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Chapter 6

**EMPATHY IN ADOLESCENCE:
FAMILIAL DETERMINANTS AND PEER
RELATIONSHIP OUTCOMES**

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During the past 30 years, research has explored the determinants and outcomes of empathy in adolescence (Davis, 1983). In this chapter, we adopt a socialization perspective (Staub, 1979) and extend the dialogue on adolescent empathy with the hope of highlighting the familial factors that contribute to the emergence of empathic capability. We also review the body of literature that establishes a connection between empathy and relational competence and functioning in adolescent peer relationships. The overarching theoretical model that guides the current chapter is presented in Figure 1. Taken as a whole, this model shows that specific factors influence adolescent empathy and social outcomes of empathy in adolescent friendships and romantic relationships. Specifically, empathy is impacted by familial factors, such as the intergenerational transmission of empathy, parenting styles, and parent-child relationship quality (Laible, 2007; Padilla-Walker & Christensen, 2010; Walter, 2012). Adolescent empathy leads to social competences, such as intimacy skills, the ability to manage and resolve conflicts with peers, and prosocial behaviors (Chow, Ruhl, & Buhrmester, 2013; Fraser, Padilla-Walker, Coyne, Nelson, & Stockdale, 2012). In general, these competences lead to more positive peer relations, including better friendship quality, higher status within peer networks, and better romantic functioning (Čavojská, 2012; Soenens, Duriez, Vansteenkiste, & Goossens, 2007). In addition to the core model, we will also discuss the “dark side” of empathy—the potential for empathy to have deleterious psychological and social outcomes during adolescence (Smith & Rose, 2011). Finally, a summary of the literature and future directions for research on adolescent empathy are discussed.

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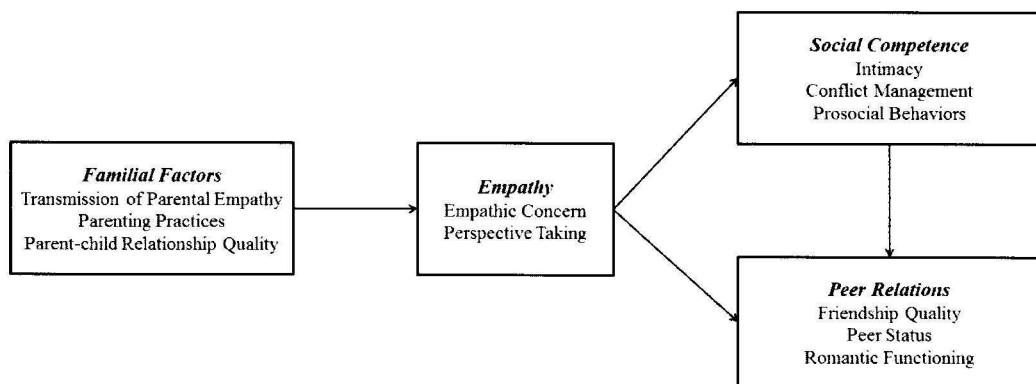


Figure 1. Proposed theoretical model of determinants and outcomes of empathy during adolescence.

DEFINING AND MEASURING EMPATHY IN ADOLESCENCE

Early studies of empathy characterized this construct as the cognitive ability to put oneself in the position of others, and anticipate their reactions, feelings, and behaviors (Dymond, 1949; Gladstein, 1983; Kerr & Speroff, 1954). This characterization is consistent with the idea of theory of mind, or mentalizing, in that these processes involve understanding the mental states of others (Singer, 2006). However, this conceptualization solely focused on the cognitive aspect of empathy and did not address the affective component of empathy. Several years later, researchers began considering the affective side of empathy, or the emotional response of an individual to the perceived feelings of others (Stotland, 1969).

