A Relational Framework for Integrating the Study of Empathy in Children and Adults

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Abstract

The development of empathy is central to positive social adjustment. However, issues remain with integrating empathy research conducted with children, adolescents, and adults. The current article (a) provides an overview of how empathy is typically conceptualized and measured in child development and adult research, (b) describes outstanding issues concerning child development and adult research on empathy, and (c) outlines how a relational approach can provide clarity regarding how empathy develops over the course of development. We conclude by offering suggestions for future research on the development of empathy across the lifespan.

Keywords

"We always did feel the same. We just saw it from a different point of view."

Bob Dylan

Empathy is central to positive social adjustment in childhood and into adulthood (Beadle, Sheehan, Dahlben, & Gutchess, 2013; Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009). However, empathy is a notoriously ill-defined construct and connections between the development of empathy in infancy and childhood into adolescence and adulthood are poorly understood. My colleagues and I have contended previously that research on empathy largely centers on the empathic experience of the individual (see Main, Walle, Kho, & Halpern, 2017). Specifically, the goal of studies of empathy is typically to understand what motivates certain individuals in certain situations to experience feelings that are congruent or would be expected to be congruent with another's situation (e.g., Hoffman, 2000). Although such work is important to help us understand how individuals experience empathy, there has been a dearth of research examining empathy in the context of interpersonal relationships, despite the fact that empathy often occurs when interacting with social partners (Zaki, Bolger, & Ochsner, 2008).

In what follows, we argue that taking a relational approach to the study of empathy will help improve our understanding of the phenomenon and to better bridge the gap between the child development and adult research on empathy. Specifically, we delineate how studying empathy in the context of close relationships, focusing on empathy as a process, and emphasizing the role of curiosity in the development of empathy will help integrate empathy research in adults and children. The goals of this article are to (a) provide an overview of how empathy is typically conceptualized in research with infants, children, and adults; (b) identify some pitfalls and outstanding issues in the study of empathy in these populations; and (c) discuss ways in which studying empathy from a relational perspective may provide an integrated account of empathy development across the lifespan.

Empathy in Adults

Conceptualization of Empathy Development in Adults

The concept of empathy began with *Einfühlung* in late 19th-century German aesthetics to refer to "feeling with" another (see Wispé, 1986). Lipps (1903) and Titchener (1909) translated this concept into psychological terms, illustrating that we can understand others who are similar to ourselves through reflecting on our own experiences. Historically, research on empathy

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in adults has largely focused almost solely on its cognitive components (see Neumann, Chan, Boyle, Wang, & Westbury, 2015, for a review), such as the ability to take others' perspectives and imagine how one would feel in another's situation (e.g., Hoffman, 1981). Davis (1983) introduced the idea of empathy as a multidimensional construct with both affective (i.e., feeling the same emotions as another) and cognitive (i.e., understanding the causes of another's emotions) components that are related but distinct. Batson, Fultz, and Schoenrade (1987) later conducted a series of elegant experimental studies manipulating ease of escape of a situation in which a participant viewed another in distress, finding that individual and contextual factors affected whether individuals experienced other-focused empathic reactions that led to helping behavior versus personal distress (i.e., self-focused feelings of distress) that did not motivate prosocial responses. This work led to conceptual differentiation between other-oriented versus self-oriented empathic responses. In years since, definitions of empathy have become increasingly diverse, including related but arguably distinct constructs such as empathic accuracy (Ickes, 1993), mentalizing (Zaki & Ochsner, 2012), and sympathy (Cuff, Brown, Taylor, & Howat, 2016).

Measurement of Empathy Development in Adults

The measurement of empathy reflects the field's diversification in the conceptualization of empathy. For instance, the most commonly used self-report measure of empathy—the Interpersonal Reactivity Index (Davis, 1983)—measures both cognitive and affective components of empathy as distinct dimensions. Though much adult work on empathy continues to primarily use self-report, the advancement of physiological and neuroscientific methods has expanded the study of empathy in adults (Shamay-Tsoory & Lamm, 2018). Singer and Lamm (2009) provided an in-depth review of studies examining the neural structures underlying empathy, providing empirical support for the *shared network hypothesis*. Specifically, studies have shown that the neural activation associated with sharing the pain of another is similar to the neural activation observed during an actual, first-hand experience of pain. This indicates that shared representation may be a prominent aspect of empathy. Relatedly, adult as well as cross-species research on empathy has focused on the discovery of mirror neurons and the posited mirror neuron system, which is activated upon observing another's goal-directed actions (see Gallese & Goldman, 1998). Mirror neurons are hypothesized by many to play a key role in empathy; specifically, that we see bodily evidence of others' emotions which activates a similar response in ourselves (see Iacoboni, 2009). Notably, Zaki, Weber, Bolger, and Ochsner (2009) validated the correlation between empathic accuracy and the structures within the mirror neuron system, as well as other brain regions implicated in the empathic process. However, the mapping of mirror neurons in primate studies onto the study of human empathy has met with a great deal of criticism (see Hickok, 2014). We will not reiterate the arguments against mirror neurons as being the foundation of human empathy here, but even if mirror neurons were involved

