trait cognitive empathy. Listening constitutes a passive, prosocial conflict resolution behavior that is typically not addressed by self-report instruments such as those used in Chapter 4 (Branje, 2008). A trending effect suggested that the affective empathy manipulation promoted active problem solving. For adolescents low in trait affective empathy, both manipulations promoted outcome satisfaction, but only the cognitive manipulation also promoted perceived fairness. In conclusion, these findings suggests that cognitive empathy in particular allows adolescents to distance themselves from the emotional heat of a conflict and listen to mothers' point of view, leading to outcomes perceived as both satisfying and fair.

An overarching parallel between these developmental and experimental studies was that cognitive empathy appeared to have stronger and more consistent associations with prosocial, other-oriented conflict resolution behaviors than affective empathy. Nevertheless, there were also some discrepancies between these studies. For example, although perspective taking showed strong developmental associations with problem solving, only the affective empathy manipulation promoted problem solving behavior in the experimental study. There are several plausible explanations for this discrepancy. An important general consideration to keep in mind is the fact that developmental and experimental research tap into different underlying processes. The parallel development we found might indicate that developing empathic abilities are expressed in behavioral change. Alternatively, these findings might reflect underlying common factors, such as cognitive maturation, or the benefits of supportive relationships with parents. The causal effects demonstrated in our experiment, on the other hand, reflect

the behavioral consequences of a shift in adolescents' focus towards greater affective or cognitive empathy for mothers. Importantly, however, this manipulation tapped into abilities which were already present within adolescents. These fundamental differences illustrate that developmental associations do not necessarily run parallel to experimental findings.

Another potential explanation for differences between these studies relates to the measures and instruments used. For example, correlations between state and trait empathy are relatively low (e.g., Van der Graaf et al., 2015), which suggests that they might have different associations with outcomes. Similarly, self-report and observational measures of conflict resolution behaviors are likely to tap into somewhat different constructs. One study of self-reported and observational assessments of couples' conflict behaviors found only moderate correlations (Hahlweg, Kaiser, Christensen, Fehm-Wolfsdorf, & Thomas Groth, 2000). In fact, this number might be an over-estimation, as couples completed their self-report questionnaires prior to engaging in the conflict discussion that was rated. In our longitudinal studies, adolescents were asked to report on their conflict behaviors in their relationships with parents retrospectively, without reference to a specific conflict or timeframe. These reports are thus reconstructed, and might be biased by the outcomes of past conflicts and adolescents' general self-concept. Consequently, correlations between self-reported perspective taking and problem solving might be high, irrespective of actual behavior, if high-perspective taking adolescents generally bring conflicts to a more satisfying conclusion, or if they self-identify as problem solvers. The observational measures in our experimental study, on the other hand, measured behavior throughout an entire conflict interaction. Behaviors which recurred over time thus incurred greater weight. Considering affective empathy is thought to motivate prosocial behavior directly (e.g., Feshbach and Feshbach, 2011), it makes sense that the affective empathy manipulation was associated with a greater proportion of active problem solving behavior. Cognitive empathy, on the other hand, is not thought to motivate behavior directly, but to enable more *effective* social behavior (e.g., Galinsky et al., 2008; Epley, Caruso, & Bazerman, 2006). This suggests that inducing cognitive empathy might lead to a change in the *quality* of problem solving behavior, rather than its *quantity*. Our finding that the cognitive empathy manipulation promoted greater outcome fairness suggests that such a process might have taken place.

Taken together, the findings from these studies provide new insights into the role of empathy in adolescent-parent conflict, which had remained largely unexplored to date. Empathy showed non-linear associations with conflict frequency, as low-empathy adolescents and their parents reported significantly more frequent conflict than average and high-empathy adolescents, who did not differ in terms of conflict frequency. Furthermore, we observed relatively consistent patterns of associations

between adolescent empathy and conflict resolution behavior towards parents when studying the longitudinal development of trait empathy and experimentally induced state empathy. Across our longitudinal and experimental studies, both affective and cognitive empathy were associated with prosocial conflict resolution, but cognitive empathy appeared to be most beneficial. This has important implications for clinical practice, because many interventions currently aim to promote adolescents' empathy development, without distinguishing between affective and cognitive empathy explicitly (Feshbach & Feshbach, 2011). Our findings suggest that interventions focusing on perspective taking might be most beneficial in promoting adolescents' constructive conflict resolution behavior. Moreover, our experimental results showed that empathy manipulations were particularly effective for adolescents low in trait empathy. As even a minimal manipulation had significant effects on observed behavior and self-reported outcomes for low-empathy adolescents, a stronger structural intervention is likely to have marked benefits for low-empathy adolescents.

Empathy in Relation to Conflict Sensitivity

One process that might underlie the role of empathy in adolescent-parent conflict is a greater sensitivity and reactivity to interaction partners' emotions and points of view. Indeed, high empathy has been associated with greater social sensitivity, including in conflicts (Richardson, Green, & Lago, 1998), and with greater emotional reactivity, particularly to anger (Leith & Baumeister, 1998; Nezlek, Feist, Wilson, & Plesko, 2001; Sonnby-Borgström, 2002). We therefore expected high-empathy adolescents to be more sensitive to conflict. Conflict sensitivity has been shown play a role in positive relationship maintenance for married couples, because it allows partners to address conflicts before they escalate (Gottman, Swanson, & Murray, 1999). However, little was known about links between empathy and conflict sensitivity in adolescence. We therefore addressed these links in two longitudinal studies. In the first study (Chapter 3), we operationalized conflict sensitivity as the level of agreement between adolescent and parent-reported conflict frequency. If adolescents' reports of conflict frequency were in agreement with those of both parents, this was considered to be an indicator of greater conflict sensitivity. In the second study (Chapter 6), we operationalized conflict sensitivity as the strength of predictive links between conflict frequency and adolescents' emotion dysregulation. If conflict predicted emotion dysregulation more strongly, this was considered to be an indicator of greater conflict sensitivity.

Empathy and adolescent-parent agreement regarding conflict frequency. We investigated whether adolescents' empathy moderated the degree of correspondence between conflict frequency reported by adolescents, and the frequency reported by both parents (Chapter 3). We predicted that high-empathy adolescents' reports of

conflict frequency would be more in line with their parents' reports, when compared to average- and low-empathy adolescents. In line with this hypothesis, we found that discrepancies between adolescent- and parent-reported conflict emerged in the low- and average-empathy classes. High-empathy adolescents' reports, on the other hand, were largely in agreement with their parents' throughout adolescence. This suggests that high-empathy adolescents might be more attuned to signals of conflict and notice points of contention, whereas average- and low-empathy adolescents might sometimes fail to consider their parents' point of view, rendering them relatively "conflict blind". This finding has interesting implications for research. Although many have stressed the importance of obtaining multi-informant reports of psychological constructs to avoid some of the biases associated with self-reports, few attempts have been made to investigate or explain discrepancies between reporters (but see Dykas, Woodhouse, Ehrlich, & Cassidy, 2010; Ehrlich, Cassidy, & Dykas, 2011; Ehrlich, Cassidy, Lejuez, & Daughters, 2013). The present research suggests that reporters' empathy levels might be associated with their reports on dyadic constructs such as conflict, possibly because empathy is associated with greater sensitivity to others' emotions and a better understanding of their viewpoints. Our findings also have important clinical implications, as they indicate that lower-empathy adolescents might understate levels of family conflict. This highlights the importance of obtaining parental reports, as well, or observing family interactions in the clinical setting.