Amongst contemporary researchers, a general consensus is maintained that empathy is most aptly defined as a multidimensional process, consisting of both affective and cognitive aspects. Indeed, neurological evidence supports this theory in that cognitive aspects of empathy appear to be represented in the temporal lobe and pre-frontal cortex, whereas affective aspects of empathy are represented in the sensorimotor cortices and the limbic and para-limbic structures (Singer, 2006). Recent conceptualizations of cognitive empathy (e.g., Devoldre, Davis, Verhofstadt, & Buysse, 2010) describe it as the ability to accurately perceive and experience others' internal states (*perspective taking*). In contrast, affective empathy is described as the ability to feel sympathy, compassion, and concern for others, or the induction of emotion due to witnessing a congruent emotion in another (*empathic concern*; Devoldre et al., 2010; Fraser et al., 2012; Singer & Lamm, 2009). Further, the concept that an adolescent may excessively share in others' stress and experience it as their own is referred to as *empathic distress* (Smith & Rose, 2011). Within both the cognitive and affective domains, there has been much debate regarding the most accurate conceptualization and definition of empathy. In the cognitive domain, terms such as theory of mind, perspective taking, and mentalizing are often used with little differentiation (Frith & Frith, 2006; Singer, 2006). In the affective domain, terms such as sympathy, emotional contagion, affective resonance, and empathic concern are often used (Singer & Lamm, 2009). This chapter will refer to the cognitive aspect of empathy as perspective taking and the affective aspect as empathic concern. These terms are rooted in the developmental literature on empathy and in

self-report measures of empathy. Although the current chapter will primarily utilize these terms, the lack of a consistent conceptualization of empathy across developmental, social, and neuroscience backgrounds is an important shortcoming that will be discussed in the final section of this chapter.

Because empathy is now conceptualized as a multidimensional construct, modern methods of measuring empathy have combined previous efforts to measure cognitive insight and role-taking (Dymond, 1949; Hogan, 1969) and affective empathy (Mehrabian & Epstein, 1972). For instance, the Interpersonal Reactivity Index (IRI; Davis, 1983) was developed to measure empathy as four related but distinct constructs, including two cognitive aspects and two affective aspects. The cognitive aspects include a *perspective taking* component, or the ability to adopt the internal viewpoints of others, and a *fantasy* component, or the ability to transpose oneself into the feelings and behaviors of fictitious others. The affective aspects include an *empathic concern* component, or feelings of concern and sympathy toward the unfortunate circumstances of others, and a *personal distress* component, or feelings of anxiety within the self regarding stressful interpersonal circumstances. The measure of personal distress is similar to Smith and Rose's (2011) conceptualization of empathic distress, or the intense emotional involvement in a close other's distressed feelings to the point of perceiving the distress as one's own. With regard to the IRI, researchers commonly utilize the subscales of interest to their specific hypotheses, typically empathic concern and perspective taking (e.g., Chow et al., 2013; Fraser et al., 2012; Gleason, Jensen-Campbell, & Ickes, 2009; Smith & Rose, 2011; Soenens et al., 2007). The IRI is often considered the gold standard for measuring empathy (Baron-Cohen & Wheelwright, 2004; Jolliffe & Farrington, 2006), having good validity in a late adolescent and young adult sample (Davis, 1983). Empathic concern and perspective taking in this measure are related to other measures of cognitive and affective empathy, social functioning, sensitivity toward others, less loneliness, and a beneficial interpersonal style (Davis, 1983).