in the experience of empathy, they likely reflect highly "primitive" forms of empathic understanding (e.g., mimicry, contagion). This can be contrasted with the more complex forms of empathy in which humans typically engage that are culturally and contextually dependent (see Hollan, 2012).

Though neuroimaging (specifically, fMRI) methodologies dominate the field, it is important to note that the neuroscientific approach to empathy encompasses other techniques, such as lesion studies. Indeed, lesion work in empathy has recently gained momentum and attention alongside neuroimaging methods (see Hillis, 2014, for a review). In a study conducted with patients diagnosed with neurodegenerative diseases, Shdo et al. (2018) were able to differentiate between two essential components of empathy: affect sharing and prosocial motivation. Furthermore, imagining another's emotional experience (i.e., mentalizing) activates similar neural networks in adolescence and adulthood, suggesting that brain regions involved in cognitive aspects of empathy are fully developed by adolescence (Overgaauw, Güroğlu, Rieffe, & Crone, 2014). However, studies of aging adults have shown that there may be distinct trajectories of cognitive and affective empathy. On the one hand, research has shown that emotion recognition (involved in empathic accuracy) declines with age (Ruffman, Henry, Livingstone, & Phillips, 2008). On the other hand, older adults have been found to have higher levels of affective empathy and greater prosocial behavior than younger adults. For example, Sze and colleagues found, using a variety of measures of empathy (self-report, physiological responses, and behavioral measures), that older adults had higher emotional empathy and prosocial behavior compared with young and middle-aged adults (Sze, Gyurak, Goodkind, & Levenson, 2012). This is consistent with other research finding cognitive declines with age but improvements in socioemotional functioning (Scheibe & Carstensen, 2010).

Taken together, research on empathy in adults has largely capitalized on adults' verbal and introspective abilities and on the rapid improvement of neuroimaging methods. Use of self-report and neuroimaging methods offers valuable insights into how the brain processes emotional stimuli to provide deeper insight into individuals' experience of empathy. However, convergence between self-reported and behavioral measures of empathy is often poor. Indeed, a recent meta-analysis found that correlations between self-reported cognitive empathy and performance on cognitive empathy tasks was quite low across 85 studies (Murphy & Lilienfeld, 2019). Furthermore, research examining adult empathy in interpersonal contexts is scarce. We outline this and other pitfalls of adult research on empathy in what follows.

Issues Facing the Study of Empathy in Adults

Although the advancement in neuroscientific approaches presents a promising future for the study of empathy, it is not without criticisms. One of the main issues surrounding neuroimaging techniques is the ecological validity of such approaches (Shdo

et al., 2018). In response to this criticism, recent neurological research has taken a more relational approach by utilizing tasks that are more interpersonal in nature. In an innovative recent study, Goldstein and colleagues assessed synchrony of brain activation during a hand-holding task during a pain task, finding that hand-holding during the task was associated with greater coupling of brain activity (Goldstein, Weissman-Fogel, Dumas, & Shamay-Tsoory, 2018).

Second, the focus of the study of empathy in adults has largely been to disentangle different components of empathy, namely, its cognitive and affective subsystems. Though much of the work teasing apart affective and cognitive components has been fruitful in identifying their distinct trajectories (e.g., van Lissa, Hawk, Branje, Koot, & Meeus, 2014), more research studying how these processes are integrated is needed. Indeed, researchers have noted that the distinction between cognitive and affective neural systems may be inflated due to the simplified and nonecologically valid nature of tasks used in neuroscience studies. Hence, some empathy researchers have called for a more integrative approach to understanding the neural underpinnings of empathy—which until recently have largely been studied in isolation (see Lamm, Rütgen, & Wagner, 2017; Zaki & Ochsner, 2012).