Empathy and emotion dysregulation. We also investigated conflict sensitivity in terms of emotion dysregulation. Prior research has shown that high empathy is associated with greater emotional reactivity, particularly to anger (Sonnby-Borgström, 2002), and greater negative emotions in the aftermath of conflict (Leith & Baumeister, 1998). Therefore, we hypothesized that links between adolescent-parent conflict frequency and adolescents' emotion dysregulation would be stronger for high-empathy adolescents, compared to average and high-empathy adolescents (Chapter 6). In a six-year longitudinal study, we found that more frequent adolescent-parent conflict predicted emotion dysregulation more strongly for high-empathy adolescents than for average- or low-empathy adolescents. These findings were replicated in terms of day-to-day mood variability, derived from daily mood diaries administered during three weeks in between each of the annual measurement waves, and in terms of dispositional difficulties in emotion regulation, measured annually in conjunction with conflict reports. Greater day-to-day mood variability and difficulties in emotion regulation, in turn, also predicted increased conflict frequency with parents over time. This finding is in line with prior research, which shows that adolescents' dysregulation elicits more negative behavior from parents (Skripkauskaite et al., 2015). Furthermore, we found that state day-to-day mood variability predicted increased trait difficulties in emotion regulation over time, which suggests that daily emotion dysregulation might

become consolidated into dispositional difficulties in emotion regulation. Moreover, for high-empathy adolescents, links between conflict and difficulties in emotion regulation were mediated by day-to-day mood variability. This suggests that conflict might be an instigator of the dysregulation consolidation process. Finally, day-to-day mood variability and dispositional difficulties in emotion regulation both mediated the over-time stability of conflict for high-empathy adolescents. Although high empathy is known to play a role in positive relationship maintenance (Davis & Oathout, 1987), our research suggests that, paradoxically, empathy can also play a role in maintaining the stability of conflict in adolescent-parent relationships over time.

Implications

The Distinction between Empathic Concern and Perspective Taking

Across several studies, we focused on the distinctions between empathic concern and perspective taking, in terms of their differential development and relationships to specific conflict resolution behaviors. Despite the substantial correlations between these empathy dimensions (Hawk et al., 2013), we consistently found differences in developmental timing and associations with conflict resolution behaviors. Moreover, our finding that empathic concern predicted the development of perspective taking over time contradicts the popular perception of perspective taking as the "royal avenue" to empathic concern (e.g., Decety, 2005). Instead, our research paints a picture of empathic concern and perspective taking as distinct, but highly interrelated empathy dimensions, both of which hold unique and different associations with conflict resolution behaviors. This highlights the importance of continuing to distinguishing between affective and cognitive empathy in future research.

The Developmental Interplay between Empathic Concern and Perspective Taking

In our study on the longitudinal interplay between empathic concern and perspective taking (Chapter 2), we found evidence that empathic concern is relatively stable in adolescence, and predicts the development of perspective taking. This appears to be at odds with several theories that have emphasized the importance of cognitive development for adolescents' ability to experience empathic concern (Eisenberg, Fabes, & Spinrad, 2007; Hoffman, 2008). Instead, this finding is more in line with De Waal's (De Waal, 2007) Russian doll model of empathy, as well as with neurological evidence suggesting that the neural circuits underlying empathic concern develop at an earlier age, whereas those underlying perspective taking undergo a developmentally sensitive period in adolescence (Blakemore & Choudhury, 2006). Our finding that adolescents

displayed stronger differentiation in terms of perspective taking than in terms of empathic concern (see Chapter 3) is similarly in line with the notion that empathic concern is already relatively stable in adolescence, whereas perspective taking is more subject to developmental change. These findings do not preclude the possibility that, at a younger age, increases in perspective taking might be important for the development of empathic concern. In adolescence, however, levels of perspective taking might already be sufficient to enable relatively stable levels of empathic concern. This could explain why increases in perspective taking did not predict the further development of empathic concern. The implication for interventions and clinical practice is that attempts to support empathy development in adolescence might be most fruitful if targeted at perspective taking. However, the predictive links between empathic concern and perspective taking suggest that the effect of interventions that successfully promote the development of empathic concern *prior to* adolescence might trickle down to promote perspective taking development during adolescence. Finally, interventions that target perspective taking in adolescence might be more beneficial in terms of their effect on relationships, as our research suggested that perspective taking has stronger associations with prosocial conflict behavior than empathic concern (Chapters 4 and 5).

Heterogeneity in Empathy Development

Using person-centered methods, we identified three classes of adolescents, characterized by different trajectories of empathy development. More importantly, these classes showed *divergence* over time, suggesting that when it comes to empathy development in adolescence, "the rich get richer, while the poor get poorer", at least temporarily. Although mean-level empathy development has frequently been studied (Eisenberg et al., 2005; Grühn et al., 2008; Van der Graaff, De Wied, Hawk, Van Lier, & Meeus, 2014), such divergence had not previously been considered. These findings have important implications for clinicians, as they suggest that early empathy levels might be a marker for their later developmental trajectory. Therefore, clinicians might screen for lower empathy at an early age, and provide interventions that support empathy development to prevent low-empathy adolescents from falling further behind their peers over time. Based on our findings that empathic concern is relatively stable compared to perspective taking in adolescence, and that divergence was particularly pronounced with regard to perspective taking, such interventions might be most effective if focused primarily on perspective taking.

Adolescents' divergence in empathy development also has important implications for research. Of course, almost any group of adolescents will show some heterogeneity in development that can be explained by latent class analysis. However, the differences between these classes were complex and non-linear. In such cases, a person-centered

approach can be much more parsimonious and interpretable than a traditional, variable-centered approach. When we set out to study whether links between conflict frequency and emotion dysregulation are moderated by empathy (Chapter 6), for example, we faced a choice. On the one hand, we could explicitly model interactions with individual adolescents' mean level, linear slope, and quadratic slope of empathic concern and perspective taking over time. On the other hand, we could compare these three classes of adolescents, which represented the most common developmental trajectories of empathic concern and perspective taking in our sample. It has been argued that it is oftentimes more straightforward and informative to study groups of individuals who share common combinations of variables, instead of studying the effect of variables themselves (Ragin et al., 2008). Future researchers might therefore consider the judicious application of person-centered methods, particularly when heterogeneity in development is complex and non-linear.

Potential Non-Linear Associations of Empathy with Outcomes

As we mentioned before, differences in developmental trajectories between high-, average-, and low-empathy adolescents were non-linear. However, in Chapter 3, these empathy classes also appeared to have non-linear associations with several outcomes. For example, only the low-empathy class experienced significantly elevated conflict, and only the high-empathy class showed consistent adolescent-parent agreement in terms of conflict frequency. If the differences between these three groups had been linear, we would instead expect them to show an increasing ordinal difference in conflict frequency and adolescent-parent agreement. Similarly, in Chapter 6, we found that conflict frequency predicted greater emotion dysregulation for high-empathy adolescents, but not for average- and low-empathy adolescents. This finding could not be explained by mean-level differences in terms of conflict frequency or emotion dysregulation, given the fact that absolute levels of conflict and difficulties in emotion regulation were significantly elevated only in the low-empathy group, but did not differ between the average- and high-empathy groups. Similarly, emotion dysregulation only played a role in maintaining conflict frequency over time for high-empathy adolescents. Taken together, these findings suggest that future researchers should devote greater attention to potential non-linear effects of empathy. In our own research, low-empathy adolescents appeared to experience elevated levels of adolescent-parent conflict, and high-empathy adolescents appeared to be more sensitive and emotionally reactive to conflict. Average-empathy adolescents shared the low conflict frequency of high-empathy adolescents, and the low sensitivity and reactivity to conflict of low-empathy adolescents. Thus, these groups differed qualitatively in terms of mean levels and empathy-related processes. This has implications for clinical practice, as an awareness

of these differences between high-, average-, and low-empathy adolescents might alert clinicians to potential challenges that these different groups might experience.