Although a commendable measure, the IRI is in no way the only effective measure of empathy. The Empathy Scale (EM) is a measure that assesses the ability to be "socially acute and sensitive to nuances in interpersonal behavior" (Hogan, 1969). The EM has shown good validity and test-retest reliability in young adolescents and young adults. However, because it does not take into account the multidimensional nature of empathy, this measure may have potential methodological flaws. More recently, measures such as the Empathy Quotient, the Basic Empathy Scale, and the Adolescent Empathic Tendency Scale have been developed as alternative methods of assessing empathy in adolescents and adults (Baron-Cohen & Wheelwright, 2004; Dereli & Aypay, 2012; Jolliffe & Farrington, 2006). The Empathy Quotient (EQ) conceptualizes cognitive and affective empathy as one cohesive construct, due to the co-occurrence of these related aspects. This measure was found to have good construct and internal validity in both normative and clinical samples. Taking a two-dimensional approach, the Basic Empathy Scale (BES) assesses the cognitive and affective aspects of empathy by measuring individuals' abilities to understand (cognitive) and share in (affective) others' emotional states (Jolliffe & Farrington, 2006). Confirmatory factor analyses suggested that, although related, the cognitive and affective constructs are separate factors. Further, the validity of this measure was rigorously examined in adolescents and was found to be commendable. Lastly, for examining empathy outside of English-speaking populations, the Adolescent Empathic Tendency Scale is a measure created specifically for Turkish adolescents (Dereli & Aypay, 2012). Similar to measures given in English, exploratory and

confirmatory factor analyses both indicate that this measure consists of two factors (emotional and cognitive empathy; Dereli & Aypay, 2012). Thus, several effective measures of empathy exist, and should be considered based on researchers' specific populations of interest and hypotheses.

FAMILIAL FACTORS AND ADOLESCENT EMPATHY

Although numerous studies have focused on the socialization of empathy in a familial context in young children (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Eisenberg et al., 1993), research on the link between familial factors and the development of adolescents' empathy is relatively scarce. However, the body of research on the associations between familial factors and empathy in adolescence is growing (e.g., Carlo, Knight, McGinley, & Hayes, 2011; Miklikowska, Duriez, & Soenens, 2011; Padilla-Walker & Christensen, 2010). In general, research on the link between familial factors and adolescents' empathy can be broadly organized into three areas: (a) the intergenerational transmission of parental empathic ability to adolescents, (b) the association between parenting styles and practices and adolescents' empathy, and (c) the association between parent-child relationship quality and adolescents' empathy.

INTERGENERATIONAL TRANSMISSION OF EMPATHY

Research on young children has consistently provided support for the link between parents' and children's empathy-related characteristics, particularly within same-sex dyads (Eisenberg et al., 1991; Fabes, Eisenberg, & Miller, 1990). Similarly, recent research has documented the concordance between parents' and adolescents' empathy (e.g., Hawk et al., 2013; Soenens et al., 2007). Soenens et al. (2007) demonstrated that adolescent empathic concern was moderately related to mothers' empathic concern. It is important to note that this study showed that perspective taking was only weakly related between adolescents and their mothers.

Naturally, researchers are interested in the mechanisms that may account for the concordance between adolescent and parent empathy, and one obvious candidate is genetic contribution (for a review, see Walter, 2012). A recent meta-analysis of twin studies reviewed the genetic contribution to empathy during early childhood and adulthood. This study found that genetic factors accounted for approximately 35% of individual variation in empathy (Knafo & Uzefovsky, in press). Furthermore, research has revealed that the heritability of empathy may differ for cognitive and affective components of empathy (Davis, Luce, & Kraus, 1994). Specifically, higher heritability estimates were found for empathic concern than perspective taking. Indeed, these results shed light on Soenens et al.'s (2007) findings that adolescent-mother dyads are more similar in empathic concern than perspective taking. This finding suggests that affective components of empathy may be more inheritable than the cognitive components, which may be more attributable to one's environment.