Another key problem with our understanding of how empathy develops is the lack of consistency across measures from infancy through adulthood. Of course, there are methodological constraints with young children that do not exist with adults (e.g., verbal abilities, ability to use self-report or brain imaging techniques), but as a result, it is difficult to disentangle whether any lack of stability in empathy is due to variation in measurement or changes in empathy itself (Uzefovsky & Knafo-Noam, 2017). One key exception is a recent study that used a helping paradigm similar to one used with children in which an experimenter struggled to find a lost key (Sturm et al., 2018). Adults with frontotemporal dementia, Alzheimer's disease, and controls were assessed for their behavioral, physiological, and neurological reactions to the situation. Results showed that parasympathetic dysfunctions in the participants with frontotemporal dementia predicted lower empathic responding. More studies using creative methodologies such as these are needed in the adult literature.

In what follows, we discuss how empathy has been conceptualized and studied in infants, children, and adolescents, followed by specific suggestions for future research on empathy in children and adults that may facilitate greater clarity on the development of empathy across the lifespan.

Empathy in Infants and Children

Conceptualization of Empathy Development in Infants and Children

The most influential theories of empathy development in children began in the 1970s, spearheaded separately by developmental scientists Martin Hoffman and Nancy Eisenberg. These theories share a great deal of similarity, but also important differences in the mechanisms identified for how empathy develops. From both perspectives, children's empathy skills improve and become more cognitively sophisticated with development.

Specifically, empathic reactions to others' emotions (both theories have largely focused on empathic distress, that is, negative emotional reactions to the distress of others) start out as primitive emotional contagion (see Hatfield, Cacioppo, & Rapson, 1994) and gradually become more cognitively sophisticated over the course of development. However, the mechanisms through which these changes occur differ across these theories. According to Hoffman, improvements in empathy are largely due to increasing sophistication in self/other distinction. Early in development, children lack this self/other distinction, resulting in empathic crying and, later, egoistic attempts to alleviate others' distress (Hoffman, 1977). As children become increasingly aware of others' perspectives and that others have needs and desires distinct from their own, children begin to act in less egoistic ways. They also become increasingly capable of imagining others' feelings in the absence of direct cues, such as facial expressions, and of basing empathic reactions more on contextual factors (i.e., "veridical empathic distress").

Eisenberg's theory posits that children's empathic abilities also improve with cognitive development, but such changes are largely due to improved emotion regulation capacities rather than self/other distinction (e.g., Eisenberg & Strayer, 1987). Early in development, infants and toddlers usually react to others' negative emotions with personal distress (i.e., unregulated empathic distress). During childhood, they become better able to regulate their empathic responses, and personal distress is transformed into sympathy. Eisenberg also notes considerable individual differences in the tendency to experience personal distress or sympathy based on a variety of dispositional factors (e.g., Eisenberg, 2000).

More recent theories of empathy development in children have built on these approaches. For example, Decety and Svetlova (2012) identified empathic arousal as the first element of empathy to appear during ontogeny, echoing the first two stages ("newborn reactive cry" and "egocentric empathic distress") of Hoffman's theory on early development of empathy (Hoffman, 2000). These more "primitive" responses give way to more mature forms of cognitive empathy (e.g., perspective taking, empathic concern) with development (see Uzefovsky & Knafo-Noam, 2017, for a review). From a neurodevelopmental perspective, Decety and Michalska (2010) acknowledged the development of top-down regulatory capacities associated with executive function, emotion regulation, and language as factors contributing to the ability to regulate empathic arousal and responses. Building on Eisenberg's theory, recent theory on empathy development has posited that self-regulation capabilities are the mechanisms behind the maturation of empathic skills (e.g., Davidov, Zahn-Waxler, Roth-Hanania, & Knafo, 2013). These empathic responses then set the basis for development of certain behavioral aspects of empathy, such as helping and other prosocial behaviors (Decety & Meyer, 2008).

Measurement of Empathy Development in Infants and Children

Though research on empathy with adults largely relies on self-report, studies with young children require a bit more creativity

given limited verbal abilities. Beginning in the 1960s, researchers developed vignettes that assessed to what degree children's emotions "matched" those of a character in a story (Feshbach & Roe, 1968). An experimenter read a story to children about a character experiencing an emotion-eliciting event, and children were either asked how the character in the story felt following the emotional event (empathic accuracy), or how the child felt after hearing about the fictional child's situation (affective matching). Other studies have utilized behavioral and observational measures, including coding of facial expressions of distress or concern in response to films or real-life scenarios (e.g., Eisenberg et al., 1988; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). These studies showed that children become more sophisticated in their responses to others' distress in the second year of life, engaging in less self-focused, personal distress responses and more in other-oriented, prosocial behaviors (Zahn-Waxler et al., 1992). The findings of these studies mirror the work by Batson described earlier, with considerable individual differences in tendencies to react with personal distress versus prosocial behavior (see Eisenberg, Wentzel, & Harris, 1998). However, children's ability to engage in prosocial behaviors unfolds gradually across development. Though infants and toddlers can be sensitive to others' needs, their attempts at helping are often egoistic in nature. For example, Hoffman (2000) describes situations in which toddlers see another individual in distress and engage in the egoistic response of bringing the toddler's own comfort object to the target, without realizing that this object will unlikely soothe the individual in distress. As children get older, their responses become less egoistic and more other-focused. This process parallels cognitive development, in which children increasingly appreciate that preferences are person-specific (e.g., Repacholi & Gopnik, 1997).

