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Predicting externalizing behavior in toddlerhood from early individual differences in empathy

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Background: From middle childhood onward, there is often a negative link between empathy and externalizing behavior problems. Patterns at younger ages are still unclear, with mixed findings of no association, negative associations, and positive associations. This study examines links between empathy and externalizing problems, beginning in infancy. **Methods:** A community sample of infants (N = 165) was assessed for empathy at 3, 6, 12, 18, and 36 months, using behavioral observations. Externalizing problems were reported at 18 months (by mothers) and 36 months (by mothers and daycare teachers). **Results:** Boys showed more externalizing problems than girls. For boys, negative associations between empathy and externalizing appeared, particularly with teacher reports. For girls, there were positive associations between empathy and externalizing, which weakened with age. For both genders, empathy at ages 3, 6, and 18 months appeared to protect against increases in externalizing from 18 to 36 months. **Conclusions:** The role of empathy in the development of early externalizing depends on both gender and age; toddler boys' externalizing may more typically stem from low empathy, whereas girls' early externalizing appears to be underlain by heightened sensitivity and unregulated or assertive approach attempts. **Keywords:** Empathy; behavior problems; aggression; gender.

Introduction

Externalizing behaviors – negative behaviors such as aggression and defiance (Achenbach et al., 1987) – are common during toddlerhood, peaking during the third year of life and decreasing thereafter (Alink et al., 2006). Although aggression is normative for toddlers, early individual differences are meaningful (Cummings, Iannotti, & Zahn-Waxler, 1989) and are moderately stable from the end of the first year of life onward, particularly by 36 months of age (Alink et al., 2006; Van Beijsterveldt, Bartels, Hudziak, & Boomsma, 2003). Studies identify distinct trajectories of physical aggression, including an early-onset group, whose aggression remains high across development (Campbell, Spieker, Burchinal & Poe, 2006; Côté, Vaillancourt, LeBlanc, Nagin & Tremblay, 2006). Early-onset conduct problems are a risk factor for later, more severe externalizing problems, such as being diagnosed with conduct disorder, or antisocial personality disorder (e.g. Kimonis & Frick, 2010). Early externalizing also conveys risk for school adjustment problems, dropping out, social rejection, and low self-esteem (e.g. Rutter, Kim-Cohen & Maughan, 2006). Identifying children at increased risk and intervening early increases the likelihood of diverting children from problematic trajectories (Kimonis & Frick, 2010). This paper focuses on the predictive and protective role of early empathy.

Empathy and externalizing behavior

Empathy refers to concern for others in distress and cognitive awareness of that distress (Knafo, Zahn-Waxler, Van Hulle, Robinson & Rhee, 2008). Lack of empathy may be linked to externalizing (e.g. aggression) via two separate mechanisms (Kimonis & Frick, 2010). The first is lack of caring: Callousness/disregard for others promotes instrumental use of others for one's own goals (e.g. through aggression), because the person is indifferent to the harm experienced by those others (Frick & White, 2008). This can be assessed early in development as active disregard for others' distress, which predicts subsequent antisocial behavior (Rhee et al., 2013). The second route is through deficient self-regulation, which affects both empathy and externalizing. Dysregulation can lead to impulsive and aggressive reactions (Kimonis & Frick, 2010). Simultaneously, poor regulation also reduces empathy, because the person is unable to manage the arousal induced by others' distress, thus becoming self-distressed rather than other-focused (e.g. Eisenberg, Wentzel & Harris, 1998).

The link between empathy and externalizing problems is frequently seen from middle childhood (elementary school) onward (e.g. Miller & Eisenberg, 1988; Hastings, Zahn-Waxler, Usher, Robinson & Bridges, 2000, although its strength and consistency have been questioned; Vachon, Lynam & Johnson, 2014). Results regarding early childhood are highly inconsistent. Thus, some studies found the expected negative association, showing that empathic

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children are less aggressive, concurrently (Belacchi & Farina, 2012; Strayer & Roberts, 2004) or prospectively (Hastings et al., 2000; Kochanska, Koenig, Barry, Kim & Yoon, 2010), whereas other studies found no relation (MacQuiddy, Maise & Hamilton, 1987; Zahn-Waxler, Cole, Welsh & Fox, 1995). A few studies even found a positive association. In the first observational study to examine this question, sympathy and aggression were positively related in nursery school children (Murphy, 1937). More recently, Gill and Calkins (2003) found this positive link in 2-year-olds, the youngest age examined to date. The aim of this study was to shed light on the nature of the link between empathy and externalizing, by examining how empathy assessed across infancy may protect against externalizing difficulties in toddlerhood and early childhood. Prospective designs can help elucidate mechanisms underlying early emergence of externalizing behaviors.