Empathy and Conflict Resolution Behavior

Across two studies, we found that empathic concern and perspective taking were associated with a pattern of specific conflict resolution behaviors suggesting that empathic concern motivates prosocial behavior, even at a personal cost, whereas perspective taking enables individuals to act in more effective, mutually beneficial ways. Specifically, in a longitudinal study we found that adolescents' developing empathic concern and perspective taking were both associated with reduced conflict escalation and increased problem solving, but that these associations were stronger for perspective taking than for empathic concern (Chapter 4). Moreover, empathic concern development was associated with a tendency to comply with mothers' demands in conflicts. The link between compliance and empathic concern is in line with previous research, which found that experimentally induced empathic concern led participants to comply with others at a personal cost (Batson & Moran, 1999; Batson & Ahmad, 2001). However, we had predicted empathic concern to be associated with the *parallel development* of compliance. Our finding that compliance instead predicted the development of empathic concern suggests that developmental associations between these constructs might differ from the causal relationships demonstrated in prior experimental research. Perspective taking development, in turn, was associated with a decreasing tendency to withdraw from conflicts, combined with stronger associations with reduced escalation and increased problem solving. In our experimental study (Chapter 5), affective empathy motivated adolescents' increased active problem solving behavior, but did not promote more satisfying or fair outcomes. In other words, adolescents were talking more, but achieving less. In contrast, inducing cognitive empathy led to reduced escalation and more listening behavior, as well as to outcomes that adolescents perceived as more satisfying and fair. Thus, in our longitudinal research we found that perspective taking was more strongly associated with prosocial conflict behaviors than empathic concern, and was associated with reduced withdrawal, which suggests higher perspective taking is associated with a tendency to address conflicts. In our experimental research, we found that empathic concern motivates adolescents to behave prosocially, but had no benefits in terms of conflict outcomes when compared to perspective taking. Perspective taking instead promoted more other-oriented listening behavior, and led to greater outcome fairness. Taken together, these results suggest that perspective taking may be more beneficial than promoting empathic concern in the context of addressing adolescent-parent conflict, which has clear implications for interventions and clinical practice.

Empathy and Conflict Sensitivity

Our findings across two studies indicated that high-empathy adolescents are more sensitive to conflict than average and low-empathy adolescents. In one study, we found that high-empathy adolescents' reports of conflict frequency were more in agreement with parents than those of average and low-empathy adolescents (Chapter 3). In another study, we found that more frequent conflict predicted greater emotion dysregulation for high-empathy adolescents than for average and low-empathy adolescents (Chapter 6). Taken together, the findings from these two studies provide compelling evidence that high-empathy adolescents are more sensitive to conflict, both in terms of its detection and in terms of emotional reactivity to frequent conflict. Sensitivity to the detection of disagreement is not necessarily a bad thing; in fact, researchers have found that it is integral in romantic relationship maintenance, because it allows partners to detect and address conflicts before they escalate (Gottman et al., 1999). This is in line with our findings that higher empathy is associated with more prosocial conflict resolution behavior (Chapters 4 and 5). However, the finding that high empathy was also associated with stronger links between conflict and emotion dysregulation suggests that there is a tradeoff for high-empathy adolescents between superior conflict resolution skills and greater emotional sensitivity to conflict. The implications for low-empathy adolescents are equally interesting, however. Based on the work described in Chapter 3, we know that low-empathy adolescents and their parents report significantly greater conflict frequency than average- and high-empathy adolescents. Low-empathy adolescents' lower detection and emotional reactivity to conflict might serve as a buffer, protecting these adolescents from elevated conflict levels in the family environment. The notion that some personality characteristics that appear to be dysfunctional in a positive relationship context are actually advantageous in a negative relationship context is not new (e.g., see Ein-Dor, Mikulincer, Doron, & Shaver, 2010). However, these interactions between individual characteristics and the relationship climate are rarely investigated. Future research might therefore address the potential protective properties of low empathy in relationships characterized by high negativity.

Person-Environment Interactions

Our findings suggest that interactions between adolescents' dispositional empathy and perceptions of conflict with parents predicted adolescents' emotional adjustment. This highlights the fact that interactions between individual empathy and relationship characteristics should be considered. Such considerations are in line with the work on person-environment interactions, which holds that individual and environmental forces interact to predict individual outcomes (Sameroff & Chandler, 1975). There is also

a parallel between our findings and the notion of "orchid children" versus "dandelion children" (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van Ijzendoorn, 2011). Orchid children are highly sensitive to parental influences, and their environment at large. This seems to correspond to the greater conflict sensitivity of our high-empathy children. Dandelion children, in contrast, were found to thrive regardless of environmental circumstances, and are psychologically resilient. The lack of conflict sensitivity of our low-empathy adolescents suggests some overlap with the notion of the Dandelion child. However, there are also clear differences which indicate that our empathy classes are not the same as the categories proposed by Ellis and Boyce. Specifically, our low-empathy adolescents had more frequent conflict with parents (Chapter 3), poorer conflict resolution skills (see Chapter 4), and more difficulties in emotion regulation (Chapter 6). Thus, although they were less sensitive and emotionally reactive to conflict with parents, they did not appear to "thrive". To conclude, our findings serve as a reminder that empathy is a social process, which takes place in a broader relationship context.

Such person-environment interactions are important from a scientific, as well as from a clinical, point of view. Currently, many interventions aim to promote adolescents' empathy development with little regard for the family context. In particular, many interventions are administered indiscriminately on a school level (for a review, see Feshbach & Feshbach, 2011). Our research indicates that promoting empathy may, paradoxically, have adverse consequences for adolescents' emotional adjustment if adolescent-parent relationships are characterized by relatively more frequent conflict. In fact, it is conceivable that high-empathy children are sensitive to other social stressors beyond adolescent-parent conflict. Future research might investigate whether high-empathy adolescents are more sensitive and emotionally reactive to social exclusion, loneliness, bullying, and other social stressors. Our findings serve as a reminder of the importance of considering the interaction between child and family characteristics in research, interventions, and clinical practice.

State versus Trait Levels of Analysis

Bridging the state and trait levels of analysis was another important theme in the present dissertation. We investigated the associations of empathic concern and perspective taking with specific conflict resolution behaviors longitudinally (Chapter 4) and experimentally (Chapter 5). The longitudinal study focused on adolescents' self-reported trait empathic dispositions, whereas the experimental study manipulated adolescents' state affective and cognitive empathy in specific conflict interactions with mothers. This experimental study further allowed us to investigate interactions between state and trait empathy. Prior research has revealed that trait empathy as

measured by the IRI shows consistent but surprisingly small associations with state empathy in response to emotional video clips (Van der Graaff et al., 2015). This left open an important question, namely whether trait and state empathy show similar associations with prosocial behavior, or whether trait and state empathy interact to produce outcomes. Our research addressed this issue. Based on our findings, it appears that adolescents' cognitive empathy is more consistently associated with a more other-oriented and constructive pattern of conflict resolution behavior than affective empathy, both in terms of trait and state empathy. Furthermore, trait and state empathy interacted in our experimental study, as manipulations of state empathy were more effective for adolescents low in trait empathy. State empathy manipulations might be less effective for adolescents high in trait empathy, if they are already predisposed to engage in constructive conflict resolution behavior. Future research might similarly address non-linear associations between trait and state empathy. Perhaps only high-empathy adolescents are likely to spontaneously display state empathy and associated prosocial responses. Low-empathy adolescents, in contrast, might benefit from a gentle reminder to kick-start the perspective taking process.