While behavioral measures circumvent self-presentation bias associated with self-report, there are limitations to their use with older children due to masking (i.e., concealing one's emotions with the expression of another) or expressive suppression (i.e., concealing one's emotions by inhibiting emotional expressions), and social desirability remains an issue with these methods (see Main, Zhou, Liew, & Lee, 2017; Zhou, Valiente, & Eisenberg, 2003). Sometimes behavioral measures are supplemented with physiological indices, including heart rate and skin conductance, hypothesized to reflect more affective, less cognitively mediated aspects of empathy (Eisenberg et al., 1996). These assessments are less subject to voluntary, top-down manipulation by the research subject than facial expressions or verbal responses. However, physiological measures are not consistently mapped onto discrete emotional experiences, with coherence between physiology and behavior increasing with intensity across some emotions but not others (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Interestingly, measures of facial expressions and physiological measures are more strongly correlated with acts of prosocial behavior (often considered an outcome or behavioral manifestation of empathy) compared with self-reported responses to picture-story measures (Zhou et al., 2003), despite both self-report and prosocial behavior potentially being subject to self-presentation bias.

Several adult and child report scales have been developed for use with older children that focus to varying degrees on affective and cognitive components of empathy (e.g., Bryant, 1982; de Minzi, Lemos, & Oros, 2016; Mehrabian & Epstein, 1972). Oftentimes these are completed by children, parents, teachers, or some combination to ensure results are not due to self-reporter bias. However, cross-reporter agreement on these scales is often low, raising questions about whether individuals are perceiving the child's behavior differently or are witnessing different behaviors across different contexts (e.g., home vs. school).

Issues Facing the Study of Empathy in Infants and Children

The most prominent issue facing the study of empathy in infants and children is the lack of definitional clarity. The studies outlined before are all described as investigations of the development of empathy, but the measures used are in fact testing different aspects of empathy, including empathic accuracy, prosocial behavior, perspective taking, affective matching, personal distress, etc. We do not attempt here to provide a definition of empathy that distinguishes it from these constructs (for an excellent review on empathy and related constructs, we refer the reader to Wondra & Ellsworth, 2015), but we implore researchers studying empathy in children to be clear and careful in describing and interpreting their studies based on the methods used.

A great deal of research on empathy in adults and adolescents has focused on teasing apart the cognitive and affective components of empathy within individuals (e.g., Cuff et al., 2016; Davis, 1983; Decety, Michalska, & Kinzler, 2012; van Lissa, Hawk, Branje, et al., 2014). Such work has illuminated how different brain regions may be involved in cognitive and affective empathic processes and how different developing systems might be involved in the development of cognitive and affective components of empathy (though see Zaki & Ochsner, 2012, for a critique of neuroscientific research in this area). For example, hormonal changes during puberty differentially affect the developmental timing of the limbic system (involved in emotional processing) versus frontal regions of the brain (involved in executive functions and top-down emotion regulation), whereas social relationships might influence perspective taking and other cognitive processes related to empathy development. However, there remains disagreement about whether affective processes are necessary and sufficient to experience empathy (see Wondra & Ellsworth, 2015). This confusion may in part stem from a discrepancy between a broad conceptualization of what qualifies as "cognitive" empathic processes versus a relatively narrow definition of what may be considered "affective" empathic processes. Specifically, cognitive processes involved in empathy include constructs such as perspective taking, theory of mind, and empathic accuracy, while affective empathy is typically conceptualized as affective matching between the empathizer and the target. However, there are other ways that emotions might play a role in the empathic process (we expand on this point in subsequent sections).

