Family Roots of Empathy-Related Characteristics:
The Role of Perceived Maternal and Paternal Need Support in Adolescence

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Theories on empathy development have stressed the role of socialization in general and the role of parental support in particular. This 3-wave longitudinal study of middle adolescents ($N = 678$) aimed to contribute to the extant research on the socialization of empathy (a) by examining the relative contribution of perceived maternal and paternal need supportive parenting on over-time changes in adolescents' emotional and cognitive aspects of empathy (i.e., empathic concern and perspective taking, respectively) and (b) by considering the possibility of reciprocal relations between perceived parenting and adolescent empathy. Whereas paternal need support consistently predicted over-time changes in perspective taking in both sons and daughters, perceived maternal need support predicted changes in empathic concern among daughters only. In addition, although less consistently so, empathy dimensions also predicted over-time changes in perceived parenting. Results are discussed in terms of the nature of empathy and in the light of domain-specific effects of each parent.

Keywords: empathy, perspective taking, parenting, parental support, adolescence

Given the beneficial outcomes associated with empathy, including prosocial behavior (Eisenberg, Carlo, Murphy, & Van Court, 1995), lower aggression (Miller & Eisenberg, 1988), social competence (Saarni, 1990), relationship satisfaction (Davis & Oathout, 1987), less prejudice (Galinsky & Ku, 2004), and peaceful conflict resolution (McPherson Frantz & Janoff-Bulman, 2000), research is increasingly addressing the antecedents of empathy. Although research shows that genetic predispositions play a role in empathy development (Davis, Luce, & Kraus, 1994; Knafo, Zahn-Waxler, Van Hulle, Robinson, & Rhee, 2008; Plomin et al., 1993; Zahn-Waxler, Robinson, & Emde, 1992), research also highlights the importance of socialization in general and parenting in particular (e.g., Eisenberg & Valiente, 2002; Knafo et al., 2008; Koestner, Franz, & Weinberger, 1990). The aim of the present study was to add to extant research on the development of empathy in a number of ways. First, we studied associations between perceived parenting and empathy in adolescence. Although adolescence has been identified as a crucial period for empathy development (Chase-Landsdale, Wakschlag, & Brooks-Gunn, 1995), research on the socialization of empathy in adolescence is scarce compared with research on younger children (Fabes, Carlo, Kupanoff, & Laible, 1999). Second, we aimed to add to research on the relative and differential contribution of mothers and fathers to empathy development by tapping into both perceived maternal and paternal parenting. In doing so, we also took into account the possibility that the effects of perceived paternal and maternal parenting might be conditional upon the gender of the child. Third, we considered the possibility that mothers and fathers might foster different aspects of empathy. For this purpose, we adopted a multidimensional approach to empathy, distinguishing between affective and cognitive components of empathy (Davis, 1983). Finally, we aimed to examine the possibility of bidirectional relations between perceived parenting and dimensions of empathy, such that empathy characteristics might also affect adolescents' perceptions of their parents.

Conceptualization of Empathy

There is growing consensus among theorists that empathy is a multidimensional concept (Duan & Hill, 1996), with theorists stressing that empathy contains both affective and cognitive components (Davis, 1983; Eisenberg & Fabes, 1990). The affective component is often referred to as *empathic concern* (or sympathy) and represents concern for others based on the comprehension of their internal state. Affective appraisals of another person's emotional states may result in motivation to relieve the other person's distress (Eisenberg & Fabes, 1990). The cognitive component is often referred to as *perspective taking* and pertains to the cognitive understanding of others' internal states and cognitions. As such, perspective taking refers to a primarily cognitive process that may or may not result in the experience and expression of an affective

reaction toward another person's emotional state. Hence, although empathic concern and perspective taking refer to an other-oriented empathic attitude, both of them highlight different and specific aspects of the global empathy concept (Davis, 1983).

Both empathy components have been shown to yield a number of common effects. Specifically, both components predicted adolescents' interpersonal functioning and related to interpersonal behaviors such as prosocial behavior (Eisenberg et al., 1995; Fabes et al., 1999; Roberts & Strayer, 1996) and aggression (Björkqvist, Österman, & Kaukiainen, 2000; Miller & Eisenberg, 1988) as well as to adolescents' social competence and quality of functioning in friendships (Laible & Carlo, 2004). At the same time, the importance of a multidimensional approach to empathy has been underscored by factor-analytic studies demonstrating the distinctiveness of empathic concern and perspective taking (e.g., Cliffordson, 2001), and both components have been shown to yield a number of differential effects. For instance, whereas perspective taking was found to be more strongly associated with interpersonal and intergroup relations such as lower intergroup conflicts (Galinsky, 2002), less prejudice (Galinsky & Ku, 2004; Vescio, Sechrist, & Paolucci, 2003), and higher level of success achieved in negotiations (Neale & Bazerman, 1983), empathic concern was found to be more strongly associated with helping and prosocial behaviors (Oswald, 2002). In addition, studies have demonstrated that perspective taking and emotional concern predicted unique variance in prosocial moral reasoning (Eisenberg, Zhou, & Koller, 2001) and that the empathic concern effect on prosocial behavior is moderated by one's perspective-taking ability (Knight, Johnson, Carlo, & Eisenberg, 1994).