STRENGTHS AND LIMITATIONS

Strengths

The present line of research had several strengths, which are discussed at length in the empirical chapters. The following points are most salient, however, because they apply to the entire line of research. Most importantly, the use of a six-year longitudinal design spanning almost the entirety of adolescence allowed us to investigate the role of empathy in conflicts with parents during a period which is known to be characterized by important developmental changes for both of these constructs (Blakemore & Choudhury, 2006; Branje, Laursen, & Collins, 2013). The longitudinal nature of the data further allowed us to study time-lagged, predictive effects using cross-lagged panel modeling, as well as developmental trajectories using latent growth analyses. In studies using cross-lagged panel modeling (Chapters 2 and 6), we found relatively substantial cross-lagged effects, given the fact that stability is controlled for in such designs. The replication of these effects across several measurement waves suggests that the associations were meaningful, even with a one-year time lag, and remained so throughout adolescence. This was particularly evident in Chapter 6, where cross-lagged effects between conflict frequency and emotion dysregulation were replicated over time *and* between two dependent variables. Finally, we identified latent classes of adolescents based on non-linear differences in their empathy development (Chapter 3 and 6) – an approach which requires longitudinal designs of at least three measurement occasions.

Another benefit of our research is the multi-informant data used in two of the longitudinal studies. Using multi-informant data allowed us to investigate the intergenerational transmission of empathy from mothers to adolescents (Chapter 2), and to compare the frequency of conflict reported by adolescents to the frequency reported by both of their parents (Chapter 3). Although many researchers have argued for the importance of using multiple-respondent data, these data are often aggregated without considering potentially meaningful discrepancies between them (De Los Reyes & Kazdin, 2005). We instead used dual-trajectory growth modeling, which allowed us to investigate whether empathy moderated discrepancies between adolescent and parent reported conflict frequency. This provided for the novel insight that inter-rater agreement about the frequency of adolescent-parent conflict is moderated by adolescents' empathy.

Another important advantage of our research was the attention to ecological validity. Most importantly, we conducted our research on the effects of affective and cognitive empathy manipulations upon adolescents' conflict resolution behavior in the home (Chapter 5), and asked adolescent-mother dyads to discuss a recent, unsolved conflict topic. Our goal was to approximate naturally occurring conflict discussions, and to enable adolescent-mother dyads to slip into familiar interaction patterns. In several longitudinal studies, ecological validity was increased by using highly proximal measures, which attempted to assess experiences and behavior directly, instead of reflectively. For example, the interpersonal conflict questionnaire (Laursen & Collins, 1994) asks respondents to report how frequently they argued about 10 specific topics with a specific significant other in the past 5 days. By referring to specific behavior within a recent timeframe, this measure aims to obtain a "snapshot" of people's lived experience, instead of a highly reflective measure of general relationship negativity. For the same reason, we included an experiential measure of mood variability, derived from daily mood diaries, in our study of the effect of conflict frequency on emotion dysregulation (Chapter 6). We included this experiential measure to provide a highly ecologically valid alternative to the difficulties in emotion regulation scale, which is quite meta-cognitive in nature (Neumann, Van Lier, Gratz, & Koot, 2010), and thus potentially removed from people's actual experience.

Another strength of the present research is our use of mixed methods to study links between empathy and adolescents' conflict resolution behavior. Causality cannot be inferred based on (correlational) longitudinal data, because such data reflect processes of naturally occurring development. Consequently, many longitudinal articles call for future experimental research to validate the causal nature of the processes studied. It should be mentioned, however, that such experimental research cannot speak to the causal nature of associations in naturally occurring development. Nevertheless, when both experimental and longitudinal studies reveal similar associations, the argument

in favor of causality is strengthened. Therefore, we explicitly set out to investigate associations of empathic concern and perspective taking with specific conflict resolution behaviors using mixed methods. We investigated associations between empathy and conflict resolution behavior both in terms of developmental processes and causal associations, which allowed us to demonstrate that naturally developing and experimentally induced empathy were both associated with similar patterns of conflict resolution behaviors.

A final innovation of the present research is the bridging of short-term and long-term timeframes. Large-scale longitudinal research is often conducted with fixed time intervals that do not necessarily correspond to the time intervals in which the processes being examined are thought to play out. The RADAR sample used in the present research is quite unique, in the sense that daily diary assessments have been embedded in the intervening years between annual questionnaire measurements. Researchers have argued for the importance of bridging the short- and long-term time frames of longitudinal research to capture "the missing middle time frame" of daily experience (Larson & Almeida, 1999, p. 7). Our research addressed this issue, as we demonstrated that, for high-empathy adolescents, conflict predicted increased emotion dysregulation on short-term timeframes, in terms of mood variability derived from daily mood data, *and* long-term developmental timeframes, in terms of annually measured dispositional difficulties in emotion regulation (Chapter 6). Furthermore, this approach allowed us to study the interplay between experiential and dispositional emotion dysregulation. Our findings highlight the valuable contributions that diary data can offer when it comes to replicating longitudinal processes across different time scales, and when investigating the mediating role of day-to-day experience in long-term developmental processes. With regards to our experimental and longitudinal studies of the links of empathic concern and perspective taking with specific conflict behaviors (Chapters 4 and 5), our aim was similarly to study these associations at the short-term level of a single interaction, as well as at the long-term developmental level. Future research might expand upon this endeavor, by embedding conflict interactions within an ongoing longitudinal study. That way, it would be possible to investigate whether adolescents' long-term empathy development and changes in conflict behaviors towards parents are mediated by specific dyadic interaction behaviors.

Limitations

Despite its strengths, the present research also has several important limitations. With regards to the RADAR data set on which the longitudinal studies were conducted, an important known limitation is the relative homogeneity of the sample. Participants of the study were mostly native Dutch adolescents from intact families, with a higher

average socioeconomic status than the population at large (Van Lier et al., unpublished manuscript). At the same time, the sample contained an oversampling of adolescents at risk for externalizing behavior. The sample might thus contain a broader spectrum of adolescents in terms of adjustment than would be expected from a purely random sample. This may be beneficial when studying processes that are less common in a well-adjusted sample – for example, the development of a low-empathy class of adolescents (Chapter 3). Nevertheless, both the relatively high SES of the sample and the oversampling of at-risk adolescents could also limit the generalizability of the findings. Therefore, future research is required to replicate these findings in more representative samples.

Another important limitation is the correlational nature of these data. Because longitudinal effects pertain to naturally occurring development of the adolescents being studied, they are ultimately descriptive. Our findings pertaining to links of affective and cognitive empathy with adolescents' conflict resolution behaviors towards parents are a notable exception, because they were replicated in longitudinal (Chapter 4) and experimental (Chapter 5) research. Furthermore, the robustness of several findings is illustrated by the fact that they were replicated across several measurement waves in a longitudinal design. This applies specifically to our longitudinal findings regarding the developmental interplay between empathic concern and perspective taking (Chapter 2), and the associations of between conflict frequency and emotion dysregulation that we found for high-empathy adolescents (Chapter 6). Nevertheless, these findings ought to be replicated using experimental research. For example, although experimental manipulations of perspective taking are known to promote empathic concern (e.g., Batson, Early, & Salvarani, 1997), to our knowledge, no systematic attempt has been made to test effects of an affective empathy manipulation on spontaneous perspective taking. Similarly, future research might attempt to study whether experimentally induced empathy increases emotional reactivity to conflict-related cues, in order to replicate the findings described in Chapter 6. Finally, our finding that low empathy was associated with elevated conflict frequency (Chapter 3) lacks both replication over time and between studies. Therefore, future research might investigate data from intervention studies (e.g., Caprara, Luengo Kanacri, Zuffiano, Gerbino, & Pastorelli, 2015), in order to see whether promoting adolescents' empathy development indeed leads to decreasing conflict with parents.