Empathy in infancy. Although it has been long assumed that other-oriented empathy emerges during the second year of life (Hoffman, 2001), there is growing evidence that concern for others can already be seen during the first year (Davidov, Zahn-Waxler, Roth-Hanania & Knafo, 2013). Recently, Davidov et al. (2020) reliably assessed infants' empathic responses from as early as 3 months of age. These early responses included both affective empathy (concerned emotion for the other) and cognitive empathy (active exploration of the others' distress). Individual differences in empathic responses were moderately consistent from 3 to 18 months and predicted prosocial behavior at 18 months.

Consequently, it is possible to examine whether empathic tendencies at a very young age, before externalizing behavior is seen, can prospectively reduce risk of subsequent externalizing difficulties. We assessed infants' empathic responses from 3 to 36 months, and externalizing difficulties at 18 and 36 months. In light of the inconsistent findings regarding the link between early empathy and externalizing in toddlerhood, our first research question about prospective and concurrent associations was exploratory. (We did expect, however, a positive link between active disregard for others' distress and externalizing; Rhee et al., 2013). Our second goal was to investigate the relation between empathy and change in externalizing over time. Previous studies have shown that early empathy predicted lower rates of subsequent aggressive behavior even beyond initial aggression levels (Hastings et al., 2000). Therefore, we hypothesized that empathy in infancy protects against increase in externalizing problems over time.

The role of gender. From toddlerhood onward, boys show more externalizing problems, such as physical aggression, than girls (Alink et al., 2006; Baillargeon et al., 2007; cf., Shaw, Keenan & Vondra, 1994). Gender differences, favoring girls, are also common for empathic responses (e.g. Hastings et al., 2000; Knafo, et al., 2008; Strayer & Roberts, 2004). Thus, it is important to examine associations between empathy and externalizing separately for girls and boys. Some studies found gender to moderate relations between empathy and externalizing (or related constructs – aggression, antisocial behavior, CU traits), with the link typically appearing more strongly or only for boys (Dadds et al., 2009; Miller & Eisenberg, 1988; Tan, Mikami & Hamlin, 2018; cf., one study found a negative association between empathic concern and aggression only in girls: Noten et al., 2019). Because society is more accepting of externalizing behaviors from boys (Dodge, Pettit & Bates, 1994), they may need a stronger internal motivation, such as empathy for others, in order to refrain from hurting others. We therefore examined gender as a moderator and hypothesized that a negative relation between empathy and externalizing would be stronger for boys than for girls.

Methods

Participants

A community sample of 165 infants, was assessed at ages 3 months (M = 3.35, SD = 0.28; 50% girls), 6 months (N = 155, 94%, M = 6.39, SD = 0.36; 51% girls), 12 months (N = 152, 92%, M = 12.53, SD = 0.26; 52% girls), 18 months (N = 147, 89%, M = 18.37, SD = 0.58; 50% girls) and 36 months (N = 142, 86%, M = 36.95, SD = 0.85; 51% girls) (see also Davidov et al., 2020). A month after giving birth at a large hospital in Jerusalem, mothers received a letter about the study, and a month later, they were contacted by phone for recruitment. Families were diverse with respect to SES and religiosity. At 36 months, preschool teachers were also contacted, with parental permission, to complete child questionnaires, and 120 teachers completed these measures (85% of the 36-month-sample; 51% girls). Families received a gift card of 50 NIS (approximately 14$) and a toy for the child at each home visit. Teachers received a similar gift card for their assistance.

Ethical considerations

The study received ethics approvals from Hadassah Medical Center, Israel ministry of health, and Hebrew University's IRB. Parents and teachers provided written informed consent.

Procedures and measures

Assessments were carried out at infants' homes by trained experimenters (all female).

Empathic responses. At each home visit from 3 to 18 months, infants were presented with three distress episodes: two distress simulations (by mother and experimenter), and a video of a crying peer. For the simulations, the mother and experimenter pretended to hurt themselves (hit finger/bump knee), and simulated pain for 60 s (first 30 s at medium intensity, and then subsiding for another 30 s). No eye contact was made with the child, except at the end of the simulation, when the mother/experimenter smiled and assured the child she was alright now. This task has been used extensively in

prior work to assess empathy (e.g. Roth-Hanania et al., 2011; Zahn-Waxler, Radke-Yarrow, Wagner & Chapman., 1992). For the video episode, infants observed a 50 s video of another infant crying (Geangu, Hauf, Bhardwaj & Bentz, 2011), presented on a tablet computer. Infants' responses to the simulations and video were filmed for subsequent coding.