PARENTING PRACTICES AND ADOLESCENT EMPATHY

The fact that genetic factors can only account for some of the variance in empathy highlights the importance of the socialization process in determining adolescent empathy. For instance, social learning theory suggests that children may rely on their parents as role models for their empathic skills (e.g., Eisenberg, Spinrad, & Sadovsky, 2006). However, other theorists argue that behavioral and psychological mechanisms, such as parenting styles and practices, may underline the concordance between parent and adolescent empathy (Carlo, Mestre, Samper, Tur, & Armenta, 2011; Miklikowska et al., 2011; Padilla-Walker & Christensen, 2010). For instance, some theorists argue that experiencing supportive and warm parenting is the root of empathic capability in adolescents (Miklikowska et al., 2011; Soenens et al., 2007). Parents who are more empathetic may be better at recognizing their children's needs and subsequently respond to their children in a warm, affectionate, and involved manner. Indeed, research has consistently demonstrated that adolescents exhibit more empathic concern and perspective taking when they have parents who encourage positive and warm parent-child communication (Eisenberg & McNally, 1993; Laible & Carlo, 2004; Miklikowska et al., 2011; Soenens et al., 2007). With regard to disciplining practices, research suggests that parents who use inductive verbal reasoning to enhance their children's awareness of behavioral consequences to themselves and others have adolescents who display more empathic concern toward others (Carlo, Knight et al., 2011; Laible, Eye, & Carlo, 2008). Furthermore, adolescents with parents who are more involved in their lives (e.g., participating in school activities) also display more empathy (Padilla-Walker & Christensen, 2010). Not surprisingly, however, parents who are either reluctant to discipline or who are overly strict and controlling have children who are less empathic (Carlo, Mestre, et al., 2011; Eisenberg & McNally, 1993; Laible et al., 2008). These negative parenting styles (either too lax or firm) place unrealistic demands on children that can produce negative affect and more self-centered thoughts in children, leading to less empathic capability (Carlo et al., 2010).

PARENT-CHILD RELATIONSHIP QUALITY AND ADOLESCENT EMPATHY

Whereas many studies have focused on the roles of parenting styles and practices on the emergence of empathy in adolescence, another line of research has investigated the importance of parent-child relationship quality. For instance, adolescents who perceive that their relationships with their parents are more "connected" and intimate display more empathy (Padilla-Walker & Christensen, 2010; Van der Graaff, Branje, de Wied, & Meeus, 2012). In contrast, adolescents who experience more conflict with parents tend to display less empathic concern and perspective taking (Batanova & Loukas, 2012). In addition to the positive and negative qualities of parent-child relationships, some researchers have adopted an attachment theory approach to investigate the link between attachment security and empathy during adolescence. Attachment theory suggests that sensitive and responsive caregiving from parents fosters secure attachment representations by satisfying a child's emotional needs. Secure children are confident about the availability of their parents and are better at regulating their emotions (Cassidy, 1994). Thus, it is believed that securely attached children are freed from self-preoccupation and are, therefore, better able to express empathy toward others (Laible, 2007). Consistent with this notion, research suggests that adolescents

with secure attachment to parents exhibit more empathic concern and perspective taking (Laible, 2007; Laible, Carlo, & Roesch, 2004).

Overall, research has consistently demonstrated the importance of the familial socialization process, especially through various parenting styles and practices, in the emergence of adolescent empathy. Previous studies have also highlighted the role of parent-adolescent relationship quality (e.g., support, conflict, attachment security) in fostering adolescents' empathic capabilities. However, it is crucial to note the possibility that links between parenting styles or parent-child relationship quality and adolescent empathy might be attributable to a broader genetic factor; this possibility should be further examined as it could certainly undermine the socialization hypothesis (Harris, 1998). Therefore, we argue that future research should examine how genetic and parental factors might interact to predict the development of empathy during adolescence.

EMPATHY AND PEER RELATIONSHIPS: THE ROLE OF SOCIAL COMPETENCE

Empathic concern and perspective taking skills are central to healthy peer relationships during adolescence. An adolescent's ability to accurately perceive the thoughts of, and identify with, a peer is a valuable tool that can be used to maintain positive friendships and romantic relationships during this period in life (Franzoi, Davis & Young, 1985; Smith & Rose, 2011). Perspective taking skills and empathic concern for others during adolescence contribute to social competences, such as intimacy and conflict management skills, as well as prosocial behaviors. These social competences allow adolescents to maintain well-adjusted peer relationships and favorable peer networks (Čavojová, 2012; Chow et al., 2013).