Development of Empathy

Research highlighted the importance of parenting in general and parental support in particular for empathy development (e.g., Eisenberg & Valiente, 2002; Knafo & Plomin, 2006; Koestner et al., 1990; Strayer & Roberts, 2004). The relation between parental support and children's empathy has been explained in terms of social learning theory, according to which supportive parents are role models for their offspring's empathic skills (Barnett, 1987; Eisenberg, Spinrad, & Sadovsky, 2006), as well as in terms of attachment theory (Kestenbaum, Faber, & Stroufe, 1989; Laible, Carlo, & Roesch, 2004; van der Mark, van IJzendoorn, & Bakermans-Kranenburg, 2002). Attachment theorists have argued that supportive caregiving would foster a secure attachment through satisfying children's emotional needs. In this way, supportive parenting would free children from self-preoccupation and allow for truly empathic behavior (Bowlby, 1980; Hoffman, 2000; Sroufe, 2005; Sroufe & Fleeson, 1986).

In line with the notion that supportive parenting is involved in the development of empathy, numerous studies obtained a positive relation between parental support and children's empathic responding. However, many of these studies did not empirically distinguish between empathic concern and perspective taking. Whereas some studies focused exclusively on empathic concern (e.g., Eisenberg & Fabes, 1990; Eisenberg, Fabes, & Murphy, 1992; Fabes, Eisenberg, & Miller, 1990; Koestner et al., 1990; van der Mark et al., 2002), other studies focused exclusively on perspective taking (e.g., Barnett, 1987; Grotevant & Cooper, 1986), and still other studies used an aggregate measure of general em-

pathy (e.g., Carlo, McGinley, Hayes, Batenhorst, & Wilkinson, 2007; Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Laible & Carlo, 2004). Studies that did distinguish both empathy components suggested that supportive parenting is associated with both emotional concern and perspective taking (Eisenberg & McNally, 1993; Soenens, Duriez, Vansteenkiste, & Goossens, 2007). One important aim of this study was to add to the literature by examining associations between perceived parenting and a differentiated measure of empathy, distinguishing empathic concern from perspective taking.

The differentiation between empathic concern and perspective taking seems especially important because maternal and paternal parenting might relate in a specialized and unique way to these components of empathy. In this respect, research increasingly indicates that fathers also have an important role in their offspring's social development (e.g., Hastings, McShane, Parker, & Ladha, 2007; Hastings, Rubin, & DeRose, 2005; Laible & Carlo, 2004; Lamb & Lewis, 2010; Milevsky, Schlechter, Netter, & Keehn, 2007; Stolz, Barber, & Olsen, 2005), and, additionally, researchers have suggested that the parental influence might depend on parental gender. Specifically, the traditional sex-role differentiation suggests that mothers and fathers take on different roles. In particular, whereas mothers are often thought of as "ministers of internal affairs" who deal with emotions and caregiving, fathers are often thought of as "ministers of foreign affairs" who direct children at exploring the outer world (Verschueren & Marcoen, 1999). In line with this, research suggests a differential influence of mothers and fathers on the components of empathy, with mothers being more important for the development of emotional concern and fathers being more important for the development of perspective taking (Hastings, Utendale, & Sullivan, 2007; Spinrad et al., 1999; Zahn-Waxler, 2000). However, the parenting–empathy relation might depend not only on the gender of the parent but also on the gender of the child. In this respect, gender role socialization theories suggest that child-rearing practices are affected by gender stereotypes, leading parents to foster divergent developmental outcomes in their sons and daughters (Bem, 1984, 1993; Collins, Chafetz, Blumberg, Coltrane, & Turner, 1993; Coltrane, 1998; Gilligan & Wiggins, 1988; Hastings et al., 2005; Lennon & Eisenberg, 1987). This appears especially true in the empathy domain (e.g., Dunn, Bretherton, & Munn, 1987; Kuebli, Butler, & Fivush, 1995). In Western culture, empathy, and especially emotional concern, conforms more closely to a conception of femininity, and socialization often reinforces a stronger disposition to attend to the needs of others in females than in males (Coltrane, 1998). In line with this, research shows that emotional concern is more important to the self-concept of women (Cross & Madson, 1997; Eagly & Steffen, 1984; Gilligan, 1982; Klein & Hodges, 2001) and that girls are socialized more strongly toward emotional concern (Eisenberg & Lennon, 1983; Hastings et al., 2005; Karniol, Gabay, Ochion, & Harari, 1998; Olweus & Endersen, 1998). Finally, research suggests that the interaction of the gender of parent and child might also be important. In this respect, research shows that mothers invest more in emotional closeness with their daughters than with their sons (Collins & Rusell, 1991; Dunn et al., 1987; Kochanska, 1997; Lamb & Lewis, 2010; Larson & Richards, 1994; Milevsky et al., 2007), that fathers reward "masculine" cognitive and instrumental abilities especially in their sons (Maccoby & Jacklin, 1974; Power & Shanks, 1989), and that

children are more likely to identify with and model the behavior of the same-sex parent (Belle, 1989; Eisenberg et al., 1996, 1991; Fabes et al., 1990; Hastings et al., 2005; Larson & Richards, 1994; Maccoby, 2003; Perry & Bussey, 1979). Given these findings, it seems important to examine whether the parenting–empathy relation depends on the gender of parent and/or adolescent and whether these effects differ across dimensions of empathy.