Another conceptual issue facing the study of empathy in children is that cognitive developments are largely assumed to underlie the developmental progression of empathy from self- to other-focused (Hoffman, 2000) or from less regulated to better regulated (Eisenberg, Shea, Carlo, & Knight, 2014). Specifically, improvements in self/other differentiation and theory of mind have been posited to underscore shifts in children's empathic reactions to others' emotions as "primitive" to more cognitively mediated reactions (Brown, Thibodeau, Pierucci, & Gilpin, 2017; Decety et al., 2012; Hoffman, 2000). However, there is limited support for this claim. For example, Zahn-Waxler et al. (1992) examined whether a test of self-recognition (the mirror self-recognition task; Bertenthal & Fischer, 1978), operationalized as a test of understanding of relations between the self and the environment, was associated with prosocial behavior as a behavioral manifestation of empathy. This study found only a moderate correlation between these constructs, suggesting that cognitive self/other differentiation may not be central to the development of behavioral empathy. Additionally, one study with adolescents showed that empathic concern positively predicted adolescents' perspective taking over the course of 4 years, but perspective taking did not predict their empathic concern over the same time frame (van Lissa, Hawk, Branje, et al., 2014). Indeed, brain regions involved in emotional processing (e.g., the limbic system) reach peak maturity in early adolescence around the onset of puberty, while the prefrontal cortex (involved in executive and other higher order cognitive functions) does not reach full maturity until early adulthood (Choudhury, Blakemore, & Charman, 2006). This provides some support that cognitive skills do not necessarily precede emotional developments, despite an emphasis in much of the developmental literature on cognitive precedents for empathy development (e.g., Brown et al., 2017; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005).

Researchers concluding that empathy develops because cognitive developments modulate more automatic emotional processes assume that emotions are in fact primitive and lack control early in development. However, according to a functionalist theory of emotion (Campos, Mumme, Kermoian, & Campos, 1994), emotions occur when an event is perceived as personally significant by the individual, which inherently involves some form of cognitive appraisal (though see LeDoux, 2000, for a less top-down perspective on emotion). Emotions therefore involve a relation between the individual and the environment that is perceived as relevant to one's goals (Campos, Walle, Dahl, & Main, 2011; Cole, Lougheed, & Ram, 2018). Though humans' appraisals become more complex and nuanced with development, to make the argument that newborns experience emotions that in no way involve cognition is problematic. For example, infants as young as 4 months demonstrate anger facial expressions when their arms are restrained, and increasingly direct these expressions toward the individual causing the restraint by 7 months of age (Sternberg, Campos, & Emde, 1983). Importantly, infants direct their anger expressions toward the person causing the restraint, even if the primary caregiver is present. This suggests that infants are not merely orienting to human stimuli but have some rudimentary appreciation of the relational significance of

the individual causing the anger-inducing situation, and these appraisals become more complex over time. Such cause–effect understanding, though primitive and underdeveloped compared to adults', is present early in development.

In the context of studies of empathy more specifically, research has demonstrated that 8- to 16-month-old infants demonstrate moderate levels of empathic concern and hypothesis testing (see Zahn-Waxler et al., 1992) and low levels of self-distress in response to others' simulated and real distress (Roth-Hanania, Davidov, & Zahn-Waxler, 2011; Zahn-Waxler, Radke-Yarrow, & King, 1979). This could be considered evidence that cognitive and affective components of empathy are fairly integrated in early childhood. However, it is important to note that very few children in these studies engage in prosocial behavior; thus, the ability to translate empathic concern into helping behaviors develops later. Even children younger than 6 months can distinguish between emotion facial expressions (Flom & Bahrick, 2007), suggesting that there are early perceptual abilities that facilitate the development of empathy (Hunnius, de Wit, Vrins, & von Hofsten, 2011). Similarly, theory of mind (ToM) has rudimentary elements quite early in development based on looking-time studies (see Baillargeon, Scott, & He, 2010). This research suggests that both cognitive and affective components of empathy are present and integrated, at least in some form, in the first year of life.

How Can Developmental and Adult Research on Empathy Be Reconciled?

In what follows, we specify some challenges with integrating the study of empathy in children and adults, and outline ways that a relational approach to the study of empathy may help reconcile child development and adult research on empathy. Specifically, we argue that studying empathy in the context of close relationships, highlighting the dynamic aspects of empathy, and emphasizing curiosity in the study of empathy will guide empathy research in a more ecologically valid direction and help integrate the study of empathy in adults and children.

