
The Intergenerational Transmission of Empathy-Related Responding in Adolescence: The Role of Maternal Support

Bart Soenens
Bart Duriez
Maarten Vansteenkiste
Luc Goossens
Ghent University

This study proposed and tested an integrated model of the intergenerational transmission of empathy-related responding in adolescence. This model included maternal support as a mediator of the intergenerational transmission of empathy and examined friendship quality as an outcome of adolescent empathy. In a sample of middle adolescents and their mothers (N = 177), maternal support significantly predicted the empathy dimensions perspective taking and sympathy and mediated the mother-child concordance of perspective taking but not sympathy. Adolescent empathy (and perspective taking in particular) predicted adolescent friendship quality and served as an intervening variable in the relation between maternal support and friendship quality. Implications of the present study for research on the socialization of empathy-related responding and social adjustment in general are outlined.

Keywords: *parenting; empathy; intergenerational transmission; friendship quality*

Empathy is considered to play an important role in individuals' interpersonal functioning (Davis, 1983; Eisenberg & Fabes, 1990; Hoffman, 1982). It has been theoretically and empirically linked to various elements of socioemotional development, including less prejudice (McFarland & Adelson, 1996), more prosocial behavior (Hoffman, 1984), lower aggression (Miller & Eisenberg, 1988), higher social competence (Saarni, 1990), and

higher friendship quality (Clark & Ladd, 2000). Given the importance of individuals' empathic capacities and responding for their interpersonal functioning, there has been a long-standing interest in the developmental origins of empathy (Zahn-Waxler & Radke-Yarrow, 1990).

Theories on empathy development have stressed the role of socialization processes in general and parenting styles in particular. However, empirical research on this topic has mainly been limited to samples of preschool and middle school children. Less is known about the relations between parenting and empathy in adolescence, a developmental period that is assumed to be crucial for empathy development (Chase-Lansdale, Wakschlag, & Brooks-Gunn, 1995; Fabes, Carlo, Kupanoff, & Laible, 1999). Developmental changes during adolescence, such as increasing cognitive abilities to consider multiple perspectives (Selman, 1980), higher moral reasoning levels (Eisenberg & Fabes, 1998), and a higher frequency and intensity of peer relations (Hill & Holmbeck, 1986), set the stage for the development of altruism and concern for the needs of others. Hence, it is important to study parental antecedents of empathy during adolescence. Moreover, compared to the strong focus on parenting styles (and parental support in particular) in this literature, relatively little attention has been devoted to the role of parents' own empathy. Consequently, patterns of

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intergenerational similarity in empathy have remained understudied.

The present study aims to examine differences in adolescents' empathy-related characteristics (i.e., sympathy and perspective taking) in relation to both maternal empathy-related characteristics and maternal support. Specifically, a multivariate model is proposed in which maternal sympathy and perspective taking carry over into adolescent sympathy and perspective taking through maternal support. In addition to examining support as an explanation of the mother-adolescent similarity in empathy, this study also examined whether empathy-related responding acts as an intervening variable between maternal support and adolescent friendship quality. Relations were tested in an integrated structural equation model.

The Multidimensional Nature of Empathy

Although empathy has been conceptualized in many different ways, there is increasing consensus that empathy is a multidimensional construct comprising both affective and cognitive components (Davis, 1983; Eisenberg & Fabes, 1998). These components have been labeled empathic concern or sympathy and perspective taking, respectively (Davis, 1983). *Sympathy* can be defined as the expression of concern, compassion, and sympathy for another person based on the comprehension of his emotional state (Eisenberg et al., 2002; Hoffman, 2000). Such affective appraisals of another person's emotional states may result in motivation to relieve the other person's distress (Eisenberg & Fabes, 1998). *Perspective taking* pertains to the extent to which people are able to take someone else's perspective (Davis, 1983; Eisenberg & Fabes, 1990). As such, perspective taking refers to a non-affective, 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 both sympathy 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; Hoffman, 1984). The importance of a multidimensional approach to empathy has been underscored by factor-analytic studies demonstrating the distinctiveness of sympathy and perspective taking (e.g., Cliffordson, 2001).

Research has shown that sympathy and perspective taking are important predictors of adolescents' interpersonal functioning. Studies have found that both empathy components are related to various interpersonal behaviors, including higher altruism and prosocial behavior (Eisenberg, Carlo, Murphy, & Van Court, 1995; Roberts & Strayer, 1996) and lower aggression and externalizing problem behaviors (Fabes et al., 1999; Laible, Carlo, & Roesch, 2004). Furthermore, negative

associations have been found between empathy-related responding and temperamental features that may inhibit the quality of social functioning, such as anger and negative emotionality (Carlo, Roesch, & Melby, 1998; Murphy, Shepard, Eisenberg, Fabes, & Guthrie, 1999). Finally, some studies have evidenced positive associations between both empathy components and direct assessments of adolescents' social competence and quality of functioning in friendships (Davis, 1983; Laible & Carlo, 2004), although it has been found that perspective taking is somewhat more strongly associated with such indicators than sympathy (Davis, 1983).

The Role of Parental Support in Empathy Development

It is generally assumed that the capacity to respond empathically is rooted in being nurtured in a supportive fashion by one's caregivers (Carlo, Fabes, Laible, & Kupanoff, 1999; Chase-Lansdale et al., 1995; Eisenberg & Fabes, 1998; Zahn-Waxler & Radke-Yarrow, 1990). In current socialization research, parental support is conceptualized as a broad parenting construct comprising both parents' capacity to attune to their children's needs and to serve as a secure base when a child experiences discomfort or stress (i.e., responsiveness) and parents' tendency to interact with their children in a warm, affectionate, and involved fashion (i.e., warmth; Barber, Stolz, Olsen, & Maughan, 2005; Davidov & Grusec, 2006).

Supportive parents are known to be sensitive to their children's distress and to effectively help them to reduce distress. As such, they convey to their children that they are able and willing to take their perspective and to sympathize with their experiences and feelings. Hence, as supportive parents themselves display high levels of empathy within the parent-child relationship, they may directly model their children's own empathic capacities (Chase-Lansdale et al., 1995).