Apart from adopting a multidimensional approach to empathy and from addressing the role of both parent and child gender, this study aimed to contribute to the extant research by adopting a longitudinal approach. Such an approach allowed us to address the possible bidirectional character of parent–adolescent relations (see Cummings & Schermerhorn, 2003; Kerr & Stattin, 2003). More specifically, although it has been argued that empathy develops as a result of the interplay between child, parent–child, and parent characteristics (Eisenberg, Spinrad, & Cumberland, 1998), only recently have investigators started exploring the influence of adolescents' empathic characteristics on parenting. In a longitudinal child sample, Zhou et al. (2002) tested whether parental warmth and positive expressiveness affected children's empathy and social functioning and whether children's empathy and social functioning elicited parental positive expressiveness and/or parental warmth. Results showed that, although a parent effects model fitted the data better than a child effects model, low child empathy did also predict less warm and responsive parenting. Hence, in order to better understand the dynamics at play in the parenting–empathy relation, it seems important to study bidirectional effects.

The Present Study

The goals of this study were (a) to study the relations between parental support and adolescents' empathy; (b) to examine the relative contribution of maternal and paternal support on over-time changes in both adolescents' emotional and cognitive characteristics of empathy; (c) to examine whether some of the effects of parenting on empathy development depend on the gender of the parent, the gender of the adolescent, or the gender of both parent and adolescent; and (d) to simultaneously examine whether parental support predicts adolescent empathic concern and/or perspective taking and whether adolescent empathic concern and/or perspective taking predict over-time changes in perceived parental support. We addressed these goals in a sample of adolescents because, although adolescence has been identified as a crucial period for empathy development (Chase-Landsdale et al., 1995; Fabes et al., 1999), research on the socialization of empathy in adolescence is more scarce compared with research with younger children (for exceptions, see Carlo, Fabes, Laible, & Kupanoff, 1999; Carlo et al., 2007; Soenens et al., 2007). Hence, in order to better understand the development of empathy, it seems especially important to investigate the role of parenting on dimensions of empathy during adolescence. Given that adolescent perceptions of parenting have often been more predictive of various developmental and psychosocial outcomes than parental perceptions or the communality of adolescent and parent perceptions, in the present study, we decided to focus on adolescent perceptions of parenting.

In the present study, perceived parental support was conceptualized and assessed as a broad construct, encompassing responsiveness (i.e., the degree to which adolescents experience a warm, responsive, and personal relation with their parents), autonomy

support (i.e., the degree to which adolescents perceive their parents to support their autonomy or their volitional functioning), and lack of psychological control, with *psychological control* referring to the extent to which parents engage in intrusive and manipulative parenting techniques such as guilt induction and love withdrawal (Grolnick & Pomerantz, 2009; Soenens & Vansteenkiste, 2010). Measures of responsiveness, autonomy support, and (a lack of) psychologically controlling parenting have been aggregated in a composite score in previous work, and this composite score was referred to as need supportive (Duriez, Soenens, & Vansteenkiste, 2007; Niemiec et al., 2006) or nurturant (Kasser, Ryan, Zax, & Sameroff, 1995) parenting. Previous studies have shown that (perceived) need supportive parenting relates to adjustment indicators such as social competence, psychological well-being, and self-esteem (e.g., Niemiec et al., 2006).

Method

Participants.   Two weeks prior to the first data collection, participants received a package for their parents containing an instruction letter explaining the purpose of the study and a passive informed consent form. In the instruction letter, parents were asked to fill out a form if they did not want their child to participate. Less than 2% of the parents did not allow this. Prior to administering the actual surveys, participants received an active consent form. None of the participants refused participation. Confidentiality was guaranteed, and it was stressed that participation was voluntary and that they could refuse participation at any time. Questionnaires were then administered in the presence of the third author during regular school hours in secondary schools in the Flemish-speaking part of Belgium. Students had approximately 45 min to complete the survey.

In the first wave of the data collection (Time 1), 678 10th-grade high school students participated (mean age = 15.64; SD = 0.34; 50% male). All participants were born in Belgium, had Belgian nationality, and belonged to the Flemish-speaking majority. Participants generally had a middle-class background and rather highly educated parents. All of them were following an academic track (preparing them for higher education), and, on a 6-point scale, participants indicated a mean of 3.65 (SD = 1.12) for maternal and a mean of 3.91 (SD = 1.35) for paternal educational attainment, indicating an average of 12 and 15 years of education, respectively. After a 1-year interval, 84% of the initial sample (N = 570) took part in the second wave (Time 2), and after another 1-year interval, 81% (N = 549) took part in the third wave (Time 3). Dropout was caused by a number of reasons, most of which were coincidental and presumably unrelated to the study variables, such as absence of a class because of a school trip on the day of data collection and absence of individual students because of illness. In a limited number of cases, students dropped out because they moved to a different school (which might be related to poor school performance). To test whether dropout was related to a number of background variables (i.e., gender, age, family structure [intact vs. not intact], and parental educational level) and to the study variables, logistic regression analyses were performed testing whether sample attrition (dropout = 0; retention = 1) was predicted by the background variables and the study variables at Time 1. For this purpose, the background variables were entered in Step 1, and the Time 1 measures for perceived maternal and

paternal need support, empathic concern, and perspective taking were entered in Step 2. The background variables did not predict retention at Time 2, Model $\chi^2(4, N = 570) = 3.89$, ns. In contrast, the Time 1 study variables were related significantly to retention at Time 2, Model $\chi^2(4, N = 570) = 16.41$, $p < .05$. This effect was uniquely due to an association between empathic concern and retention at Time 2 (OR = 1.94, $p < .05$), where participants higher on empathic concern at Time 1 were more likely to participate. Neither the background variables, Model $\chi^2(4, N = 549) = 2.09$, ns, nor the Time 1 study variables, Model $\chi^2(4, N = 549) = 8.68$, ns, were significant predictors of retention at Time 3. Overall, then, no differences in any of the background variables emerged between those who stayed in the study and those who dropped out. With one exception, the study variables at Time 1 were also unrelated to dropout. In general, these findings attest to the a-selectivity of our final sample in comparison to the initial sample. It should be stressed, however, that unmeasured third variables might still have caused an important selection bias that cannot be captured in our analyses.