Another limitation is that several studies used adolescent-reported measures. With regard to empathy, this may be a reasonable choice, because empathy is a largely internal process. Indeed, prior research has shown that parents' reports of adolescents' empathy often correlate poorly with adolescents' self-reported empathy (Cliffordson, 2001). Emotion dysregulation might also be difficult for outside observers to detect,

particularly with regard to day-to-day emotions. Conflict might, at first glance, appear to be a fairly overt behavior. Consequently, parents might be expected to report reliably on the frequency of conflicts in which they are involved, and the behaviors exhibited by adolescents in these conflicts. Nevertheless, prior research has indicated that outside observers' reports of conflicts are typically more in line with adolescents' reports than with parents' (Gonzales, Cauce, & Mason, 1996). This suggests that, even when it comes to a behavior as overt as conflict, the perspectives of the parties involved can differ. Interestingly, our own research suggested that such divergence of perspectives regarding conflict is related to levels of empathy (Chapter 3). To avoid this confound, future research might include independent observer reports on adolescent-parent conflict, to serve as a more objective measure of conflict frequency. In this way, future research might indicate whether the low- and average-empathy adolescents indeed underreport conflict frequency, or whether their parents are over-reporting.

A final limitation was the fact that relatively little attention was paid to the role of parental empathy in adolescent-parent conflict. Our decision to focus on adolescents' empathy was guided by the fact that adolescence is an important developmental period for empathy (e.g., Blakemore & Choudhury, 2006), whereas parental empathy is already relatively stable (Grühn et al., 2008). Consequently, we sought to elucidate the implications of these developmental changes for adolescents' behavior and outcomes. It stands to reason, however, that parental empathy is also likely to play a role in the conflict resolution process. Future research might include measures of parental empathy, to explore its role in adolescent-parent conflict.

FUTURE DIRECTIONS FOR RESEARCH

Empathy Development

Two questions which still remain unaddressed with regard to drivers of adolescents' empathy development are the role of fathers, and the role of peers. The present research provided compelling evidence that adolescence is a developmentally sensitive period for perspective taking, and that adolescents' own empathic concern is a driver of perspective taking development. Moreover, mothers' tendency to engage in perspective taking predicted the development of perspective taking in their daughters. Based on prior theoretical work, this might be construed as a modeling effect that is stronger within same-sex adolescent-parent dyads. However, it is also possible that mothers play a different role in adolescents' empathy development than fathers. Recent research has indicated that fathers play a unique role in children's emotion-related development, and their influence is thought to become increasingly relevant in adolescence (Leavell, Tamis-LeMonda, Ruble, Zosuls, & Cabrera, 2012; Shewark & Blandon, 2015; Zeman,

Perry-Parrish, & Cassano, 2010). Therefore, future research should include fathers, in order to compare the relative contributions of both parents to adolescents' empathy development. Furthermore, peers are thought to play an important role in adolescents' perspective taking development (Sandy & Cochran, 2000). Because peer relationships are voluntary and transient, adolescents might have to learn how to compromise in conflicts with peers, for the sake of the friendship. This, in turn, might drive adolescents' development of perspective taking, as perspective taking is crucial in negotiating mutually beneficial conflict outcomes (Galinsky et al., 2008). As mentioned before, prior research on adolescents' empathy and conflict resolution with peers has been correlational in nature and has disregarded perspective taking (e.g., Björkqvist et al., 2000; De Wied et al., 2007). Therefore, future research might address developmental links between adolescents' conflict resolution behavior with peers and development of affective and cognitive empathic dispositions.

Another important, unaddressed question pertains to heterogeneity in empathy development. We were able to identify meaningful classes based on differences in adolescents' trajectories of empathy development (Chapter 3). However, in all classes, empathic concern was slightly higher than perspective taking. In a population of typically developing adolescents, the high correlation between affective and cognitive empathy might make it unlikely that any class will be characterized by high empathic concern and low perspective taking, or vice versa. Perhaps larger, more representative samples, or samples drawn from clinical populations, are required to find such combinations. Several clinical symptoms, such as autism spectrum symptoms and callous-unemotional traits, have been associated with deficits specific to cognitive and affective empathy, respectively (Brouns et al., 2013; Dadds et al., 2009; Pasalich, Dadds, & Hawes, 2014). It would be interesting to study how combinations of low empathic concern and high perspective taking, or vice versa, might be associated with adolescent-parent conflict frequency, and the tradeoff between conflict resolution skills and sensitivity to conflict. Such research might further elucidate the individual contributions of empathic concern and perspective taking to the effects found in the present line of research.

Adolescent-parent conflict

Across two studies, we found that perspective taking was associated with more positive and other-oriented conflict resolution behaviors. However, the specific behaviors that were found to be relevant in videotaped conflict discussions differed from those typically measured using questionnaire measures of conflict resolution behavior. This is in line with prior research, which has shown that patterns of positive conflict resolution behavior reported in questionnaires are typically not confirmed using behavioral observation (for a review, see Laursen & Collins, 1994). Future research might address the sources

of such discrepancies. Of course, social desirability bias might account for some of this variation. It might also be that the outcome of conflicts affects individuals' memories of their behavior during conflicts. Alternatively, it is possible that questionnaire measures assess individuals *intentions* to behave in a certain way, whereas their actual behavior in interactions is, in part, a response dictated by the prior behavior of their interaction partner. Adolescent-parent relationships are an ideal environment to study these issues, because they are stable and characterized by recurring conflict. Future research might attempt to provide a more nuanced understanding of the interplay between self-reported conflict resolution behavior and observed behavior in conflicts, by combining longitudinal measures of adolescent- and parent-reported conflict resolution behaviors with annual observations of conflict interactions. Using a longitudinal actor-partner interdependence approach (Kashy & Kenny, 1990), the relative contributions of adolescent and parent effects might be disentangled. Furthermore, this approach could provide more conclusive evidence of the relative contribution of adolescents' developing empathy in their intentions to engage in prosocial conflict resolution behavior with parents, as well as their capacity to do so, after accounting for parents' behavior in actual conflicts.

Another question that remains unaddressed is the potential moderating effect of adolescent-parent power imbalances on the role of adolescents' empathy in conflicts with parents. Adolescent-parent relationships are characterized by an inherent power differential (Branje, Laursen, & Collins, 2013). This has important implications for conflict, because low-power individuals' outcomes depend, to a large extent, on the choices made by powerful others. In conflicts, adolescents might therefore be motivated to respond adequately to their parents' emotions and understand parents' points of view, so they can negotiate better outcomes for themselves. In support of this argument, the Emotions As Social Information (EASI) model (Van Kleef, 2009) states that low-power individuals process the emotion expressions of powerful interaction partners more deeply. Furthermore, empirical research has shown that low-power individuals show more affective empathy (Van Kleef et al., 2008), and engage in greater perspective taking (Galinsky, Magee, Inesi, & Gruenfeld, 2006). Thus, future research should assess whether adolescent-parent power discrepancies motivate adolescents to use their developing empathic abilities to resolve conflicts with parents more effectively, or to avoid them altogether.