In line with the idea that supportive parenting fosters empathy, studies have shown emotionally supportive, responsive, and warm parenting to predict empathic responding in children (e.g., Eisenberg, Fabes, Schaller, Miller, et al., 1991; Krevans & Gibbs, 1996; Zhou et al., 2002). Similarly, parental support (Adams, Jones, Schvaneveldt, & Jenson, 1982; Laible & Carlo, 2004) and parents' availability as a secure base (i.e., parental attachment; Laible et al., 2004) were found to relate positively to empathy-related responding in adolescents. An exception to this pattern of findings is the study by Carlo et al. (1998), in which no significant relationship was found between parent-reported parental support and adolescent empathy-related responding.

Although generally supportive of a link between parental support and adolescent empathy, this limited

body of studies has a number of shortcomings. First, most studies relied on adolescent self-reports to assess both parenting and empathy-related responding, which may invoke problems associated with bias and shared-method variance (e.g., Schwarz, Barton-Henry, & Pruzinsky, 1985). Therefore, the present study relies on mother and adolescent reports of maternal support and uses both as indicators of a single underlying construct to obtain a more reliable estimate of maternal support (e.g., Simons, Whitbeck, Conger, & Chyi-In, 1991; Soenens et al., 2005).

Second, past studies did not consistently distinguish between cognitive and affective empathy components. For instance, Laible and colleagues (Laible & Carlo, 2004; Laible et al., 2004) aggregated perspective taking and sympathy into a single empathy index, thereby neglecting empathy's multidimensional nature. To allow for a more detailed investigation of the parenting-empathy relation, the present study considers maternal support in relation to perspective taking and sympathy separately.

In addition to these shortcomings, research has largely failed to assess the relative contribution of parental support in predicting empathy-related responding compared to other relevant parenting constructs. Recent research mapping the key features of parenting increasingly converges on the conclusion that at least three parenting dimensions are critical to the quality of the emotional climate of parent-child interactions (Barber et al., 2005). Apart from support, researchers also identified behavioral and psychological control as building blocks of the parenting style construct. Behavioral control pertains to the extent to which parents clearly communicate their expectations for behavior, monitor the child's behavior according to these expectations, and take appropriate measures when norms for behavior are trespassed (Barber, 1996). Psychological control, in contrast, has been defined as characteristic of parents who pressure their children to comply with parents' personal norms by intruding on their children's psychological world, for instance by means of guilt induction and love withdrawal (Barber, 1996). The theoretical accounts described in the preceding paragraphs suggest that maternal support will be a significant or even unique predictor of adolescent empathy after controlling for the effects of maternal behavioral and psychological control.

The Intergenerational Transmission of Empathy

In addition to evidence linking parental support to children's empathy, there is evidence for a link between parents' and children's empathy-related characteristics, particularly within same-sex dyads (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Fabes, Eisenberg, & Miller, 1990). Again, however, evidence for parent-child

similarity with respect to empathic features has been documented almost exclusively during infancy. Studies in later developmental periods (including middle childhood and adolescence) are rare and have yielded inconclusive results, with some studies demonstrating significant parent-child concordance and some studies failing to find such concordance (see Strayer & Roberts, 2004, for an overview). Given these results, further research was deemed warranted.

Research documenting genetic contributions to empathy suggests that, although part of the variance in empathy is because of genes (with estimates of 30%-70%), environmental factors also account for a significant portion of the variance (e.g., Matthews, Batson, Horn, & Rosenman, 1981; Rushton, Fulker, Neale, Nias, & Eysenck, 1986). This underscores the importance of social developmental processes and parenting in particular. However, most studies on the socialization of empathy-related responding have focused either on the role of parenting styles (and support in particular) or on the role of parents' own empathic responding, without considering the hypothesis that (supportive) parenting plays a mediating role in the intergenerational similarity in empathy-related features. In this respect, it is important to note that a study by Davis, Luce, and Kraus (1994) demonstrated that the heritability of the affective and cognitive components of empathy may differ. Higher heritability estimates were obtained for sympathy than for perspective taking, suggesting that although the intergenerational transmission of sympathy may occur in a rather direct fashion (i.e., through genes), socialization processes (including parental support) may play a more significant role in the transmission of perspective taking.

There exists some preliminary evidence for the hypothesized mediating role of parenting—and parental support in particular—in the association between parents' and children's empathy. Gondoli and Silverberg (1997) found that higher maternal empathy—defined in that study as perspective taking—goes hand in hand with higher responsiveness levels (i.e., a central component of maternal support). Hence, maternal ability and willingness to take the adolescents' perspective can be considered a prerequisite of their use of a supportive parenting style. Given that maternal empathy is related to higher levels of support and given that support is thought to lead to higher empathy levels in adolescents, the possibility exists that maternal support mediates the mother-adolescent concordance in empathy.

To our knowledge, one study provided data directly relevant to the hypothesis that parenting plays an intervening role in the transmission of empathy. In a sample of 5- to 13-year-old children, Strayer and Roberts (2004) found parental empathy to indirectly relate to children's empathy through parental control and child anger. No

evidence was obtained for parental warmth as a mediator of the transmission of empathy-related responding. The present study differs from the one by Strayer and Roberts (a) by its reliance on a more global assessment of the general construct of maternal support, (b) by examining a sample of middle adolescents, and (c) by taking a multi-dimensional approach to the empathy construct.

Adolescent Empathy and Friendship Quality

Adolescent empathy, in turn, may act as an intervening variable between supportive parent-child relationships and friendship quality, which is a particular type of social outcome (Clark & Ladd, 2000). Such a link suggests that empathy provides one possible mechanism through which supportive parenting carries over into social adjustment (Ladd & Pettit, 2002). Providing indirect evidence for this hypothesis, Clark and Ladd (2000) found that a number of relations between parent-child connectedness (i.e., a construct similar to parental attachment) and indicators of friendship quality (e.g., harmony and conflict) were significantly mediated by a composite score of kindergarten children's prosocial orientation (which mainly included items tapping empathy). This hypothesis, however, has not been directly tested in an adolescent sample. In the present study, it is hypothesized that adolescent empathy-related responding will (a) significantly predict adolescent friendship quality and (b) play an intervening role in the relation between maternal support and adolescent friendship quality.