In a next step, participants with and without complete data were compared on the study variables using Little's (1988) Missing Completely At Random test. A chi-square to degrees-of-freedom ratio of less than 2, $\chi^2(165) = 249.75$, suggested that missing values were missing completely at random, allowing us to reliably estimate the missing data using the expectation maximization algorithm (Schafer & Graham, 2002), resulting in a total sample size of 678 for all analyses.

To examine whether the family relationships of the participants changed across the 2-year period of this study, we examined whether the marital status of the participants' parents changed significantly between Time 1 and Time 3. No significant change in marital status was observed, $\chi^2(9) = 7.93$, $p > .05$. Additional analyses examining changes in the quality of parent–adolescent relationships (as indicated by need-supportive parenting) are provided in the Results section.

Measures.

Perceived parenting. Participants completed three well-validated scales tapping into perceived parental need support, that is, (a) the Responsiveness/Warmth scale from the Child Report of Parent Behavior Inventory (Schaefer, 1965; e.g., "My father makes me feel better after I discussed my worries with him"), (b) the Autonomy-Support scale from the Perceptions of Parents Scale (Grolnick, Ryan, & Deci, 1991; e.g., "My father helps me to choose my own direction in life"), and (c) the Psychological Control Scale-Youth Self-Report (Barber, 1996; e.g., "My father is always trying to change how I feel or think about things"). Items were administered in Dutch, accompanied by 5-point Likert scales ranging from 1 (*Completely disagree*) to 5 (*Completely agree*). For fathers, Cronbach's alphas at Time 1, Time 2, and Time 3 were .89, .89, and .89 for perceived responsiveness; .79, .79, and .78 for perceived autonomy support; and .79, .80, and .84 for perceived psychological control. For mothers, Cronbach's alphas at Time 1, Time 2, and Time 3 were .90, .90, and .89 for perceived responsiveness; .83, .85, and .84 for perceived autonomy support; and .82, .84, and .85 for perceived psychological control. At all time points, the scree plot of a higher order factor analysis pointed to a one-factor solution on which all scales loaded over .80 (in absolute terms). Hence, as in Duriez et al. (2007), for both parents, at all time points, after reversing the perceived psychological control

scale, the mean of these scales was calculated to index perceived parental need support.

Empathy. At all time points, participants also completed the Empathic Concern and Perspective Taking subscales from the Dutch version (Duriez, 2004b) of the Interpersonal Reactivity Inventory (Davis, 1983). Empathic concern measures the tendency to experience compassion and concern for others (seven items, e.g., "I often have tender, concerned feelings for people less fortunate than me"). Perspective Taking measures the tendency to adopt the viewpoint of other people in everyday life (seven items, e.g., "I sometimes find it difficult to see things from the other person's point of view"; reverse coded). Previous cross-sectional studies support the external validity of the Dutch Interpersonal Reactivity Inventory by showing that, among other things, both subscales show expected relations with measures of racial prejudice and the social dominance orientation (Duriez, 2004a); maternal support and friendship quality (Soenens et al., 2007); and identity styles, prosocial behavior, and both physical and relational aggression (Smits, Doumen, Luyckx, Duriez, & Goossens, in press). Cronbach's alphas were .70, .73, and .78 for empathic concern and .65, .67, and .71 for perspective taking at Time 1, Time 2, and Time 3, respectively. These internal consistency estimates are similar to those reported with the original version of the scale (Davis, 1983). In spite of the rather low internal consistency, at all time points, exploratory factor analyses on the joint empathic concern and perspective-taking items indicated that all items had factor loadings of over .40 on their respective factor. In addition, at all time points, confirmatory factor analyses showed that a two-factor solution represented the data better than a one-factor solution, $\Delta\chi^2(1) = 115.04$, 269.20, and 480.59; $p < .001$, at Time 1, Time 2 and Time 3, respectively. In the two-factor solutions, all items had highly significant loadings on their respective factor.

Results

Preliminary analyses. Means, standard deviations, and correlations can be found in Table 1. At all time points, empathic concern and perspective taking were positively related. Perceived paternal and maternal need support were also positively related, but although both were consistently related to perspective taking, only perceived maternal need support was consistently related to empathic concern. To assess mean-level changes in the study variables across measurement occasions, we performed a repeated measures analysis of variance, with measurement time as a within-subjects variable and perceived maternal and paternal need support, empathic concern, and perspective taking as dependent variables. Perceived paternal need support and empathic concern showed small linear decreases, $Fs(1, 677) = 8.63$ and 7.90, $\eta^2s = .013$ and $.012$, $p < .01$, respectively, whereas perspective taking showed a small increase, $F(1, 677) = 10.59$, $\eta^2 = .015$, $p < .01$. Perceived maternal need support did not show significant changes.