Empathy and Adolescent Friendships

Empathic concern and perspective taking skills play an important role in helping adolescents develop healthy friendships. By understanding peers' intentions, goals, and emotions, adolescents are better equipped to engage in effective social support with friends and are more comfortable engaging in self-disclosure of personal information to friends (Burleson, 2003; Chow et al., 2013). Additionally, empathic concern for friends promotes good communication and makes it possible to be accommodating of a friend's needs during conflict. Indeed, research suggests that adolescents who are high in affective empathy engage in more compromise-based and less anger-based conflict management with peers (de Wied, Branje, & Meeus, 2007). Further, adolescents high in cognitive and affective empathy engage in more prosocial behaviors, such as willingness to intervene on behalf of victimized peers, more honesty and tolerance, more helping behaviors, and less psychological and physical bullying (Dereli & Aypay, 2012; Fraser et al., 2012; Hektner & Swenson, 2012). When adolescents engage in empathic concern for others and prosocial behaviors such as these, they perceive their close friendships as higher quality and are seen as more popular with their peer group as a whole (Čavojová, 2012; Oberle, Schonert-Reichl, & Thomson, 2010; Soenens et al., 2007).

Although ample research has investigated the role of empathy in determining adolescent friendship outcomes at the individual level, limited research has examined the role of empathy in impacting friendship quality at the level of the friend dyad. Because the cognitions, emotions, and behaviors of friends are often mutually interdependent, this research is crucial for gaining a better understanding of how empathy impacts the quality of friendships (Hatfield, Cacioppo, & Rapson, 1993). This research indicates that taking the perspective of a friend during times of distress predicts more positive perceptions of friendship quality on the part of the friend, even when controlling for the friend's perspective taking skills (Smith & Rose, 2011). Furthermore, adolescents' empathy, as well as understanding and expectations of friends' empathic concern, increase and become more similar to their friends' expectations from early to mid-adolescence (Clark & Bittle, 1992). Gender differences in this research indicate that girls have higher expectations of empathy, and also perceive more empathy, from friends than boys (Clark & Bittle, 1992). This is consistent with research suggesting that females are higher in empathy than males during adolescence (de Wied et al., 2007; Garaigordobil, 2009). These gender differences may be due to differences in social priorities of girls and boys during adolescence. Specifically, adolescent girls may be concerned with developing close interpersonal relationships, whereas adolescent boys may be most concerned with dominance hierarchies and competition with peers (Kobak, Cole, Ferenz-Gillies, Fleming, & Gamble, 1993; Panksepp, 1998). Because males are attempting to establish dominance in their peer groups, they may try to prove their resilience by avoiding emotional displays of empathy with peers.

Recent research has investigated the dyadic impacts of empathic concern and perspective taking on closeness and discord in adolescent friendships. This research examined how these relationships might be explained by adolescents' abilities to engage in emotional support and conflict resolution, which are aided by their empathic perspective taking skills (Chow et al., 2013). Specifically, this study examined empathy (measured as the average of empathic concern and perspective taking), intimacy and conflict management competence, and friendship closeness and discord in adolescents and their same-sex friends. Actor-Partner Interdependence Model (APIM) analyses showed that adolescents high in empathy held more intimacy competence, which led to perceptions of more closeness in friendships, from both adolescents and their friends. Further, adolescents high in empathy demonstrated more conflict management competence, which led to perceptions of less discord in friendships, from both adolescents and their friends. These findings indicate that adolescents high in empathy are more skilled in engaging in self-disclosure, emotional support, and conflict management, which leads to more closeness and less conflict in their friendships. Furthermore, this research suggests that adolescents are perceptive of their friends' willingness to engage in these intimate behaviors, which leads to perceptions of more closeness and less discord for both adolescents and their friends.