The Present Study

The present study aims to examine an integrated model of the intergenerational transmission of empathy-related responding. This model posits maternal support as a predictor of adolescent empathy-related responding and as a mediator of the intergenerational similarity between mothers' and adolescents' empathy-related responding. In addition, adolescent empathy-related responding is in turn hypothesized to significantly predict adolescents' friendship quality.

METHOD

Participants and Procedure

Participants were 10th- to 12th-grade students from two secondary schools in Flanders (Belgium) and their mothers. Active informed consent was obtained from the adolescents, and passive consent was obtained from parents. Parents received a letter about the purpose and method of the study prior to the data collection. They were

asked to fill out a form if they did not want their child to participate. Less than 1% of the parents did not allow their child to participate, and none of the students with parental permission refused participation. In addition, mothers received a questionnaire that they were asked to fill out and deliver to the school's principal by the time of data collection. Adolescent questionnaires were administered during a class period. Students had 45 minutes to complete the survey. This procedure resulted in a sample of 284 adolescents (140 boys and 144 girls). Adolescents ranged in age from 15 to 20 years ($M = 16.93$, $SD = 0.96$), and 98% were between 15 and 18 years of age. In addition, 177 mothers (62%) participated. Mothers' mean age was 45 years ($SD = 3.75$). On a 6-point scale, the mean educational level was 3.92 ($SD = 1.17$), indicating an average of about 15 years of education.

To examine whether adolescents of participating mothers differed from adolescents from nonparticipating mothers on the study variables, we ran independent-samples t tests. No significant differences were found between both groups on any of the study variables (all p values $> .05$). In addition, no association was found between gender of the child and whether or not mothers participated ($p > .05$). Moreover, it was examined whether the pattern of associations between the adolescent study variables differed for those adolescents whose mother participated and those adolescents whose mother did not participate. Straightforward comparison of the two correlation matrices by means of a chi-square test indicated no overall differences ($\chi^2 = 24.39$, $df = 21$, ns). These analyses show that the final sample of adolescents whose mothers participated in the study generally represented a nonselective subgroup of the initial sample.

Measures

All questionnaires were translated into Dutch, the participants' mother tongue, according to the guidelines of the International Test Commission (Hambleton, 1994), that is, using a translation-back translation procedure. Specifically, all items were first translated into Dutch by three of the authors of this article. Differences in translations were discussed, and disagreements were resolved through consensus. Next, these items were back translated into English by another person, and a third person matched the original items and the items back translated into English. For all scales, a 100% correct match was achieved. Unless otherwise indicated, responses were made on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), and scale scores were computed by averaging the scale items.

Parenting. Adolescents rated the items for their mothers and mothers rated the items with respect to their own

parenting behavior. The items for each measure were slightly revised to make them amenable to parent self-report (e.g., an item reading “My mother gives me a lot of care and attention” was revised into “I give my son/daughter a lot of care and attention”). *Support* was tapped with 7 items from the Children’s Report on Parenting Behavior Inventory (CRPBI; Schaefer, 1965). These items were selected because they had the strongest loadings on the acceptance/rejection factor of the CRPBI in past factor-analytic studies on the CRPBI dimensions (e.g., Schwarz et al., 1985). This scale from the CRPBI has been used as a valid and reliable measure of parental support in past research (Barber et al., 2005). It contains items referring to both elements of support discussed in the introduction (i.e., responsiveness and warmth). For instance, the item “My mother makes me feel better after talking over my worries with her” taps responsiveness, and the item “My mother smiles at me very often” taps warmth.

Behavioral control was assessed with the Parental Monitoring of Behavior subscale from the Parental Regulation Scale–Youth Self Report (Barber, 2002). This scale (8 items; e.g., “My mother makes efforts to know who my friends are, where I spend my time, etc.”) taps parents’ active efforts to track their children’s behavior. Validity information on this scale is provided in Soenens, Vansteenkiste, Luyckx, and Goossens (2006). *Psychological control* was assessed with the 8-item Psychological Control Scale–Youth Self Report (Barber, 1996), which is an adaptation of Schaefer’s (1965) original CRPBI. Barber (1996) provided evidence for the unidimensional factor structure of this scale and reported Cronbach’s alphas ranging from .72 to .86. A sample item reads: “My mother is always trying to change how I feel or think about things.”

Empathy. All participants completed the Empathic Concern and Perspective Taking subscales from the Dutch version (Duriez, 2004) of the Interpersonal Reactivity Inventory (Davis, 1983). Empathic concern measures the tendency to experience compassion and concern for others (7 items; e.g., “I often have tender, concerned feelings for people less fortunate than me”) and will, in line with the literature on empathy-related responding (e.g., Eisenberg & Fabes, 1998; Laible et al., 2004), be referred to as an indicator of sympathy. Perspective taking measures the tendency to adopt the viewpoint of other people in everyday life (7 items; e.g., “I sometimes find it difficult to see things from the other person’s point of view”—reverse coded). Duriez (2004) reported Cronbach’s alpha coefficients of .70 and .69 for both subscales, respectively. These internal consistency estimates are similar to those reported with the original version (Davis, 1983).

Friendship quality. Adolescents completed four subscales of the Friendship Qualities Scale (FQS; Bukowski, Hoza, & Boivin, 1994): Companionship (6 items; e.g., “My friend and I spend a lot of our free time together”), Help/Support (12 items; e.g., “My friend and I help each other”), Closeness (8 items; e.g., “If my friend had to move away I would miss him”), and Security (9 items; e.g., “Even if my friend and I have an argument we would still be able to be with each other”). Participants are asked to rate these items with respect to their best friend. Bukowski et al. (1994) have reported reliability estimates ranging from .68 to .77. In the present study, correlations among the subscales ranged from .55 to .67 (all p values < .001). A factor analysis (PCA) on the subscales showed one underlying factor (loadings .78-.87). Accordingly, an overall friendship quality score was calculated by averaging the subscales (cf. Markiewicz, Doyle, & Brendgen, 2001).