To assess gender differences, we performed general linear model analyses, with gender as the between subjects-variable and perceived maternal and paternal need support, empathic concern, and perspective taking as dependent variables. No differences were obtained in perceived paternal need support, but there were small but significant differences in perceived maternal need support at Time 2, $F(1, 677) = 3.91$, $\eta^2 = .006$, $p < .05$, and Time 3, $F(1,$

Table 1
Means, Standard Deviations, and Correlations Between the Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Maternal need support T1	3.87	0.61	—											
2. Maternal need support T2	3.85	0.59	.78**	—										
3. Maternal need support T3	3.85	0.57	.69**	.78**	—									
4. Paternal need support T1	3.64	0.61	.47**	.38**	.36**	—								
5. Paternal need support T2	3.60	0.58	.37**	.45**	.37**	.77**	—							
6. Paternal need support T3	3.59	0.56	.34**	.38**	.46**	.74**	.78**	—						
7. Empathic concern T1	3.39	0.59	.16**	.17**	.14**	.04	.00	.03	—					
8. Empathic concern T2	3.35	0.58	.15**	.16**	.12**	.03	.04	.03	.66**	—				
9. Empathic concern T3	3.34	0.62	.16**	.20**	.20**	.06	.08*	.10**	.68**	.72**	—			
10. Perspective taking T1	3.11	0.53	.18**	.13**	.11**	.14**	.16**	.11**	.38**	.33**	.35**	—		
11. Perspective taking T2	3.11	0.51	.17**	.15**	.11**	.18**	.21**	.13**	.32**	.47**	.39**	.59**	—	
12. Perspective taking T3	3.17	0.50	.11**	.10*	.14**	.18**	.25**	.21**	.23**	.33**	.40**	.52**	.61**	—

Note. T1, T2, T3 = Time 1, Time 2, Time 3.
* $p < .05$. ** $p < .01$.

677) = 5.49, η^2 = .008, $p < .001$, with girls scoring higher at Time 2 and Time 3 ($M = 3.90$, $SD = 0.61$; and $M = 3.90$, $SD = 0.56$, respectively) than boys ($M = 3.81$, $SD = 0.58$; and $M = 3.80$, $SD = 0.57$, respectively). In addition, substantial gender differences occurred at all time points in empathic concern, $Fs(1, 677) = 124.90, 99.79$, and 122.74; η^2s = .156, .129, and .154; $p < .001$, and small but significant gender differences occurred at all time points in perspective taking, $Fs(1, 677) = 19.51, 14.41$, and 4.50; η^2s = .028, .021, and .007; $p < .05$, respectively. Girls scored higher on empathic concern ($M = 3.63$, $SD = 0.53$; $M = 3.55$, $SD = 0.53$; and $M = 3.58$, $SD = 0.56$, for Time 1, Time 2, and Time 3, respectively) and perspective taking ($M = 3.20$, $SD = 0.53$; $M = 3.18$, $SD = 0.52$; and $M = 3.21$, $SD = 0.48$; for Time 1, Time 2, and Time 3, respectively) than boys ($M = 3.16$, $SD = 0.57$; $M = 3.14$, $SD = 0.55$; and $M = 3.10$, $SD = 0.57$, for empathic concern; and $M = 3.02$, $SD = 0.52$; $M = 3.03$, $SD = 0.49$; and $M = 3.13$, $SD = 0.49$ for perspective taking).

Primary analyses. We used structural equation modeling with manifest variables to examine (a) whether perceived paternal and/or maternal need support would predict changes in empathic concern and perspective taking, (b) whether empathic concern and/or perspective taking would predict changes in perceived parental need support, and (c) whether there would be same-sex linkages for some of these relations. We conducted analysis of the covariance matrices using LISREL, and solutions were generated on the basis of maximum-likelihood estimation. To evaluate model fit, we inspected the Satorra-Bentler scaled chi-square (SBS-χ^2; Satorra & Bentler, 1994) instead of the regular chi-square because the former corrects for data nonnormality along with the comparative fit index (CFI) and the standardized root-mean-square residual (SRMR). An SBS-χ^2 to degree-of-freedom ratio (SBS-χ^2/df) close to 3.0 indicates good model fit (Kline, 1998), and, according to Hu and Bentler (1999), good model fit is also indicated by combined cut-off values of at least .95 for CFI and equal to or less than .09 for SRMR.

In order to examine whether perceived parental need support predicts over-time changes in dimensions of empathy and whether dimensions of empathy predict changes in perceived parental need support, in a first step, we estimated a baseline model specifying stability coefficients between the measures of perceived maternal and paternal need support, empathic concern, and perspective taking (i.e., between Time 1 and 2, between Time 2 and 3, and between Time 1 and 3) as well as within-time correlations between these measures. In a second step, this baseline model, SBS-χ^2(46) = 220.39, CFI = 0.97, SRMR = .079, was compared with a model specifying cross-lagged effects from perceived maternal and paternal need support to empathic concern and perspective taking (i.e., a parent effects model) as well as with a model specifying cross-lagged effects from empathic concern and perspective taking to perceived maternal and paternal need support (i.e., an adolescent effects model). Both the parent, ΔSBS-χ^2(8) = 36.73, $p < .001$, and the adolescent effects model, ΔSBS-χ^2(8) = 26.86, $p < .001$, fitted the data better than the baseline model. In a third step, these models were compared with a model specifying cross-lagged effects from perceived maternal and paternal need support to empathic concern and perspective taking as well as from empathic concern and perspective taking to perceived maternal and paternal need support (i.e., a reciprocal effects model). This reciprocal effects model, SBS-χ^2(30) = 30.13, CFI = 0.98, SRMR = .063, fitted the data better than the parent effects, ΔSBS-χ^2(8) = 26.61, $p < .001$, and the adolescent effects model, ΔSBS-χ^2(8) = 36.40, $p < .001$ (see Figure 1).