Focusing on Empathy in Close Relationships

Focusing not only on intrapersonal but also on relational aspects of empathy may provide insight into how empathy develops. For example, studies have shown that back-and-forth exchanges with caregivers and peers promote the development of empathy. Specifically, many child development studies of empathy focus on parental antecedents of children's empathy, including (but not limited to) parental sensitivity (Kiang, Moreno, & Robinson, 2004), secure attachment (Panfile & Laible, 2012), and parent talk about emotions (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013). Generally, such constructs are positively linked with children's empathy. Studies with very young infants show that positive emotional synchrony between mothers and their infants lays the groundwork for future empathy development in children (Feldman, 2007), suggesting that early intersubjectivity is perhaps the root of cooperation and helping behavior (see Akhtar &

Tomasello, 1998). Such intersubjectivity and sensitivity is also key to secure attachments (Diamond & Marrone, 2003). Indeed, an early study found that preschool-aged children with more secure attachments to parents showed more empathy toward peers, likely because these children's parents demonstrated more interpersonal sensitivity toward them (Kestenbaum, Farber, & Sroufe, 1989). This suggests that these relational processes are central to the development of empathy (see Stern & Cassidy, 2018), partly because they function to communicate empathy to the child. Therefore, it is unsurprising that parents who are highly attuned and sensitive to their children's needs and parent–child dyads characterized by secure attachments and emotional synchrony have children who are more empathic later in life. We propose that such parent–child relationship dynamics are in fact indicative of parents' own empathic tendencies, which might help explain the intergenerational transmission of empathy (van Lissa, Hawk, de Wied, et al., 2014). An increased focus in the adult literature on the interpersonal contexts of empathy in other close relationships (e.g., friends, romantic partners) may illuminate similar relationship dynamics that promote or inhibit empathy in adulthood.

Studies that have taken an interpersonal approach to the study of empathy with adults have largely focused on the interpersonal consequences of empathy. For example, studies from the medical literature have found that physicians' communication of empathy to their patients is associated with greater patient disclosure. Such disclosure in turn predicts more positive health outcomes, as physicians whose patients disclose information are better able to develop more targeted treatment plans (Suchman, Markakis, Beckman, & Frankel, 1997). In the context of parent–adolescent relationships, several recent studies have shown that parental validation of adolescents' emotions (a key way parents may communicate empathy to their children) is crucial for encouraging future disclosures (Disla, Main, Kashi, & Boyajian, 2018; Gamache Martin, Kim, & Freyd, 2018; Main, Lougheed, Disla, & Kashi, 2018). Furthermore, empathic communication is associated with better conflict management between individuals and between groups (Halpern, 2007; van Lissa, Hawk, Branje, et al., 2014). Using a relational approach to studying empathy, Zaki and colleagues found that individuals are more empathically accurate when their "partner" is emotionally expressive (Zaki et al., 2008), suggesting that empathic accuracy is enhanced when the individual being empathized with is open and receptive to their social partner's empathic attempts. Though Zaki and colleagues' studies focused on empathic accuracy rather than empathy more broadly, an interesting avenue for future research would be to investigate whether individuals reported experiencing greater empathic feelings in contexts where their social partner was receptive to being empathized with to determine whether this "two-way street" extends beyond empathic accuracy to affect the intrapersonal aspect of empathy (e.g., empathic feelings).

An Increased Emphasis on Empathy as a Process

Research focusing on empathy as an instantaneous phenomenon (i.e., a fleeting feeling that occurs at a specific moment in time)

and as a personality trait (an individual is high or low on empathy) has revealed a great deal about the intrapersonal aspects of empathy. However, we argue here and elsewhere that an increased focus on empathy as a process would illuminate how empathy plays out in social relationships in the real world (see Main, Walle, et al., 2017). Specifically, we may initially fail to appreciate another's emotional state, either due to lack of sufficient information or to inaccurate assumptions about the other's situation. Nevertheless, with sustained curiosity and feedback from the social partner, our attunement to and thus empathy for another's emotions may change over the course of a social interaction (Halpern, 2001; Hollan, 2008; Kupetz, 2014). Though empathy is often fleeting in nature (Eisenberg, 2007), more studies of how empathy plays out dynamically in social interactions would inform interventions with individuals who struggle to successfully empathize (e.g., be more accurate in their attributions of the causes of the other's emotions, better communicate their empathy to the social partner). Specifically, such individuals may fail to resonate with others' emotions initially, but could hone their empathy during a social interaction through practiced skills (e.g., curiosity, nonverbal attunement).