RESULTS

Descriptive Statistics

Table 1 shows means, standard deviations, and internal consistency estimates (Cronbach’s α). Preliminary analyses were conducted to investigate gender differences. Significant differences were found in sympathy, $F(1, 158) = 16.88, p < .001$, and friendship quality, $F(1, 158) = 13.91, p < .001$. Girls obtained higher scores on sympathy ($M = 3.77, SD = 0.58$) and friendship quality ($M = 4.32, SD = 0.40$) than did boys ($M = 3.36, SD = 0.67$ and $M = 4.07, SD = 0.45$, respectively). Given these significant differences, the effect of gender was controlled for in all primary analyses.

Table 2 shows the correlations between the variables. As expected, mother-reported and adolescent-reported support were generally positively related to the dimensions of adolescent empathy-related responding (perspective taking and sympathy). Only the correlation between mother-reported support and adolescent sympathy did not reach significance. Correlations of behavioral and psychological control with the empathy dimensions were less pronounced. In line with the intergenerational transmission hypothesis, a significant correlation was found between maternal and adolescent sympathy. The correlation between mothers’ and adolescents’ perspective taking was also positive but only marginally significant ($p < .10$). Furthermore, maternal sympathy and perspective taking were positively correlated with maternal support across reporters. Adolescent sympathy and perspective taking were related to higher friendship quality scores. Finally, mother and adolescent support reports were positively correlated, $r = .37$

TABLE 1: Means, Standard Deviations, Range, and Internal Consistency

Variable	N	M	SD	Possible Range	Observed Range	Cronbach's α
Adolescent sympathy	162	3.58	0.65	1.0-5.0	1.9-5.0	.80
Adolescent perspective taking	162	3.62	0.54	1.0-5.0	1.9-4.6	.70
Mother sympathy	176	3.93	0.58	1.0-5.0	2.1-5.0	.74
Mother perspective taking	176	3.51	0.54	1.0-5.0	1.7-5.0	.70
CR support	162	4.08	0.68	1.0-5.0	1.6-5.0	.90
CR behavioral control	162	3.47	0.67	1.0-5.0	1.2-5.0	.68
CR psychological control	162	2.10	0.74	1.0-5.0	1.0-4.3	.82
PR support	176	4.24	0.48	1.0-5.0	3.0-5.0	.78
PR behavioral control	175	3.48	0.76	1.0-5.0	1.3-5.0	.57
PR psychological control	176	2.11	0.62	1.0-5.0	1.0-3.9	.76
Friendship quality	162	4.20	0.45	1.0-5.0	3.1-5.0	.84

NOTE: CR = child report; PR = parent report.

TABLE 2: Correlations

Measure	1	2	3	4	5	6	7	8	9	10	11
Adolescent sympathy	—										
Adolescent perspective taking	.33**	—									
Mother sympathy	.30**	.13	—								
Mother perspective taking	.02	.15	.32**	—							
CR support	.24**	.29**	.18*	.20*	—						
CR behavioral control	.03	.04	.06	-.08	.16*	—					
CR psychological control	-.02	-.07	-.05	-.20*	-.39**	.21**	—				
PR support	.13	.17*	.29**	.34**	.37**	-.12	-.12	—			
PR behavioral control	-.00	-.01	.14	.03	-.00	.28**	.22**	.18*	—		
PR psychological control	.07	-.01	-.16*	-.45**	-.22**	.21**	.43**	-.34**	.17*	—	
Friendship quality	.23**	.24**	.15	.06	.16*	.13	-.04	.05	.15	.05	—

NOTE: CR = child report; PR = parent report.

* $p < .05$. ** $p < .01$.

($p < .001$), and so were mother and adolescent reports of behavioral control, $r = .28$ ($p < .001$), and psychological control, $r = .43$ ($p < .001$). Although these correlations may suggest only moderate concordance between mother and adolescent reports, the average correlation obtained in this study between parent and adolescent ratings of the same construct ($r = .36$) is even slightly higher than the correlation of .30 that has typically been observed in research using parent and child reports of parenting (Schwarz et al., 1985).

Primary Analyses

Plan of analysis. Structural equation modeling (SEM) with latent variables was used to examine the hypotheses. Analysis of the covariance matrices was conducted using LISREL 8.54 (Jöreskog & Sörbom, 1996), and solutions were generated on the basis of maximum-likelihood estimation. Eight latent constructs were modeled: support, behavioral control, psychological control, maternal perspective taking, maternal sympathy, adolescent perspective taking, adolescent sympathy, and friendship quality. Mother and adolescent reports of

the parenting constructs served as indicators of each underlying parenting construct. For instance, mother-reported and adolescent-reported support were used as support indicators (for this approach, see Simons et al., 1991; Soenens et al., 2005). We used the four subscales of the FQS as indicators of friendship quality. Finally, to model maternal and adolescent perspective taking and sympathy, three parcels were created for each construct, each consisting of a set of randomly selected items. Data screening indicated partial non-normality of the indicators. Therefore, we used the asymptotic covariance matrix as input and inspected the Satorra–Bentler scaled chi-square (SBS- χ^2 ; Satorra & Bentler, 1994). Goodness of fit was evaluated using the comparative fit index (CFI) and the root mean square error of approximation (RMSEA). Combined cutoff values of 0.95 for CFI and 0.06 for RMSEA indicate good fit (Hu & Bentler, 1999).