In order to examine the possibility that same-sex linkages might exist in any of the cross-lagged relations in this reciprocal effects model, or, in other words, that adolescent gender might moderate some of the cross-lagged relations, we performed a series of multigroup analyses on the reciprocal effects model. More specifically, we compared a constrained model in which the structural coefficients were set equal across gender, SBS-χ^2(98) = 199,49, CFI = 0.98, SRMR = .085, with a series of unconstrained models in which one set of relations was allowed to vary across gender. In this way, we compared the constrained model with models allowing freedom in the paths from, respectively, perceived maternal need support to empathic concern (Model 1), perceived maternal need support to perspective taking (Model 2), perceived paternal need support to empathic concern (Model 3), perceived paternal need support to perspective taking (Model 4), empathic concern to perceived maternal need support (Model 5), empathic concern to perceived paternal need support (Model 6), perspective taking to perceived maternal need support (Model 7), and perspective taking to perceived paternal need support
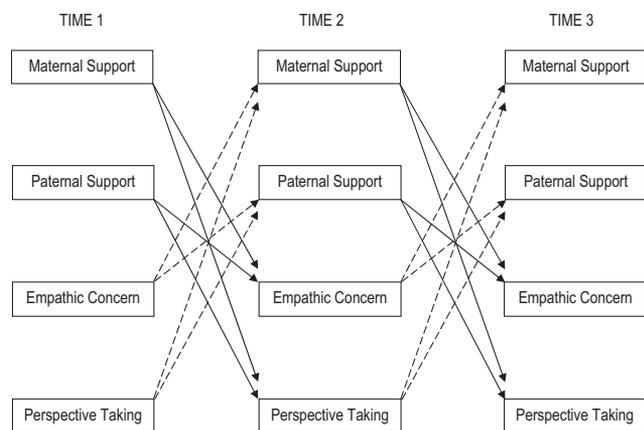
Figure 1. Cross-lagged paths in the structural model, including paths from perceived maternal and paternal need support to empathic concern and perspective taking (parent effects; solid lines) and from empathic concern and perspective taking to perceived maternal and paternal need support (adolescent effects; dashed lines).

(Model 8). Model 1 fitted the data better than the constrained model, $\Delta SBS-\chi^2(2) = 6.26$, $p < .05$, suggesting that adolescent gender moderated the relation between perceived maternal need support and empathic concern. Models 2–8 did not differ significantly from the constrained model, $\Delta SBS-\chi^2(2) = 1.60$, 0.46, 0.67, 1.75, 2.44; 1.43, and 1.02; *ns*, respectively.

Stability coefficients in the final model: Model 1, SBS-$\chi^2(96) = 193.94$, CFI = 0.98, SRMR = .081, from Time 1 to Time 2, from Time 2 to Time 3, and from Time 1 to Time 3, respectively, were .77, .59, and .25 for perceived maternal need support; .77, .53, and .34 for perceived paternal need support; .59, .46, and .34 for empathic concern; and .56, .43, and .26 for perspective taking. Table 2 features the cross-lagged effects. Both at Time 1 and Time 2, perceived paternal need support had no significant effect on changes in empathic concern but did have a positive effect on changes in perspective taking. Perceived maternal need support had no significant effect on changes in perspective taking but predicted changes in empathic concern. This latter effect was, however, restricted to daughters. In addition to these parent effects, perceived paternal need support at Time 2 was positively predicted by perspective taking (Time 1) and negatively by empathic concern (Time 1). No other significant adolescent effects were found.[1]

Discussion

The present study examined the relations of perceived maternal and paternal need support and emotional and cognitive characteristics of empathy (i.e., empathic concern and perspective taking, respectively) in a three-wave longitudinal sample of adolescents. Using structural equation modeling, we tested whether perceived paternal and/or maternal need support would predict over-time changes in adolescents' perspective taking and emphatic concern, whether any of these relations was dependent on gender of the parent and/or adolescent, and whether the empathic abilities of the adolescent elicited changes in perceived parental support. Consistent with our hypotheses, positive associations were found between perceived need supportive parenting and adolescents' empathic

characteristics. However, whereas perceived paternal need support consistently had a positive effect on changes in perspective taking among both sons and daughters, perceived maternal need support predicted changes in empathic concern in daughters only. In addition, there was some evidence that perceived paternal need support was positively predicted by adolescents' perspective taking and negatively by empathic concern. This pattern, however, was only found between Time 1 and Time 2.

Results are in line with previous studies (e.g., Laible & Carlo, 2004; Soenens et al., 2007; Zhou et al. 2002) as well as with the broader developmental literature, pointing to the role of a supportive family environment as an antecedent for empathy development (Barnett, 1987; Eisenberg & Valiente, 2002; Hoffman, 2008). The relation between parental support and children's empathy has been explained in terms of social learning theory, according to which supportive parents provide children with the opportunity to observe and experience perspective taking and emotional concern, creating a learning environment appropriate for the development of empathy (Eisenberg et al., 2006). Additionally, attachment theory assumes that supportive caregiving is beneficial to interpersonal skills because it increases interest and involvement in others, resulting in higher empathy levels (Bowlby, 1980; Hoffman, 2000; Laible et al., 2004; Sroufe & Fleeson, 1986; van der Mark et al., 2002). Individuals with secure attachment histories would have their own emotional needs satisfied and would have a model of an empathic, supportive caregiver to identify with. Therefore, they are able to develop a capacity of responding sensitively and empathically toward others and their needs without confusing them with their own in later relationships.