Finally, a potentially promising avenue for future research might be the role of empathy in conflict resolution between parents and *adult* children. Adolescence is often conceptualized as a period of individuation (Deković, Noom, & Meeus, 1997; Grotevant & Cooper, 1986). However, in Dutch society it is common for parents to support their adult children until their entry into the labor market. In some other cultures, children

reside in the family home until marriage. Such arrangements might perpetuate adult children's dependence on parents and prevent them from achieving truly horizontal relationships. In adolescence, most conflict with parents is related to small, everyday hassles, such as doing chores or homework (Adams & Laursen, 2001). When adult children have moved out of the parental home and have become truly financially independent, conflict about daily hassles is likely to decline dramatically. Nevertheless, many adults do not have perfect relationships with their parents. Some of the conflict that persists between parents and their adult children might reflect the deeper meaning of conflicts experienced at a younger age. For example, adolescents and parents might fight about the adolescents' belongings being scattered around the house. Perhaps the parents value order and organization. Adolescents, on the other hand, might feel that, as a family member, they have a legitimate right to claim some of the space around the house. Adolescents might perceive persistent conflict about this issue as a message that their presence in the house is not appreciated. When adolescents leave the family home, conflicts about cleaning are likely to stop abruptly, but the child's feeling of being unappreciated might persist into adulthood. It might take many years to repair such deep seated conflict and misunderstanding, and some families likely struggle with this challenge. As empathy is known to play a role in forgiveness, as well (McCullough, Worthington Jr., & Rachal, 1997), it is likely to play a role in the resolution of more deep-seated conflict and grudges between parents and adult children, because supportive family relations are a lifelong asset.

CONCLUSION

The present dissertation provided important new insights into the largely unexplored role of adolescents' developing empathy in adolescent-parent conflict. Firstly, with regard to empathy development, our research indicated that adolescence is a more important developmental period for perspective taking than for empathic concern, and that empathic concern drives adolescents' development of perspective taking. Moreover, between-individual differences in empathic dispositions became further amplified from early to mid-adolescence, particularly for perspective taking. With regard to links between empathy and conflict, we found that low-empathy adolescents and their parents reported significantly greater conflict frequency than average- and high-empathy adolescents. Furthermore, adolescents' naturally developing empathic concern and perspective taking was associated with changes in their specific conflict resolution behaviors towards both parents. However, perspective taking appeared to be associated more strongly with a pattern of prosocial and constructive conflict resolution behavior than empathic concern. This finding was replicated in experimental research. Consequently, our results suggest that, compared to empathic concern,

adolescents' perspective taking has more beneficial influences upon adolescent-parent conflict. Finally, high-empathy adolescents appeared to be more sensitive to conflict with parents. On the one hand, this was evidenced by the fact that high-empathy adolescents' reports of conflict frequency were in line with parents' reports throughout adolescence, whereas average and low-empathy adolescents underreported conflict compared to both parents. On the other hand, this greater sensitivity was evidenced by the finding that conflict predicted emotion dysregulation more strongly for high-empathy adolescents. This suggests that the benefits of high empathy may depend on the family context: Higher empathy is associated with better conflict resolution skills, but when families are characterized by relatively more frequent conflict, adolescents' higher empathy may render them vulnerable. In conflicts with adolescents, parents might thus be well advised to exercise their own empathy and consider the relative strengths and weaknesses of high- versus low-empathy adolescents, and attempt to address adolescents' developing perspective taking in order to resolve the matter amicably.

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Samenvatting

Ruzie tussen ouders en kinderen is een natuurlijk onderdeel van de adolescentie, aangezien jongeren pogen om hun eigen identiteit te smeden binnen de perken van het ouderlijk gezag (Laursen & Collins, 2004). Dergelijke conflicten zijn niet per definitie schadelijk; belangrijker is de manier waarop jongeren leren hiermee om te gaan (Branje, Van Doorn, Van der Valk, & Meeus, 2009). Het is al lang bekend dat empathie een rol speelt bij het handhaven van positieve relaties (Davis & Outhout, 1987). Bovendien is empathie gerelateerd aan verminderde agressie en meer prosociaal gedrag in volwassenen en in onderlinge relaties tussen adolescenten (bijv., Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). Een vergelijking tussen onderzoeken laat zien dat de ontwikkeling van empathische vermogens in de adolescentie samenvalt met een verschuiving naar meer constructief gedrag in conflicten met ouders (Branje, Laursen & Collins, 2013; Van der Graaff, De Wied, Hawk, Van Lier, & Meeus, 2014). Desalniettemin is de rol van de ontwikkelende empathie van adolescenten in ouder-kind conflicten nog niet eerder onderzocht. Het doel van dit proefschrift was dan ook om inzicht te verschaffen in de tot noch toe relatief onbekende rol van de ontwikkeling van empathie in conflicten tussen ouders en adolescenten.

Dit proefschrift poogde daarbij om drie onderzoeksvragen te beantwoorden. Allereerst werd onderzocht hoe empathie zich ontwikkelt in de adolescentie. Twee empathiedimensies die in de adolescentie verder ontwikkelen zijn *empathische betrokkenheid en perspectiefname* (bijv., Van der Graaff et al., 2014). Empathische betrokkenheid is de emotionele neiging om medeleven te voelen voor de emoties en ervaringen van anderen, en perspectiefname is de cognitieve neiging om jezelf te verplaatsen in anderen (Davis, 1983). Er bestonden echter tegenstrijdige ontwikkelingstheorieën over de vraag of, bij adolescenten, affectieve empathie de ontwikkeling van cognitieve empathie zou voorspellen, of vice versa (Eisenberg, Spinrad & Sadovsky, 2006; Hoffman, 2000; Preston en De Waal, 2002). Bovendien had het meeste ontwikkelingsonderzoek zich gericht op de gemiddelde ontwikkelingstrajecten van empathische betrokkenheid en perspectiefname in grote steekproeven van adolescenten, waarbij geen aandacht besteed werd aan de potentiële diversiteit van ontwikkelingstrajecten tussen adolescenten. Om deze gebreken in de literatuur aan te vullen, onderzochten wij het longitudinale samenspel tussen affectieve en cognitieve empathie (hoofdstuk 2), en we gebruikten persoonsgerichte methoden om individuele verschillen in trajecten van empathische ontwikkeling bloot te leggen (hoofdstuk 3). Het tweede doel van dit proefschrift was om te onderzoeken of de empathieontwikkeling van adolescenten gerelateerd was aan de frequentie van ouder-kind conflict en aan specifiek oplossingsgedrag in die conflicten. Er was reeds bekend dat empathie prosociaal conflictoplossingsgedrag bevordert in relaties met leeftijdsgenoten (De Wied, Branje, & Meeus, 2007). De rol van empathie in conflict met de ouders was echter

nog niet onderzocht. Conflictoplossing in ouder-kindrelaties is echter zeer relevant, omdat deze relaties een relatief stabiele en veilige omgeving bieden waarin jongeren effectief conflictoplossingsgedrag kunnen aanleren (Adams & Laursen, 2001). Verder had eerder onderzoek geen aandacht besteed aan potentiele onderscheidenlijke verbanden van affectieve en cognitieve empathie met specifieke conflictgedragingen. Om deze zaken te onderzoeken, analyseerden we associaties tussen het niveau van empathie van adolescentie en de frequentie van conflict met de ouders (hoofdstuk 3), en onderzochten we zowel parallelle ontwikkeling als causale verbanden van affectieve en cognitieve empathie met specifieke conflictgedragingen (hoofdstukken 4 en 5). Het derde doel van dit proefschrift was om te onderzoeken of hoog-empathische adolescenten gevoeliger zijn voor conflict met de ouders. Empathie hangt samen met een groter bewustzijn van de sociale signalen die onenigheid aankaarten (Richardson, Groen, en Lago, 1998), alsmede met een grotere mate van negatieve emoties in de nasleep van conflicten (Leith & Baumeister, 1998). Daarom onderzochten wij of hoog-empathische adolescenten gevoeliger waren voor de detectie van conflicten (hoofdstuk 3), en of zij gevoeliger waren voor conflict-gerelateerde emotionele ontregeling (hoofdstuk 6).