When children were 36 months old, the same maternal simulation was used, with minor adaptions (e.g. it was shortened to 40 s). Moreover, the experimenter's pain simulation was omitted (we were concerned that two similar pain simulations administered at the same session might feel unnatural or overwhelming for children at this age). Also, a new video stimulus was created to make it age-appropriate, but did not work and omitted. Thus, assessment of empathy at 36 months included one measure (mother's pain simulation).

Coding. The coding system was one developed for the MacArthur Longitudinal Twin Study (Zahn-Waxler, Robinson, et al., 1992), with added half-points to increase sensitivity (Light et al., 2009). Two codes were used: empathic concern and inquiry behavior. *Empathic concern* assesses the level of concerned affect shown by the child toward the victim, through facial expressions (sobering, sad, or sympathy face, including both duration and intensity), together with vocal expressions (concerned intonation), or body posture/gestures (e.g. leaning or reaching toward the victim). Ratings are assigned on a 0–3 scale, with 0 = concern absent, 1 = slight concern, 2 = moderate concern, and 3 = great concern. *Inquiry behavior* assesses infants' attempts to explore and cognitively comprehend the other's distress, considered a reflection of cognitive empathy at young ages (earlier labeled 'hypothesis testing'). Relevant behaviors include intense looking, active searching and exploring gestures (altering gaze between victim face and hurt body part, pointing), as well as vocal and verbal inquisitiveness. Ratings are assigned on a 0–3 scale with 0 = absent, 1 = slight/brief inquiry, 2 = moderate inquiry, and 3 = strong inquiry.

In addition, we also coded *Active disregard*, which assessed the level of anger and hostility toward the victim, including judgmental comments or denial of victim's pain (0–3 scale, with 0 = absent, 1 = slight or indirect, 2 = some/verbal hostility, and 3 = physical aggression). Active disregard was absent during the first year and was very rare at 18 months (only seven children showed it during one of their simulations); thus, we included disregard scores from 36 months only (shown by 20% of the children).

Coding was performed by five trained coders; for each task (each episode at each age), one coder served as main coder, and another coder independently rated 20% of the videos. Inter-rater reliabilities were high, with Spearman's correlation ranging from .75–.89 for all codes (further evidence of the psychometric properties of the coding reported in Davidov et al., 2020).

Data reduction. At each age (3–18 months), both empathic concern and inquiry behavior scores converged across three tasks (mother simulation, experimenter simulation, peer video) loading onto a single factor (eigenvalues ranging from 1.26 to 1.62, accounting for 42%–54% of the variance, with all loadings in the range of .42–.80). Scores for each component were aggregated at each age, averaging across the three tasks. Concern and inquiry total scores at each age were significantly and strongly correlated (*r*s ranging from .55 to .62, all *p*s < .001), and preliminary analysis indicated they showed similar patterns of results. To reduce analyses, and because we did not have separate predictions for empathic concern and cognitive empathy, scores were combined into a total empathy score at each age. Scores were computed by standardizing concern and inquiry scores and averaging across them (due to differing distributions).

Externalizing behavior. Parents (typically the mother) completed the Achenbach Child Behavioral Check List (CBCL) 1.5–5 version (Ivanova et al., 2010) when children were 18 and 36 months old. In addition, children's preschool teachers completed the teacher version, the Teacher Report Form (TRF) when children were 36 months old. Items are scored on a three-point scale with 0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true. We used the externalizing behavior scale, computed from 24 items for the CBCL and 34 items for the TRF, from the attention problems and aggressive behavior subscales. Cronbach's alphas were all high (between .89–.93). Externalizing scales were transformed for analysis (squared root), to eliminate skewness.

There was a significant moderate correlation between parent-reported externalizing at the two ages, $r = .45$, $p < .001$. The correlation between the parent and the teacher reports at 36 months was weak and nonsignificant, $r = .14$, $p = .141$. Scores were therefore analyzed separately. Most children were in the normative range of externalizing behavior according to parental report at 18 and 36 months (95%, 92%, respectively), and 87% according to teacher report at 36 months.

Results

Preliminary analyses

According to teachers, girls showed on average less externalizing behavior compared to boys ($t(117) = 2.22$, $p = .029$; respective means: 6.70 (6.70) vs. 10.14 (10.01)). There was no difference between the two genders for parental reports, however, (18m: $t(142) = 0.77$, $p = .442$; 36m: $t(140) = -1.35$, $p = .181$). There were no gender differences in empathy scores at any age. Other demographic variables (mother age and education, family income, and religiosity level) were unrelated to externalizing or empathy scores (except for a correlation between empathy at 12 months and family income, $r = .20$, $p = .014$); correlations are presented in Table S1).