Although the majority of research on empathy and perspective taking skills during adolescence suggests that these traits are related to positive relational outcomes, some findings indicate that perspective taking may have certain drawbacks in adolescent relationships. Specifically, perspective taking has been found to be related to more empathic distress in girls' friendships (Smith & Rose, 2011). This relationship was found to be mediated by co-rumination over friends' problems. In other words, when adolescent girls become preoccupied with their friends' stressors, due to excessive discussion about the stressors, they may feel more distress on behalf of their friends. These distressed feelings may

include worrying about their friends, feeling upset because their friend is going through a difficult time, or having trouble feeling okay if their friend is not feeling okay. It is important to note, however, that regardless of the mediating effect of co-rumination found on distress, it is difficult to establish causality in this scenario. For instance, it is also possible that co-rumination is a commonly occurring behavior in female adolescents that may actually emerge from empathic distress over a friend's stressors (Rose, 2002). With regard to the outcomes of empathic distress, an unpublished study on friendship quality during adolescence suggests that adolescents' reports of personal distress in a friendship predict negativity and conflict within the friendship (Buhrmester, 1992). Taken together, these findings indicate that empathy can at times have negative psychological and relational outcomes during adolescence. Thus, it is important to consider all facets of empathy in friendships during adolescence, rather than presupposing only positive outcomes of empathy during this period in life. Because these negative outcomes of empathy have only begun to be explored, more research is necessary to determine the extent to which empathy may be detrimental to friendships, especially because no research has examined the role of empathic distress in male relationships. Further, research should consider the causal processes of stressors, co-rumination, and empathic distress to determine which of these constructs begets the others.

Empathy and Adolescent Romantic Relationships

Although the emergence of romantic relationships represents an important developmental milestone during adolescence, limited research has examined the role of empathic concern and perspective taking in determining romantic relationship outcomes during this time period. Although some research indicates that individuals often show even more empathic concern for romantic partners than friends (Pinkus, Lockwood, Schimmack, & Fournier, 2008), existing findings on the role of empathy and perspective taking in romantic relationships are mixed. For instance, some research has found no relationship between perspective taking and relationship satisfaction at the individual or dyadic level (Steins, 2006). Similarly, some research suggests no relationship between empathic concern and relational support, or between empathy and relational responsiveness in romantic relationships (Devoldre et al., 2010; Ebesu Hubbard, 2001). Interestingly, some research has found that perspective taking, as opposed to objectively attending to cues from a partner, causes individuals to overestimate their own transparency to their partners regarding their own feelings, values, and preferences, which can actually lead to decreased relationship satisfaction (Vorauer & Sucharyna, 2013).

In contrast, some research has found evidence that perspective taking is related to relationship satisfaction in adolescent and young adult romantic relationships, even after accounting for disclosure of personal information in the relationship (Franzoi et al., 1985). These findings suggest that perspective taking contributes to more positive romantic relationship experiences because it helps adolescents anticipate partners' responses to their behaviors before they engage in such behaviors, which contributes to a smoother intercourse between romantic partners (Franzoi et al., 1985). Similar to perspective taking, some research suggests that empathic concern is also an important determinant of romantic relationship quality and satisfaction in the relationship (Cramer, 2003; Davis & Oathout, 1987). This is likely because empathic concern contributes to adolescents' and young adults' warmth,

communication skills, and positive outlook in their romantic relationships (Davis & Oathout, 1992).

Research on romantic dyads suggests that partners' perceptions of perspective taking in the relationship may be even more important in determining relationship satisfaction than young adults' own perceptions of their perspective taking skills, in that perceptions of partners' perspective taking contribute to more relational satisfaction, whereas an individual's own perspective taking does not (Meeks, Hendrick, & Hendrick, 1998). This may be because perspective taking is related to positive relational behaviors such as affective support, sensitivity, even-temperedness, warmth, and willingness to forgive partners, which may be received positively by partners (Brown, 2003; Davis & Oathout, 1992; Devoldre et al., 2010).