Emphasizing the process of empathy would also help bridge the gap between the adult and child development literature because similar methods could be used. Notably, the use of observational methods, which are common in studies with children, would illuminate a great deal about the empathic process in adult close relationships. Such observational methods (e.g., conversation analysis, observing how an individual responds to another's distress) can elucidate the dynamic nature of empathy in interpersonal contexts (see Kupetz, 2014; Main, Walle, et al., 2017). For example, recent studies from our lab with parents and adolescents have demonstrated that mutual empathic communication (i.e., validation and interest) is associated with better conflict management among parents and adolescents (Main, Paxton, & Dale, 2016), and that when parents respond to adolescents' disclosures with empathy, they are more likely to make quicker disclosures during real-time conversations (Disla et al., 2018; Main et al., 2018). Relatedly, parental supportive coregulation (including validation) of their children's emotions is associated with fewer externalizing problems and higher quality mother–adolescent relationships (Lougheed, Hollenstein, Lichwarck-Aschoff, & Granic, 2015; Lougheed, Koval, & Hollenstein, 2016).

While most adult research relies on self-report of empathy, there have been some studies that have used creative, dynamic methodologies to study empathy as a process. For example, Levenson and Ruef (1992) pioneered the use of a rating dial to assess congruence between individuals' own emotional state and their partner's perceptions of their emotions (i.e., empathic accuracy) throughout a brief interaction. They found that when partners showed greater physiological linkage (i.e., similar increases and decreases in arousal), they were more accurate in assessing each other's emotions. Recent work using a similar methodology has found associations between such physiological linkage and marital quality (Helm, Sbarra, & Ferrer, 2014), and partners' dynamic ratings of each other's thoughts and feelings and relationship security (Overall, Fletcher, & Kenny,

2012). Taking a more sequential and functionalist approach, Kupetz (2014) used conversation analysis to examine how individuals responded empathically to emotional stories told by an acquaintance. Distinguishing between affiliation (e.g., "I feel the same way") and empathy (i.e., understanding other's distinct emotional experience; see Halpern, 2001), researchers found that participants tended to move from initial nonverbal empathic responses (e.g., head nods, brow furrows) to more verbal responses (e.g., follow-up questions, expressions of understanding) that were considered empathic based on their temporal sequencing in the interaction. Finally, in their work on temporal interpersonal systems, Butler and colleagues have described how linkage in the timing of emotional states occurring between individuals is related to positive relationship outcomes in a variety of interpersonal contexts (see Butler, 2017). Although some of the studies discussed before do not measure empathy explicitly, use of such dynamic methodologies provides important insight into how humans learn to appreciate others' changing emotions in real time and over longer developmental timescales.

It is important to note that use of observational methods is limited to studying behavioral manifestations of empathy, which may or may not occur (Hoffman, 2000). However, we believe that more studies of observable indicators of empathy are needed to complement studies of intrapersonal experiences of empathy. Additionally, through the utilization of observational methods, empathy can be more effectively studied across development. Though the nature of relationships changes across development and the specific behaviors evident of empathy may change, the function of such behaviors may not. Specifically, more mandatory relationships (e.g., parent–child relationships) give way to more voluntary interactions with peers and romantic partners (Collins & Laursen, 2004), and behaviors indicative of empathy shift from egoistic to more interpersonally sensitive, but observational methods allow for researchers to infer a common function underlying different behaviors (Walle & Campos, 2012). In other words, a young child may offer their own favorite toy to a distressed adult, whereas an adult may offer a sympathetic ear—but both behaviors can be interpreted to be behavioral manifestations of empathy. Such approaches circumvent issues with young children not being able to accurately reflect on their own emotions and thus may offer more continuity between adult and child development research. However, it is important to note that observational methods rely on interpretations of the researcher, and thus carry their own bias. Thus, another important direction for future work would be to examine associations between various measures of empathy across development.

Emphasizing the Importance of Curiosity Over Empathic Accuracy and Affective Matching

As noted earlier, empathy research has largely focused on the extent to which individuals experience the same or similar emotions as another and act on such feelings. Many researchers contend that prior to experiencing these emotions, individuals must accurately assess their social partner's emotional state (i.e., empathic accuracy; see Ickes, 1997). However, we have contended elsewhere that individuals may be inaccurate in their initial assessments of an interactive partner's emotions, but maintaining curiosity is key to understanding how the empathic process plays out (Hollan, 2012). This principle can be applied to research with both children and adults.