The primary analyses proceeded in two steps. First, we tested the quality of the measurement model of the study constructs by means of a confirmatory factor analysis (CFA; Model 1). Second, three sets of structural models were tested. A first set of structural models examined direct effects of maternal parenting dimensions on

TABLE 3: Overview of the Fit Indices of the Estimated Models

Model	Description	df	SBS- χ^2	RMSEA	CFI
Model 1	Measurement model	175	167.98	0.00	1.00
Model 2a	Support and adolescent empathy	22	33.27	0.06	0.97
Model 2b	Unique effects of support	45	56.49	0.04	0.98
Model 3a	Empathy concordance	59	82.29	0.05	0.97
Model 3b	Maternal support as mediator	82	101.72	0.04	0.98
Model 4a	Support and friendship quality	59	63.37	0.02	0.99
Model 4b	Integrated model	140	139.70	0.00	1.00

NOTE: SBS- χ^2 = Satorra-Bentler scaled chi-square; RMSEA = root mean square error of approximation; CFI = comparative fit index.

adolescent empathy dimensions. Specifically, two models included (a) maternal support as a predictor of adolescent perspective taking and sympathy (Model 2a) and (b) maternal support, behavioral control, and psychological control as predictors of adolescent perspective taking and sympathy (Model 2b).

A second set of structural models examined the mediating role of maternal support in intergenerational associations between the two empathy dimensions. In line with Holmbeck's (1997) recommendations to test for mediation, two models were tested: (a) a model estimating the direct associations between maternal empathy dimensions and adolescent empathy dimensions (i.e., a model without mediator; Model 3a) and (b) a model in which the maternal empathy dimensions are only indirectly related to adolescent empathy dimensions through maternal support (i.e., a full mediation or indirect effects model; Model 3b). Additional paths were then allowed to test whether the addition of direct effects from maternal empathy dimensions to adolescent empathy dimensions would improve the model fit. According to Holmbeck, full mediation is shown when adding a direct path does not improve model fit.

A third and final set of structural models examined friendship quality as an outcome of the adolescent empathy dimensions and also examined whether adolescent empathy mediates or indirectly establishes a link between maternal support and friendship quality. Specifically, we tested (a) a model that included the maternal empathy dimensions as predictors of maternal support which, in turn, directly predicted friendship quality (i.e., a model without adolescent empathy dimensions as mediators; Model 4a) and (b) a model that also included the adolescent empathy dimensions as indirect variables in the association between maternal support and friendship quality (i.e., a full mediation or indirect effects model; Model 4b). Table 3 presents the fit indices of each of these models.

CFA. A CFA modeled the 8 study variables (support, behavioral control, psychological control, maternal perspective taking, maternal sympathy, adolescent perspective taking, adolescent sympathy, and friendship quality).

To model method effects that are because of the use of multiple informants (mother vs. adolescent report), error covariances between indicators of the same informant (i.e., between the mother-reported and between the adolescent-reported scores) were allowed (Kline, 1998). No cross-loadings were allowed. Estimation of this model (Model 1) with 22 indicators and 8 latent variables indicated excellent fit (see Table 3). All indicators had significant ($p < .001$) and moderate to strong loadings on the latent factors, ranging from .36 to .99 (mean $\lambda = .70$). In sum, a reliable measurement model was obtained.

Support and adolescent empathy. A first structural model included maternal support as a predictor of adolescent sympathy and perspective taking. To control for the variance shared by sympathy and perspective taking, the error variances of both latent variables were allowed to correlate. To control for the effects of gender, gender was entered as an additional predictor. Estimation of this model (Model 2a) showed that support was significantly predictive of sympathy ($\beta = .28, p < .05$) and perspective taking ($\beta = .44, p < .01$). Gender (coded as 1 = male, 2 = female) was significantly related to sympathy ($\beta = .34, p < .001$) but not to perspective taking ($\beta = .09, p > .05$). Next, a second model including maternal behavioral and psychological control as additional predictors was estimated. Estimation of this model (Model 2b) showed that, although the effects of support on sympathy ($\beta = .36, p < .01$) and perspective taking ($\beta = .53, p < .01$) remained significant, neither behavioral control ($\beta = -.07, p > .05$ and $\beta = -.12, p > .05$, respectively) nor psychological control ($\beta = .20, p > .05$ and $\beta = .16, p > .05$, respectively) added to the prediction of the empathy dimensions. Maternal support thus appeared to have a unique effect on the empathy dimensions.

Support and mother-child empathy concordance. The next model aimed to assess concordance in mothers' and adolescents' empathy-related responding. In this model, mothers' sympathy predicted adolescents' sympathy, and mothers' perspective taking predicted adolescents' perspective taking. Again, the effects of

gender were controlled for by allowing paths from gender to each of the constructs. Estimation of this model (Model 3a) showed that both the path from maternal sympathy to adolescent sympathy ($\beta = .32$, $p < .01$) and the path from maternal perspective taking to adolescent perspective taking ($\beta = .24$, $p < .05$) were significant (see the coefficients between brackets in Figure 1). Note that although the correlation between the raw scores for maternal and adolescent perspective taking was only marginally significant, the structural path between both constructs in the latent path analysis does reach significance, which is most likely because of the fact that latent path analysis takes into account measurement error. Adding paths from maternal perspective taking to adolescent sympathy and from maternal sympathy to adolescent perspective taking did not improve model fit, $\Delta\text{SBS-}\chi^2(2) = 1.84$, $p > .05$, and neither of these two additional paths was significant ($\beta = -.15$, $p > .05$ and $\beta = .10$, $p > .05$, respectively), indicating that the intergenerational concordance of cognitive and affective components of empathy is quite specific.