Because romantic relationships most commonly consist of opposite-sex partners, the possibility of gender differences exists. Indeed, some research has found gender differences in empathy in romantic relationships. Specifically, research suggests that females report more perspective taking and empathic concern in their romantic relationships than males (Britton & Fuendeling, 2005; Davis & Oathout, 1987). Furthermore, research on romantic dyads suggests that females' abilities to take the perspective of their romantic partner play a significant role in their male partners' relationship satisfaction, whereas males' perspective taking abilities do not significantly impact their female partners' relationship satisfaction (Franzoi et al., 1985). Because females have been found to endorse affective relational support more so than males, this gender difference in relationship satisfaction may be explained by findings that perspective taking skills predict more affective relational support, but not instrumental relational support (Burleson, Kunkel, Samter, & Werking, 1996; Devoldre et al., 2010). It is important to note, however, that not all research has shown gender differences in empathy and relationship satisfaction in romantic relationships. For instance, Haugen, Welsh, and McNulty (2008) found that empathic accuracy in understanding partners' conflict and feelings of discomfort predicted more relationship satisfaction for adolescent boys and girls, as perceived by both the adolescent and their romantic partner. These differences in findings may be due to differences in the conceptualization of empathy as the distinct constructs of empathic concern and perspective taking.

Overall, research on the role of empathy in adolescent peer relationships consistently demonstrates the importance of empathic concern and perspective taking in developing positive peer relationships, especially with regard to friendships. This research indicates that these skills enable adolescents to effectively offer support and manage conflict with peers, which promotes more positive perceptions of relationships from both adolescents and their peers. Further, females appear to be higher in empathy than males, and the impact of partners' empathy may play differing roles for males' and females' relationship satisfaction during adolescence. It is important to note that the role of empathy in adolescent friendships should not be viewed through rose-colored glasses. In fact, recent research indicates that certain aspects of empathy (i.e., perspective taking, empathic distress) can inadvertently lead to decreases in romantic relationship satisfaction, as well as co-rumination, conflict, and negativity in adolescent friendships (Buhrmester, 1992; Smith & Rose, 2011; Vorauer & Sucharyna, 2013). Thus, it is important that research continue to examine the circumstances that surround negative outcomes of adolescent empathy.

EXISTING SHORTCOMINGS AND FUTURE DIRECTIONS

Since the initiation of research on adolescent empathy, developmental psychologists have learned a great deal about how familial factors contribute to the development of adolescent empathy, and how empathy may have implications for the development of social competence. In this final section, we will discuss several common shortcomings in existing literature on adolescent empathy and how future research may address these issues.

First, most existing research has relied on questionnaire methods to capture empathy-related constructs. Although questionnaire assessments are the most convenient and direct way to measure empathy, self-report measures are subject to individual biases. Some research efforts have attempted to address this issue by examining cross-informant data (e.g., Chow et al., 2013); however, this approach cannot completely resolve the issue of self-report bias. We suggest that developmental psychologists begin to utilize innovative paradigms that have been developed by social psychologists to capture empathy. An approach that integrates different types of measures (e.g., behavioral observations of empathy skills) could be useful for obtaining more accurate reports of empathy-related constructs. For instance, Ickes (1993) developed an experimental procedure, the *empathic accuracy* paradigm, which captures how accurately individuals infer their partners' feelings and thoughts by comparing reports from both members. Whereas Ickes' empathic accuracy paradigm has been widely used in social psychology research, there are few developmental studies that have utilized this paradigm to measure empathy among adolescents (see exceptions, Gleason et al., 2009; Haugen et al., 2008). We believe that such an approach may help to achieve a more objective assessment of empathy, which should be fruitful for developmental research.