Furthermore, results point to the moderating effects of the gender of parents and adolescents for some of the parenting–empathy relations. Perceived support of each parent predicted different empathy aspects, with perceived paternal support relating to over-time changes in adolescents' perspective-taking abilities and perceived maternal support relating to (their daughter's) over-time changes in empathic concern. These findings suggest that, whereas fathers might be primarily involved in the socialization of cognitive aspects of empathy, mothers are primarily involved in the affective aspect. These results can be interpreted in terms of gender role orientations theory (Bem, 1984, 1993; Collins et al., 1993; Coltrane, 1998). According to gender role orientations theory, whereas males are socialized to value agentic traits, such as competition, problem solving, independence, and instrumental responding to other's needs, females would be socialized to display compassion, concern, emotional connection, and sensitivity (Cohn, 1991; Eagly & Crowley, 1986; Eisenberg & Lennon, 1983; Hastings et al., 2005; Olweus & Endersen, 1998). Given that there are many ways in which adolescents can be nice to others (from understanding and perspective taking to concern and comforting

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[1] Given the rather large amount of missing data that were estimated in our data set, we decided to also conduct our analyses on the complete cases only ($N = 494$). Results of these analyses were largely identical to the results reported above. Given that studies show that missing data estimation results in a representation of the data that is closer to reality (Schafer & Graham, 2002), we decided to only report the results obtained after missing data estimation in detail. Results of the analyses on the complete cases only can be obtained from the authors upon request.

Table 2
Cross-Lagged Paths in the Final Structural Model

Effects from . . .	To . . .	Time 1 > Time 2	Time 2 > Time 3
1. Maternal need support	Empathic concern	.02/.11*	−.01/.10*
2. Maternal need support	Perspective taking	.02	−.06
3. Paternal need support	Empathic concern	−.02	.04
4. Paternal need support	Perspective taking	.09**	.15**
5. Empathic concern	Maternal need support	.05	−.02
6. Empathic concern	Paternal need support	−.06*	−.01
7. Perspective taking	Maternal need support	−.03	−.02
8. Perspective taking	Paternal need support	.08**	−.04

Note. Coefficients are standardized estimates. When there are two coefficients, the first refers to sons and the second to daughters.
* $p < .05$. ** $p < .01$.

behaviors), mothers and fathers may choose to socialize different caring orientations in their children, depending on the child's gender (Greener & Crick, 1999; Hastings et al., 2005; Maccoby & Jacklin, 1974). The links between paternal need support and perspective taking, on the one hand, and between maternal support and empathic concern, on the other hand, may thus reflect the differential importance of perspective taking and empathic concern in the self-concept of men and women, and hence of fathers and mothers (Cross & Madson, 1997; Eagly & Steffen, 1984; Gilligan, 1982; Klein & Hodges, 2001). It seems likely that fathers will socialize rational and cognitive aspects of empathy because these are the characteristics that they find essential, useful, and desirable in order to ensure success and independence in their offspring, whereas mothers will socialize their children (and especially their daughter) to behave in stereotypical feminine ways because they find the more emotional components of empathy more essential, more useful, and more desirable in their (female) offspring (Collins & Rusell, 1991; Dunn et al., 1987; Kochanska, 1997; Larson & Richards, 1994; Maccoby & Jacklin, 1974; Milevsky et al., 2007; Power & Shanks, 1989).

The fact that perceived maternal need support was predictive for empathic concern among daughters only is in line with other findings indicating that child gender may moderate the differential role of fathers and mothers in social development (Larson & Richards, 1994; Youniss & Smollar, 1985; Zahn-Waxler, 2000). Adolescents may be attuned to different aspects of socialization, with girls being more attuned to the socialization of moral emotions (which would be socialized by mothers) and boys being more susceptible to the socialization of cognitive and moral behavior (which would be socialized by fathers) (Spinrad et al., 1999) and hence might be more likely to identify with and model the behavior of the same-sex parent (Belle 1989; Eisenberg et al., 1996, 1991; Fabes et al., 1990; Hastings et al., 2005; Larson & Richards, 1994; Maccoby, 2003; Perry & Bussey, 1979; Youniss & Smollar, 1985; Zahn-Waxler, 2000). Alternatively, parents may feel more responsible for the upbringing of the child of their own gender (Eisenberg et al., 1991; Eisenberg & McNally, 1993; Fabes et al., 1990; Harris & Morgan, 1991). In addition, researchers have also argued that mother–daughter relations are closer, more emotional, and hence more likely to be influential than any of the other dyadic relations (Hastings, McShane, et al., 2007; Hofferth et al., 2007; Phares, Fields, & Kamboukos, 2009; Phares, Renk, Duhig, Fields, & Sly, 2009). In line with the latter reasoning, it appears that skills

that are directly relevant to this kind of emotionally close bond are affected in the mother–daughter dyad only. Alternatively, it might be that, in contrast to the influence on their daughters, the maternal influence on the development of their sons' emotional concern does not extend into adolescence. As of a certain age, boys may become more agentic and spend more time outside the family, and therefore may be exposed to a larger extent to influences from other socialization agents such as peers and coaches (Eisenberg & McNally, 1993).