Next, a mediation model was tested in which maternal sympathy and perspective taking were only indirectly related to adolescents' sympathy and perspective taking through maternal support (i.e., a full mediation model; Model 3b). As in the previous models, gender was modeled as a predictor of each of the constructs. Estimation of the full mediation model yielded acceptable fit (see Table 3), and each coefficient was significant (p values $< .05$). However, adding a path from maternal to adolescent sympathy improved model fit, $\Delta\text{SBS-}\chi^2(1) = 5.45$, $p < .05$. The initial path from maternal to adolescent sympathy ($\beta = .32$, $p < .01$) remained significant after entering support as a mediator ($\beta = .33$, $p < .01$). Moreover, the path from support to adolescents' sympathy turned out nonsignificant in this model ($\beta = .02$, $p > .05$), indicating that support did not mediate the relation between mothers' and adolescents' sympathy. In line with this finding, the indirect effect of maternal on adolescent sympathy (through support) was not significant ($z = 0.01$, $p > .05$). In contrast, adding a path from maternal to adolescent perspective taking did not improve model fit, $\Delta\text{SBS-}\chi^2(1) = 0.12$, $p > .05$. The initial path from maternal to adolescent perspective taking ($\beta = .24$, $p < .05$) became nonsignificant ($\beta = .05$, $p > .05$) after modeling support. Moreover, the paths from maternal perspective taking to support ($\beta = .44$, $p < .01$) and from support to adolescent perspective taking were significant ($\beta = .40$, $p < .01$), indicating that support fully mediates the mother–adolescent concordance in perspective taking. In line with this interpretation, the indirect effect of maternal on adolescent perspective taking (through support) was significant ($z = 2.35$, $p < .05$). The results of these mediation analyses are depicted in Figure 1.

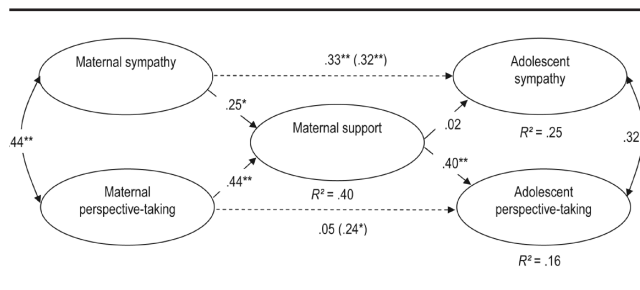


Figure 1 Structural model representing maternal support as a mediator of the intergenerational concordance between maternal empathy dimensions and adolescent empathy dimensions.

NOTE: The coefficients between brackets refer to the direct effects obtained in the model without maternal support as a mediator (Model 3a). Coefficients are standardized path coefficients. For sake of clarity, gender effects are not shown.

* $p < .05$. ** $p < .01$.

Friendship quality as an empathy outcome. Finally, we tested whether empathy predicts adolescent friendship quality and whether empathy intervenes between support and friendship quality. Model 4a tested whether support significantly predicted friendship quality. To be consistent with the analyses reported in the preceding paragraph, this model also included maternal sympathy and perspective taking as predictors of support. No significant effect was found of support on friendship quality ($\beta = .09$, $p > .05$). Although this effect was not significant, it was still examined whether support would indirectly relate to friendship quality through its effect on empathy. Estimation of this final model (Model 4b), which is depicted in Figure 2, shows that although sympathy did not significantly predict friendship quality, the path from perspective taking to friendship quality was significantly positive. Moreover, the indirect path from support to friendship quality through adolescent perspective taking was significant ($z = 1.93$, $p = .05$), indicating that adolescent perspective taking indirectly established a relation between support and friendship quality.¹

DISCUSSION

This study aimed (a) to examine maternal support in relation to adolescent empathy dimensions, (b) to assess the contribution of maternal support to the intergenerational transmission of empathy-related responding, and (c) to examine friendship quality as an empathy outcome. Findings showed that maternal support primarily predicted perspective taking and that this association remained significant after controlling for the effects of two other crucial parenting dimensions (i.e., behavioral and psychological control). Second, maternal support was found to mediate mother–child concordance in perspective

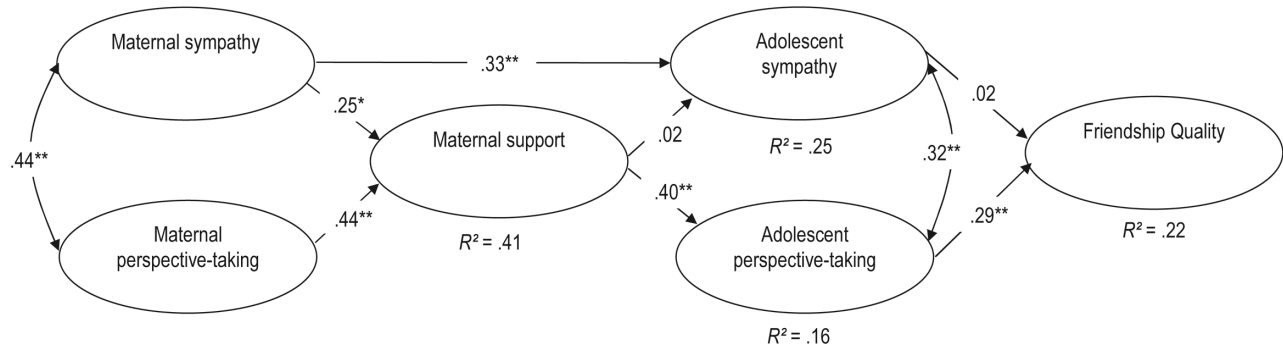


Figure 2 Structural model of relations among maternal empathy dimensions, support, adolescent empathy dimensions, and adolescent friendship quality (Model 4b).

NOTE: Coefficients are standardized path coefficients. For sake of clarity, gender effects are not shown.

* $p < .05$. ** $p < .01$.

taking but not in sympathy. Third, perspective taking (but not sympathy) predicted better friendship quality. Maternal support related indirectly to friendship quality through its effect on perspective taking. These findings are discussed in more detail below.

Maternal Support and Empathy

Numerous theoretical accounts have pointed to parental support as a key determinant of empathy and empathy-related responding (Zahn-Waxler & Radke-Yarrow, 1990). However, research examining relations between support and adolescent empathy has been relatively scarce. Through SEM, the present study contributed to this literature by showing that maternal support (as indexed by adolescent and mother reports) related positively to sympathy and perspective taking. Thus, when the concept of support is represented by data collected from multiple informants to obtain a more valid assessment, results clearly show a positive association with empathy-related responding. It should be noted that the relationship between support and sympathy was no longer significant after entering mothers' empathy-related responding to the model (see Figure 1), indicating that maternal support primarily predicted perspective taking rather than sympathy.