Om deze onderzoeksvragen te beantwoorden, voerden we vier longitudinale studies en één experimentele studie uit. Voor de longitudinale studies gebruikten we gegevens uit de RADAR dataset, bestaande uit 497 families. Deze families werden geworven wanneer één van hun kinderen ongeveer 13 jaar oud was, en gedurende meer dan zes jaar gevolgd. Voor het experimentele onderzoek bezochten we 67 gezinnen thuis, om conflictdiscussies tussen adolescenten en hun moeders op film vast te leggen (gemiddelde leeftijd = 15,51).

Met betrekking tot empathieontwikkeling in de adolescentie bleek uit onze resultaten dat de empathische betrokkenheid van adolescenten de ontwikkeling van perspectiefname voorspelde. Bovendien voorspelde perspectiefname van moeders de ontwikkeling van deze eigenschap bij hun dochters, maar niet bij zoons. Ten slotte bleken individuele verschillen in empathische betrokkenheid bij adolescenten reeds relatief stabiel te zijn, vergeleken met hun perspectiefname. Tezamen suggereren deze bevindingen dat, in de adolescentie, perspectiefname in grotere mate open staat voor ontwikkeling dan empathische betrokkenheid. We beoogden verder om verschillen in ontwikkelingstrajecten van empathie tussen adolescenten te verkennen. Met behulp van persoonsgerichte methoden konden we groepen adolescenten identificeren die gekenmerkt werden door hoge, gemiddelde, en lage empathie. De verschillen tussen deze drie klassen namen toe van de vroege- tot midden-adolescentie, vooral wat betreft perspectiefname. Dit benadrukt het belang van het vroegtijdig identificeren van laag-empathische adolescenten, om de empathische ontwikkeling te stimuleren

en te voorkomen dat deze jongeren verder op hun leeftijdgenoten gaan achterlopen. Met betrekking tot verbanden tussen empathie en conflictfrequentie vonden wij dat deze eerdergenoemde laag-empathische adolescenten en hun ouders significant meer conflicten rapporteerden dan de gemiddeld- en hoog-empathische adolescenten. In een andere studie vonden we dat de natuurlijke ontwikkeling van empathische betrokkenheid en perspectiefname van adolescenten beiden gepaard gingen met afnemende conflictescalatie met moeders, en toenemende probleemoplossing met beide ouders. Deze associaties waren echter sterker voor perspectiefname dan voor empathische betrokkenheid. Verder hing de neiging om in de vroege adolescentie meer toe te geven aan moeders in conflicten samen met toenemende empathische betrokkenheid. Perspectiefname hing samen met de neiging om zich minder terug te trekken uit conflicten. Tezamen suggereren deze bevindingen dat, hoewel empathische bezorgdheid en perspectiefname beiden gepaard gaan met verminderde escalatie en verhoogde probleemoplossing, perspectiefname sterker samenhangt met een patroon van constructieve conflictoplossing dan empathische betrokkenheid. We bestudeerden ook de effecten van experimenteel opgewekte affectieve en cognitieve empathie op gedrag en uitkomsten in adolescent-moeder conflictdiscussies. Het opwekken van cognitieve empathie verlaagde conflictescalatie van adolescenten, en bevorderde het aandachtig luisteren voor jongeren die laag waren in dispositionele perspectiefname. Het opwekken van affectieve empathie, daarentegen, bevorderde actief probleemoplossend gedrag. Voor jongeren met lage dispositionele empathische betrokkenheid bevorderden zowel affectieve en als cognitieve empathie-inducties tevredenheid met de uitkomst van het conflict, maar enkel de cognitieve empathie bevorderde waargenomen gelijkwaardigheid van die uitkomst. Tezamen suggereren deze bevindingen dat cognitieve empathie in het bijzonder jongeren helpt om zich te distantiëren van de emotionele kern van een conflict en beter te luisteren naar het standpunt van moeders, wat leidt tot resultaten die zowel als bevredigend en eerlijk worden gezien.

Ten slotte hebben we onderzocht of hoog-empathische adolescenten gevoeliger waren voor conflict. In één studie bleek dat de hoeveelheid conflicten die hoog-empathische adolescenten rapporteerden gedurende de gehele adolescentie in overeenstemming was met de hoeveelheid conflicten die beide ouders rapporteerden. Gemiddeld- en laag-empathische adolescenten daarentegen rapporteerden minder conflict dan beide ouders. Dit suggereert dat hoog-empathische adolescenten gevoeliger zijn voor de detectie van conflict. In een tweede studie vonden we dat conflict aanzienlijke emotionele ontregeling voorspelde voor hoog-empathische adolescenten, maar niet voor gemiddeld- en laag-empathische adolescenten. Deze bevindingen suggereren dat hoog-empathische adolescenten meer vatbaar zijn voor conflict-

gerelateerde emotionele ontregeling. Hoewel hoge empathie dus in twee studies samen bleek te hangen met meer prosociaal conflictgedrag, hangt het ook samen met een grotere gevoeligheid voor conflict. Dit suggereert dat de voordelen van hoge empathie af kunnen hangen van de familiecontext. Wanneer gezinnen gekenmerkt zijn door relatief veel conflict, kan de grotere gevoeligheid van hoog-empathische adolescenten hen kwetsbaar maken. Bij ruzie met adolescenten is het voor ouders dus aan te bevelen om hun eigen empathie uit te oefenen door rekening houden met de relatieve krachten en zwaktes van hoog- versus laag-empathische adolescenten, en te proberen om de ontwikkelende perspectiefname aan te spreken om de ruzie vreedzaam op te lossen.

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Summary

Parent-child conflict is a natural part of adolescence, as youths endeavor to forge their own identities in the context of continued closeness with their parents (Laursen & Collins, 2004). Such conflicts are not inherently harmful; what is more important is the way adolescents learn to manage these conflicts (Branje et al., 2009). Empathy has long been known to play a role in maintaining positive close relationships (Davis & Outhout, 1987), and has been linked to conflict-related outcomes in adult- and adolescent peer relationships (e.g., Eisenberg & Miller, 1987; Miller & Eisenberg, 1988). However, relatively little was known about the role of adolescents' developing empathy in the context of conflict with parents. In adolescence, the development of empathic abilities is paralleled by a shift towards more constructive conflict behaviors (Branje et al., 2013; Van der Graaff et al., 2014). The goal of the present dissertation was to provide insight into the heretofore relatively unknown role of adolescents' empathy development in adolescent-parent conflict.