Although most researchers agree that socialization is a reciprocal process, the possible effects of adolescents' empathic skills on parental support have largely been ignored in empirical research. In order to address this shortcoming, we investigated the possibility of reciprocal relations between perceived parenting and adolescents' empathic characteristics in the present study. Reciprocal effects would be consistent with the view that relations between parenting and adolescents' abilities are bidirectional and that socialization is an interactive process (Carlo, Roesch, & Melby, 1998; Eisenberg et al., 1998; Maccoby & Martin, 1983). Results indicate that, although the adolescent effects are less strong and less consistent than the parenting effects, adolescents' own empathic skills also impact on the need support that parents (and specially fathers) are perceived to provide. More specifically, results suggest that higher perspective-taking abilities result in increases in perceived paternal need support, whereas higher empathic concern results in decreases in perceived paternal need support. Again, this seems consistent with gender role orientations theory: Whereas fathers may think of perspective taking as a skill that may be helpful in achieving independence and success in life, they may consider empathic concern as a skill that may not be immediately useful or even a sign of weakness (Maccoby & Jacklin, 1974; Power & Shanks, 1989). Hence, when they perceive their child to be high in perspective taking, they might increase their support in order for this skill to develop further, whereas when they perceive their child to be high in empathic concern, they might decrease their support in order not to further encourage this "dysfunctional" characteristic. In this respect, results suggest at least one way in which adolescents may be active contributors to their own socialization: By taking other people's perspective and by expressing emotional concern, they create opportunities for their empathic tendencies to be noticed and to be reinforced or corrected by their parents (Hastings, McShane, et al., 2007; Hastings, Utendale, & Sullivan, 2007). Alternatively, it might be that

adolescents' empathic skills do not evoke actual changes in paternal behavior but merely elicit a different perception of the father. For instance, adolescents high in emotional concern might experience their instrumentally oriented father as lacking in emotional concern, and hence as being unable to meet their (emotional) needs. In contrast, adolescents high in perspective taking might notice that, even though this might be the case, the father does make an effort to provide need support, albeit in a stereotypically male way.

In spite of the fact that, theoretically speaking, adolescence is a crucial period for empathy development, it should be noted that our study shows a vast amount of stability in empathy. This is reflected in the low effect sizes of mean-level changes in empathic concern and perspective taking as well as in the substantial rank-order stability coefficients. Given the relatively high stability of empathy found in our study, one might argue that any instability observed in our study results from inevitable measurement unreliability rather than from actual change. However, we would like to argue that, if the change observed in our study would be fully random and due to measurement error, it would be unlikely to find theoretically meaningful associations between perceived parental support and changes in empathy. Our finding that perceived parental support is related significantly and in theoretically anticipated ways to changes in empathy indeed supports the idea that a substantial part of the instability in the empathy measure is indeed meaningful developmental change and not just measurement unreliability.

Limitations and future directions. Although adolescent perceptions of parenting have often been found to be more predictive of various developmental outcomes than parental perceptions, an important limitation of the present study is its reliance on a single-informant single-method approach. As a result, it could be argued that common method variance might have inflated the observed relations (which might be especially problematic in the light of the small effect sizes). Although common method variance is unlikely to account for all cross-lagged effects because this variance has been statistically removed by controlling for all within-time associations and autoregressive paths in the path analyses (Orth, Robins, & Roberts, 2008), future research would benefit from including multiple informants and using multiple methods. More specifically, future research might want to include parent reports of need supportive parenting and/or parent, peer, or teacher reports of adolescent's empathic skills. In addition, future research might want to use additional methods, such as interviews, observations, or physiological measures of empathy. This seems especially important given that previous research has shown relatively low levels of agreement between self-reported empathy and other measures of empathy (Eisenberg et al., 1989; Strayer & Roberts, 1997). As already noted, although our study provides initial evidence for the influence of adolescents' empathic abilities on paternal need support, our single-informant approach did not allow us to test whether adolescent empathy has an effect on actual paternal behavior or whether it merely predicts shifts in adolescents' perceptions of their fathers. The inclusion of parent reports seems essential to find out whether fathers actually adjust their style as a result of their adolescent's empathy development or whether this change is restricted to adolescents beginning to see their fathers in a different light as a consequence of their own empathy development. In addition, future studies might also want

to take into account social desirability. The use of observational or physiological measures might be one way to circumvent this potential problem. Alternatively, social desirability effects could be controlled for by including a social desirability scale. Finally, future studies might want to go beyond an exclusive focus on parenting and address the role of other socialization agents (i.e., teachers or peers) on the development of empathic concern and perspective taking in adolescents as well. This seems especially important given the absence of maternal effects on the development of empathy in their sons. It seems likely that boys spend more time outside the family than girls and, hence, are influenced to a greater extent by other socialization agents.

Conclusion. Overall, this study yields some important findings. First, it provides evidence for the influence of perceived supportive parenting on the development of empathic abilities during adolescence. To the extent that parents are perceived to provide need support, their adolescents are more likely to develop empathic skills. Second, it underscores the need to differentiate between emotional and cognitive aspects of empathy (i.e., empathic concern and perspective taking, respectively) in order to better understand the family origins of empathy development. More specifically, results suggest divergent and unique influences of maternal and paternal need support, with maternal need support being important for the development of empathic concern and paternal need support being important for the development of perspective-taking abilities. Third, consistent with previous studies that have documented same-sex linkages in the socialization process, the present study suggests that the effects of maternal need support on the development of empathic concern during adolescence are limited to daughters only. Finally, the present study provides initial evidence for the existence of bidirectional relations between parenting and adolescents' empathic abilities. It seems that, by taking other people's perspective and by expressing emotional concern, adolescents create opportunities for their empathic tendencies to be noticed and to be reinforced and/or corrected by their caregivers.

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