The relation between support and empathy (and perspective taking in particular) is typically explained in terms of modeling effects. Children who experience a supportive parental attitude learn that their parents are able to take their perspective and show genuine concern for their needs and feelings. Hence, through learning and modeling, children who are reared in a supportive parenting climate may learn to also take other people's perspective. Besides this modeling mechanism, supportive parenting may be conducive to empathy development through a more indirect mechanism, that is, by fostering

higher levels of attachment security and need satisfaction in interpersonal relationships. Attachment theory (Bowlby, 1980) assumes that supportive caregiving is beneficial to people's interpersonal skills and functioning (including empathic skills) because such caregiving provides people with secure and high-quality self-representations and representations of others outside the family realm (Hoffman, 2000; La Guardia, Ryan, Couchman, & Deci, 2000). Hence, as children of supportive parents are likely to experience high levels of attachment security within the parent-child relationship, they will feel more secure about themselves and others. Secure attachment representations, in turn, would make people less likely to function in a self-centered and defensive fashion. Instead, people with secure attachments have been found to show a more genuine interest and involvement in the fortune of others, that is, to display high levels of empathy (Mikulincer, Shave, Gillath, & Nitzberg, 2005). To more directly examine whether one part of the relation between support and empathy-related responding is explained by the fact that support fosters adolescents' attachment security, future research may assess each of these constructs simultaneously.

Apart from demonstrating that maternal support is significantly related to empathy-related responding and to perspective taking in particular, this study assessed the relative contribution of support and two other parenting dimensions that are considered fundamental to parents' rearing style, namely behavioral and psychological control. Much parenting research has aggregated these three dimensions in an overall index of optimal ("authoritative") parenting, but recently, researchers have shown increasing interest in the specific effects of these dimensions (Barber et al., 2005). Barber et al. (2005) hypothesized that support plays a rather specialized role in the development of social competence and in fostering processes that relate to higher social competence levels

(e.g., empathy). As pointed out earlier, scholars also typically ascribe a specific relevance to the construct of support when it comes to the development of empathy. Our findings are clearly in line with these accounts, as they show that maternal support had significant and unique power in predicting empathy-related dispositions.

Support and the Intergenerational Transmission of Empathy

Although it has been shown that mothers' empathic capabilities relate positively to maternal support (Gondoli & Silverberg, 1997), and although support has been theoretically and empirically linked to adolescent empathy, the present study is among the first to examine whether support plays a role in the intergenerational transmission of empathy. First, in an initial model that did not include maternal support as a mediator (Model 3a), we found significant associations between mothers' and adolescents' perspective taking/sympathy, indicating that there is a significant level of intergenerational concordance in empathy-related responding. Past research has yielded rather inconsistent results on this association (see Strayer & Roberts, 2004, for an overview), but many of these studies suffered from design-related limitations such as small sample sizes. Our findings are in line with the broader literature on intergenerational transmission that has established significant patterns of transmission with respect to a diverse range of characteristics, including fear of failure (Elliot & Thrash, 2004), depression (Oyserman, Bybee, & Mowbray, 2002), anxiety (Costa & Weems, 2005), dependency (Besser & Priel, 2005) and self-criticism/perfectionism (Vieth & Trull, 1999).

Second, it was found that maternal support fully mediated the association between maternal and adolescent perspective taking. In contrast, support did not mediate the association between maternal and adolescent sympathy; the direct path from maternal to adolescent sympathy remained significant. These findings suggest that mothers pass down their perspective-taking capacities to their offspring through their supportive rearing style. Although the present study is among the first to examine parenting (and support in particular) as a mediator of the intergenerational transmission of empathy, this finding is in line with the literature on intergenerational transmission, in which it is generally assumed that parents' rearing style serves as a mediator through which parental characteristics are transmitted to their offspring. The latter claim has mainly been supported with regard to maladaptive features. It has been shown, for instance, that conditionally approving or intrusive parenting plays a substantial role in the intergenerational transmission of fear of failure and maladaptive perfectionism (Elliot & Thrash, 2004; Soenens et al., 2005). The present findings

add to this literature by showing that adaptive features of parents' rearing style are important in the transmission of positive dispositions such as perspective taking. As such, our findings are in line with recent calls to focus on growth-promoting processes in child and adolescent development in addition to maladaptive and psychopathological processes (e.g., Belsky, Jaffee, Sligo, Woodward, & Silva, 2005).

Mothers' support did not account for the intergenerational transmission of sympathy. As shown in the mediation model (Figure 1), sympathy (which represents the affective component of empathy) seems to be transmitted in a more direct fashion than perspective taking, which is transmitted through maternal supportive parenting. The differing patterns of intergenerational transmission found for perspective taking and sympathy clearly underline the importance of a multidimensional approach to empathy. More important, this pattern of findings is consistent with Davis et al.'s (1994) study on the heritability of these two components of empathy-related responding. Davis et al. found that genetic heritability estimates were substantially larger for sympathy than for perspective taking. From this finding, they concluded that although genes play a substantial role in the intergenerational transmission of sympathy, such hereditary factors may be less prominent in the transmission of perspective-taking skills. According to Davis et al., the affective component of empathy is strongly linked to individual differences in emotional temperament, which are assumed to be largely genetically inherited. People who are, by their very nature, likely to experience strong emotional responses to the world in general are more likely to affectively respond to the emotions of people in distress, thus making them more likely to display high levels of sympathy (Davis et al., 1994). In contrast, cognitive perspective-taking skills would be less strongly tied to such temperamental characteristics. Instead, "Socialization experiences [may] play the major role in producing reliable dispositional tendencies to engage in psychological perspective taking" (Davis et al., 1994, p. 386). Intriguingly, our data are fully in line with this idea, as the level of intergenerational concordance in perspective taking was fully mediated by supportive maternal rearing. Future research is of course needed to further replicate this pattern of findings and to more directly parse environmental (e.g., parenting) and genetic contributions (e.g., emotional temperament) to empathy-related responding.