The present dissertation set out to address three main research questions. First of all, we examined how empathy develops in adolescence. Two empathy dimensions which become increasingly developed in adolescence are the tendency to experience affective *empathic concern* for the misfortunes of others, and the ability to engage in cognitive *perspective taking* (e.g., Van der Graaff et al., 2014). However, developmental theories were at odds about whether, in adolescence, affective empathy would predict the development of cognitive empathy, or vice versa (Eisenberg, Spinrad, & Sadovsky, 2006; Hoffman, 2000; Preston & De Waal, 2002). Furthermore, most developmental studies had focused on average trajectories of empathic concern and perspective taking development across adolescents, disregarding potential heterogeneity in developmental trajectories between adolescents. To address these issues, we investigated the longitudinal interplay between affective and cognitive empathy (Chapter 2), and we used person-centered methods to examine individual differences in trajectories of empathy development (Chapter 3). The second goal of this dissertation was to investigate whether adolescents' developing empathy was related to adolescent-parent conflict frequency, and adolescents' specific behaviors in those conflicts. Empathy has been found to promote prosocial conflict behaviors in relationships with peers (De Wied et al., 2007). However, previous research had not addressed the role of empathy in conflicts with parents. This context is particularly relevant, because relationships with parents provide a safe environment for adolescents to practice effective conflict resolution behavior (Adams & Laursen, 2001). Moreover, previous research had largely overlooked potential differential associations of affective and cognitive empathy with specific conflict behaviors. To address these issues, we investigated links between adolescents' levels of empathy and the frequency of conflict with parents (Chapter 3), and we examined developmental and causal links of affective and cognitive empathy

with specific conflict behaviors (Chapters 4 and 5). The third goal of this dissertation was to investigate whether high-empathy adolescents are more sensitive to conflict with parents. Empathy is associated with a greater awareness of the social cues that signal disagreement (Richardson, Green, & Lago, 1998), as well as greater negative emotions in the aftermath of conflict (Leith & Baumeister, 1998). We therefore investigated whether high-empathy adolescents were more sensitive to the detection of conflict (Chapter 3), as well as whether they were more sensitive to conflict-related emotion dysregulation (Chapter 6).

To address these issues, we conducted four longitudinal studies and one experimental study. For the longitudinal studies, we used data from the RADAR sample, which consists of 497 families. These families were recruited when one of their children was approximately 13 years of age, and followed for over six years. For the experimental study, we visited 67 families in the home, to videotape adolescent-mother conflict discussions (mean age = 15.51).

With regard to empathy development in adolescence, our results showed that adolescents' empathic concern predicted the development of perspective taking over time. Furthermore, mothers' perspective taking predicted perspective taking development for daughters, but not for sons. Finally, adolescents' empathic concern was more stable over time than their perspective taking. Together, these findings suggest that perspective taking is particularly susceptible to development in adolescence. We also set out to explore potential individual differences in developmental trajectories of empathy. Using person-centered methods, we identified groups of high-empathy, average-empathy, and low-empathy adolescents. Differences between these three classes in levels of empathy became further amplified from early- to mid-adolescence, particularly with regard to perspective taking. This highlights the importance of identifying adolescents' low empathy at an early age, and supporting the development of mature perspective taking abilities to prevent adolescents from falling further behind their peers.

With regard to links between adolescents' empathy and conflict frequency, we found that these aforementioned low-empathy adolescents and their parents reported significantly more frequent conflict throughout adolescence than the average- and high-empathy adolescents. In another study, we found that adolescents' naturally developing empathic concern and perspective taking were both associated with decreasing conflict escalation with mothers, and increasing problem solving with both parents. These associations were consistently stronger for perspective taking than for empathic concern. Furthermore, adolescents who engaged in greater compliance with mothers developed increasing empathic concern over time, whereas perspective taking was associated with a decreased tendency to withdraw from conflicts. Taken together,

these findings suggest that, although empathic concern and perspective taking are both associated with decreased escalation and increased problem solving, perspective taking is more strongly associated with a pattern of constructive conflict resolution than empathic concern. We also studied the effects of experimentally induced affective and cognitive empathy on behaviors and outcomes in adolescent-mother conflict discussions. Inducing cognitive empathy reduced adolescents' conflict escalation, and promoted other-oriented listening for adolescents low in trait perspective taking. Inducing affective empathy instead promoted active problem solving. For adolescents low in trait empathic concern, affective and cognitive empathy inductions both promoted outcome satisfaction, but only cognitive empathy promoted perceived fairness. Taken together, these findings suggested that cognitive empathy in particular allows adolescents to distance themselves from the emotional heat of a conflict and listen to mothers' point of view, leading to outcomes perceived as both satisfying and fair.

Finally, we investigated whether high empathy adolescents were more sensitive to conflict. In one study we found that high-empathy adolescents' reports of conflict frequency were in agreement with those of both parents throughout adolescence, whereas average and low-empathy adolescents under-reported conflict relative to both parents. This suggests that high-empathy adolescents are more sensitive to the detection of conflict. In a second study, we found that conflict predicted significant emotion dysregulation for high-empathy adolescents, but not for average and low-empathy adolescents. These findings suggest that high-empathy adolescents are more susceptible to conflict-related emotion dysregulation. Thus, although high empathy was found to be associated with more prosocial conflict behavior across two studies, high-empathy adolescents' greater sensitivity to conflict suggests that the benefits of high empathy may depend on the family context. When families are characterized by relatively more frequent conflict, high-empathy adolescents' greater conflict sensitivity may render them vulnerable. In conflicts with adolescents, parents might thus be well advised to exercise their own empathy and consider the relative strengths and weaknesses of high versus low-empathy adolescents, and attempt to address adolescents' developing perspective taking to resolve the matter amicably.

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About the author

Caspar van Lissa was born in Den Haag, the Netherlands, on October 7, 1985. He graduated from the Gymnasium Haganum (2004) with a focus on natural- and health sciences. He completed his Bachelor of Arts in Liberal Arts and Sciences at University College Utrecht (2007), with a major in Social Sciences, and minors in Cognitive Neuroscience and Methods & Statistics. During his bachelor's education, Caspar began teaching biostatistics at Utrecht University (2006), and he has been teaching ever since. In 2008, Caspar enrolled in the two-year research master's program in Social Psychology at VU University, Amsterdam. In 2009, he took a year to focus on teaching (practical sessions in statistics and psychology, and supervising bachelor's theses), and to study social coaching and public speaking. In 2010, Caspar returned to graduate Cum Laude from the Social Psychology research master's program. He began his PhD research at the department of Youth and Family at Utrecht University in 2011. During his PhD project, Caspar supervised master's theses since 2011, and began lecturing at the bachelor's level in 2013. Caspar van Lissa is the founder of Social Excellence Coaching, and has written and presented extensively on personal development and improving close relationships. He studies computer programming as an extracurricular activity, and has written software to partially automate analyses in MPlus. Since 2015, Caspar van Lissa continues his research as a post-doctoral researcher at Erasmus University Rotterdam and University of Amsterdam, focusing on the role of fathers in children's socio-emotional development under the auspices of Prof. Dr. Renske Keizer.

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This dissertation provides novel insights into the role of adolescents' developing empathy in conflicts with parents. With regards to empathy development, the results showed that adolescents' cognitive ability to engage in *perspective taking* is more susceptible to development than their tendency to experience emotional *empathic concern* for others. Moreover, adolescents' empathic concern predicted their development of perspective taking, and mothers' perspective taking predicted their daughters' perspective taking development. We further identified groups of high-, average-, and low-empathy adolescents. The differences between these groups became further amplified from early- to mid-adolescence, which highlights the importance of identifying empathy deficits at a young age. With regards to the role of empathy in adolescent-parent conflict, results showed that low-empathy adolescents experienced significantly more frequent conflict than others. Furthermore, cognitive empathy was more strongly associated with a pattern of constructive conflict resolution behaviors than affective empathy, both in terms of empathy development and experimentally induced empathy. Finally, results showed that high empathy was associated with greater conflict sensitivity, in terms of greater conflict detection sensitivity, and greater conflict-related emotion dysregulation. On the one hand, higher empathy is thus associated with more constructive conflict resolution behavior, but on the other hand, it is also associated with a vulnerability for conflict-related emotion dysregulation.

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