Another avenue for measuring empathy lies in autonomic measures of affective arousal and neurological measures of empathy. A review of methods for measuring empathy suggests that empathy consists of distinct processes that are represented differently in the brain and that neuroimaging and physiological measures of empathy can be extremely useful in assessing these processes (Gerdes, Segal, & Lietz, 2010). For instance, fMRI imaging has shown that empathic accuracy and the ability to cognitively process others' feelings are represented in two distinct areas of the brain (Gerdes et al., 2010; Zaki, Weber, Bolger, & Ochsner, 2009). This study also found significant correlations between this brain activity and subjective feelings of empathy. Research using physiological measures of empathy (e.g., heart rate, skin conductance) has also found high correlations between empathic accuracy and physiological signals (Gerdes et al., 2010; Levenson & Ruef, 1992). However, this study did not find evidence that physiological signals are related to self-reports of empathy. In contrast, similar research has found correlations between patient-therapist skin conductance concordance, patient-perceived therapist empathy, and self-reports of positive social-emotional interactions (Gerdes et al., 2010; Marci, Ham, Moran, & Orr, 2007). Although these measurement methods have only recently been used in conjunction with self-report measures, they show much promise in helping researchers to understand how empathy is represented in the developing adolescent brain. It is important to note, however, that before researchers can truly begin to fuse methods from different backgrounds in studying empathy, it is imperative that a consensus is formed regarding the mere conceptualization and operationalization of empathy. Because neurological evidence supports, and augments, the theory that empathy consists of affective and cognitive components, we recommend that

researchers consider this line of research in their attempts to advance the concept of empathy in the future (Singer, 2006; Zaki et al., 2009).

Second, most of the studies reviewed in this chapter are based on cross-sectional data. The lack of innovation in research design, namely longitudinal methods, may prevent developmental psychologists from understanding the complex developmental nature of empathy during adolescence. For instance, we know little about whether empathy-related constructs continue to develop over the normative course of adolescence. Furthermore, we know little about individual differences in the stability and change in empathy, and how these individual differences may be explained by early familial factors, including parenting styles and parent-child relationship quality. Although the model that guided the current chapter (Figure 1) implies a causal chain from familial factors to social competence through empathy, bidirectional influences between these variables are certainly possible. For example, it is possible that adolescent empathic concern and perspective taking may promote better parent-child relationship quality and encourage warm and supportive parenting styles. It is also possible that well-adjusted peer relationships, above and beyond parent-child relationships, may lead to the development of empathic capability during adolescence. We believe that utilizing longitudinal methods will be a vital step toward addressing these bidirectional hypotheses.

Finally, most research on adolescent empathy has focused on the "positive" components of empathy: empathic concern and perspective taking. As previously mentioned, the concept of personal distress, or empathic distress, has been largely ignored (Smith & Rose, 2011). To our knowledge, only one study has investigated the link between parenting and the development of adolescent personal distress (Eisenberg & McNally, 1993). Furthermore, developmental psychologists have only recently begun to examine the paradoxical effects of empathy on relational and psychological functioning (Smith & Rose, 2011; Vorauer & Sucharyna, 2013). Given that empathic distress might represent a uniquely important component of empathy, future research should focus on the developmental precursors and outcomes of this construct. Before considering the precursors and outcomes of empathic distress, however, research should further examine the true nature of empathic distress. Although most developmental research presumes that this construct is distinct from other empathy components (i.e., empathic concern and perspective taking), it is possible that empathic concern is a negative artifact of the more normative empathic concern component of empathy. In support of this idea, research has found that empathic concern and empathic distress are positively correlated for males (Davis, 1983). It is possible that this extreme form of empathic concern depends upon the extent to which adolescents are insecurely attached to their partners, engage in an overinvolved support-giving style, or perceive that their partner is vulnerable and in need of help (Chow & Buhrmester, 2011; Erlanger, 1996; Watt, 2007). For instance, an adolescent who engages in overinvolved and enmeshed support-giving may take on a friend's problems and subsequently feel burdened by them (Chow & Buhrmester, 2011). Thus, it is important that future research consider the source of empathic distress and the extent to which it is truly distinct from empathic concern.

SUMMARY

From a developmental viewpoint, the current chapter reviewed the socialization of empathy during adolescence and the relational corollaries of empathy in peer relationships. In general, adolescent empathy appears to be due to several familial factors, including genetic contributions, parenting practices, and parent-child relationship quality. Further, dispositional empathy during adolescence is related to a number of relational competencies, such as support-giving skills, conflict resolution skills, and prosocial behaviors. These competencies appear to primarily support positive social interactions, leading to more relationship satisfaction with friends and more peer acceptance.

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