Empathy and Friendship Quality

In addition to possible antecedents of empathy, this study examined adolescents' friendship quality as an outcome of empathy-related responding. It was found that, although both sympathy and perspective taking were

positively correlated with friendship quality, perspective taking was the primary predictor of friendship quality when both empathy components were jointly entered in the SEM model. This finding is in line with the original theorizing of Davis (1983), who claimed that perspective taking is more directly relevant to the quality of one's social functioning than sympathy. Although the capacity to take the perspective of others provides an important tool to engage in smooth and rewarding relations because it allows anticipating and taking into account the reactions and feelings of others, the tendency to sympathize with people's feelings may, as such, not systematically enhance one's social competence (Davis, 1983). The extent to which sympathy is conducive to high-quality relations may depend on whether and how this concern over other people's feelings is expressed (e.g., in an anxiety-inducing, overly emotional fashion vs. in an understanding, comforting fashion). For instance, future research may examine the role of personal distress, another dimension of Davis's empathy model that pertains to self-oriented feelings of personal anxiety and unease in tense interpersonal settings. Finally, it is important to note that perspective taking may not be uniformly adaptive either. The skill to take other people's perspective may be used for good or bad. For instance, people with strong perspective-taking tendencies might make use of this skill to manipulate others.

More important, it was shown that maternal support was indirectly linked to friendship quality through the effect of adolescent perspective taking. Hence, supportive parenting appears to enhance the quality of adolescents' friendships because adolescents of supportive mothers have a stronger perspective-taking tendency. This is an important finding because there have been numerous recent calls to study the intervening processes that explain how adaptive parenting enhances social competence in children and adolescents (e.g., Ladd & Pettit, 2002). Empathy and perspective taking in particular seem to be promising candidates to account for the well-established positive effects of supportive, adaptive parenting on the quality of children's social functioning (cf. Clark & Ladd, 2000).

Limitations

Although the present study has a number of strengths, a number of limitations are worth noting. First, although the central parenting construct of the model was estimated through multiple informants, the adolescent empathy and friendship quality constructs were assessed through self-report. It would be worthwhile for future research to include reports of external informants (e.g., parents, peers, or teachers) of the latter constructs and to ensure that shared method variance or social desirability

do not account for the relations among these constructs. A specific limitation of the friendship quality measure is that it taps the perception of relationship qualities from the adolescent's perspective only. As such, it has the disadvantage of providing a "one-sided" rather than reciprocated perspective on friendship quality.

Another important limitation is the cross-sectional design of the study. As such, our findings do not provide a sufficient base for inferring causality. The possibility exists, for instance, that it is easier to build a supportive relationship with children with higher perspective-taking abilities and better social skills. Cross-lagged longitudinal research (Barber et al., 2005), however, shows that parental support predicts rather than merely follows from adolescents' social competence, a finding that justifies the directional path from support to adolescent outcomes in our study. Despite this empirical support, research addressing the direction of effects in relations between parenting and adolescent empathy is needed to enhance our understanding of the socialization of empathy. Furthermore, as mediation is by its very nature a longitudinal phenomenon, longitudinal studies are needed to more accurately test the intervening role of supportive parenting in the intergenerational transmission of empathy. Finally, a longitudinal study could allow one to investigate the implications of the processes involved in empathy development in the longer run. One may wonder, for instance, whether maternal support during adolescence—through its effect on perspective taking—also carries over into higher quality romantic relationships during young adulthood or into higher marital quality during adulthood.

Regarding the sample, it should be noted that there was a relatively low participation rate by mothers. Although several analyses suggested that the sample of participating mothers did not represent a selected subgroup of the initial sample, the possibility still exists that there is a selective reporter bias in the mother sample. More important, our sample of mothers and adolescents represents a rather well-educated sample of White participants, which sets limits on the generalizability of the findings. It may be particularly important for future research to address the role of socioeconomic status (SES) and educational level, as it has been found in past research that differences in SES account for a substantial part of relations between empathy and social functioning (e.g., Jolliffe & Farrington, 2004). Given that SES may be related to both poor parenting and empathy, future studies may use a heterogeneous sample with regard to SES to control for the role of SES in the model presented in this article.

Future research may also address the role of paternal responsiveness in empathy development. With some exceptions (e.g., Laible & Carlo, 2004), research has

failed to examine the unique and combined effects of maternal and paternal parenting on adolescent empathy. Instead, studies typically aggregate maternal and paternal parenting to form a single parenting index, or they focus on the role of mothers alone. Highlighting the importance of studying the unique impact of maternal and paternal parenting on adolescent empathy, Laible and Carlo (2004) found (a) that maternal support was a stronger predictor of sympathy than paternal support and (b) that paternal support qualified the effect of maternal support such that maternal support was more strongly predictive of sympathy at low levels of paternal support (i.e., a buffering effect). Given such results, additional research on the relative contribution of maternal and paternal parenting to empathy development is strongly needed.

Conclusion

This study provides evidence for an important sequence of events in empathy development. To the extent that mothers feel concern and sympathy for other people's fortune and feelings, their adolescent children are more likely to display high sympathy levels too. Moreover, to the extent that mothers are able to take the perspective of others, they are more supportive, which, in turn, enhances adolescents' perspective-taking abilities. As these abilities foster the quality of adolescents' friendships, a further exploration of empathy antecedents should be a high priority on the research agenda of personality psychologists and developmental psychologists alike.

NOTE

1. To assess whether the structural relations are invariant across adolescent gender, a multigroup analysis compared a constrained model in which the structural coefficients were set equal across gender with an unconstrained model in which these coefficients are allowed to vary. These models were compared in terms of the chi-square difference corresponding to the number of degrees of freedom. A significant difference means that the model differs across gender, and a nonsignificant difference implies that the model is invariant across gender. Multigroup analyses were performed on the full model depicted in Figure 2. No significant differences were found between the two models, $\Delta\text{SBS-}\chi^2(7) = 4.7, ns$, indicating that gender did not moderate the relations in this model.

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