Earlier we outlined how prosocial behavior is often considered a proxy for empathy in the child development literature, but it is not the only indicator of empathy. To illustrate this, studies by Zahn-Waxler and colleagues observationally analyzed infants' and young children's investigative behaviors, deemed "hypothesis testing" (e.g., Zahn-Waxler et al., 1992). These are behaviors that are reflective of the child's attempt to label or understand the problem, usually attempts to determine why another person is experiencing distress. More attention has been paid to children's prosocial behavior (i.e., active attempts to help or comfort), emotional displays of empathic concern (e.g., facial expressions), or self-directed behaviors (e.g., crying in distress) as indicators of empathy. However, including curiosity about another's emotional situation as an indicator of empathic behavior would mean that hypothesis testing becomes a crucial way that children learn about the contextual features that lead to certain emotional experiences in others. Indeed, young children often show more creative problem-solving compared with older children and adults, likely due to reduced cognitive control in younger children (Gopnik, Griffiths, & Lucas, 2015). This suggests that targeting curiosity about others' emotions, rather than only cognitive skills underlying perspective taking and theory of mind, should be encouraged in interventions aimed at promoting empathy in early childhood.

Empathy involves the act of imagining what is significant from another person's perspective (see Halpern, 2001; Main, Walle, et al., 2017). By engaging in this imaginative process, affective matching may occur, but it is not criterial. In certain contexts, what is most empathic is not experiencing the same emotion as another. Indeed, experiencing shared negative emotion during conflict or engaging in empathic distress are associated with poor individual and interpersonal outcomes, including poor romantic relationship quality and divorce (Gottman, Gottman, Greendorfer, & Wahbe, 2014), psychological burnout (Ekman & Halpern, 2015), emotional reasoning (Bloom, 2013), and harm at one's own expense (Hollan, 2012). What truly makes an experience empathic is that the individual doing the empathizing uses the knowledge gained about the other's experience from this imagining to inform appropriate action that is consistent with the other's goals, be it comforting the other person, engaging in active curiosity, or even avoiding the person. In our view, we do not consider perspective taking and other cognitive abilities involved in empathy in ways that are not conducive to another's goals (e.g., competition, manipulation) to be reflective of empathy. The appropriateness of the action depends on the nature of the emotional context (see Walle & Campos, 2012). Vachon and Lynam (2016) put it well when they describe empathy as an "investigative tool" (p. 135). Empathy in and of itself is not an end state or goal; rather, it is a process which helps individuals understand each other's emotional experiences and guide

appropriate behavior that is consistent with another's goals during interpersonal interactions.

Conclusions

In this article we have outlined how empathy is typically conceptualized and empirically studied in adults and children and have argued how a relational approach to studying empathy will help bridge gaps between these two literatures. Theoretical work on empathy with adults has largely focused on identifying cognitive and affective components of empathy, while research with infants and children has focused on the cognitive predecessors that explain developmental trajectories of empathy. Empirically, research on empathy in infants and young children has largely relied on behavioral observations of empathic behavior, with a focus on links between observed empathic distress and prosocial behavior. On the other hand, adult (and to a large extent, adolescent) research has typically taken advantage of adults' verbal and self-reflective abilities by utilizing self-report instruments, though neuroscientific methods have also been highly utilized in the field. However, as we have argued here and previously (see Main, Walle, et al., 2017), these methods with adults have contributed a great deal of knowledge regarding individuals' internal experience of empathy, but less about how interpersonal processes of empathy play out in everyday life. Indeed, the attempt to tease apart cognitive and affective neurological processes involved in empathy through the presentation of isolated cues may have no bearing on real-life situations (Zaki & Ochsner, 2012). Furthermore, developmental studies frequently fail to acknowledge the early integration of cognitive and affective components of empathy by assuming that primitive emotional contagion processes give rise to more cognitively advanced forms of empathy. We argue that emotional development involves cognitive developments from very early in life.

A relational approach to studying empathy in children and adults can help reconcile the study of empathy across development. Specifically, focusing on empathy in close relationships, utilizing more dynamic methods, and broadening our conceptualization of empathy to include not only accurate judgments or affective matching but also curiosity about others' emotional experiences (see Halpern, 2001) are promising directions for future research in the study of empathy. Though the nature of relationships changes in structure and meaning, social relationships remain an important—if not the most important—part of our lives far past childhood. More research examining empathy in interpersonal contexts will contribute to our understanding of empathy in the real world. Furthermore, the use of dynamic, observational methods across development will reduce methodological variation in the study of empathy across different ages, providing greater continuity in the measurement of empathy. Finally, given the complex social nature of empathy, its development is a gradual process. Thus, expanding the study of empathy beyond empathic accuracy and affective matching to include curiosity about others' experiences may provide greater insight into the developmental origins of empathy as well as toward the end of the lifespan—both points in development

where cognitive aspects of empathy may be more limited (Sze et al., 2012). Focusing on the relational nature of empathy and the contexts in which it develops will facilitate a greater understanding of how empathy functions across the lifespan.

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