Links between empathy and externalizing, with gender as a moderator

We conducted regressions (in PROCESS, Andrew F. Hayes) to examine (a) links between empathy score at each age and each externalizing measure, and (b) the potential moderating role of gender. Results are summarized in Table 1, part A. The pattern of results differed by gender, with five out of 14 empathy-by-gender interactions reaching significance, and another interaction approaching significance ($p = .061$; see Table 1A). For boys, we found negative associations with externalizing at 36 months. Most links appeared with teacher-reported externalizing, which was predicted by empathy assessed at 3, 6, 18, and 36 months. In addition, empathy assessed at 18 months also predicted parent-reported externalizing at 36 months. In contrast, for girls, we found positive associations that weakened over time. These positive links were evident between empathy assessed at 12–18 months and mother-reported

Table 1 Summary of moderation analyses predicting externalizing behavior from empathy scores with gender as a moderator

Empathy – predictors	Externalizing 18 months				Externalizing 36 months							
	Parent-reported				Parent-reported				Teacher-reported			
	β Main	β interaction	Males	Females	β Main	β interaction	Males	Females	β Main	β interaction	Males	Females
					A) Without covariates							
3 months	.07	.28	−.07	.20	−.10	.02	−.11	−.10	.00	.59**	−.31*	.28*
6 months	.05	.13	−.02	.11	−.07	−.12	−.02	−.13	−.09	.36†	−.28*	.08
12 months	.22*	.19	.12	.31*	.06	.13	−.01	.12	−.05	.16	−.14	.02
18 months	.23*	.48**	−.01	.47**	−.01	.50**	−.27*	.23†	−.10	.42*	−.31*	.11
36 months					.00	.08	−.04	.04	−.15	.47*	−.38**	.08
					B) Controlling for externalizing at 18 months (mother report):							
3 months					−.16*	−.08	−.12	−.20†	.01	.62**	−.32*	.30*
6 months					−.12	−.13	−.05	−.18	−.13	.47*	−.38*	.09
12 months					−.04	.03	−.05	−.03	−.08	.14	−.15	.00
18 months					−.14†	.33†	−.31*	.02	−.11	.47*	−.35*	.12

β Main = main effect of empathy score; β interaction = effect of empathy-by-gender interaction; males = simple slope of empathy for boys; females = simple slope of empathy for girls.
†$p < .10$, *$p < .05$, **$p < .01$.

externalizing at 18 months. Moreover, empathy assessed at 3 months predicted externalizing at 36 months (teacher report) and empathy assessed at 18 months predicted externalizing at 36 months (mother report). No concurrent associations appeared at 36 months for girls. Figure 1 presents patterns of four of the interactions (patterns for empathy at 6 and 18 months and teacher-reported externalizing were similar to that found for empathy assessed at 36 months).

To examine whether early empathy predicted externalizing at 36 months over and above early externalizing, we repeated regressions for externalizing at 36 months while controlling for externalizing at 18 months. The results are summarized in Table 1B. The pattern of gender-by-empathy interactions remained similar (one additional interaction became significant while another fell slightly short of significance, $p = .055$). Thus, early empathy continued to predict less externalizing at 36 months for boys, and more teacher-reported externalizing for girls, above and beyond initial externalizing levels. Moreover, when externalizing at 18 months was controlled, a negative association also emerged for the whole sample between empathy assessed at 3 months and mother-reported externalizing.

Observed active disregard of maternal distress at 36 months was associated with teacher-reported (but not parent-reported) externalizing ($\beta = .19$, $p = .048$). No gender interaction was found. When externalizing was regressed on both active disregard and empathy, empathy was still negatively linked to boys' teacher-reported externalizing (boy's simple slope = −.36, $p = .013$), and disregard remained close to significant for the whole sample ($\beta = .18$, $p = .062$).

The development of externalizing behavior from 18 to 36 months

To examine whether empathy is linked to the development of externalizing behavior from 18 to 36 months, we divided children into low vs. high in empathy at each age (by using the median as the cut-off point). We conducted four 2X2X2 repeated measures analyses, to determine the effect of empathy group (low vs. high), gender (male vs. female), and age of externalizing (18 months vs. 36 months) on externalizing behavior as reported by the parents (for teacher reports, there was only one time point, 36 months). Separate analyses were conducted for each empathy age (3, 6, 12, and 18 months). The main effect of age of externalizing was significant in all analyses – children showed more externalizing behaviors at 36 months (*F*s between 9.91–14.06, all *p*s ≤ .002). There were no main effects of gender or empathy level in any analysis (*F*s between 0.18–1.85 and 0.58–0.98, respectively, all *p*s *n*s). In all analyses, there were gender-by-age of externalizing interactions (*p*s ranging from .035–.049; for the analysis

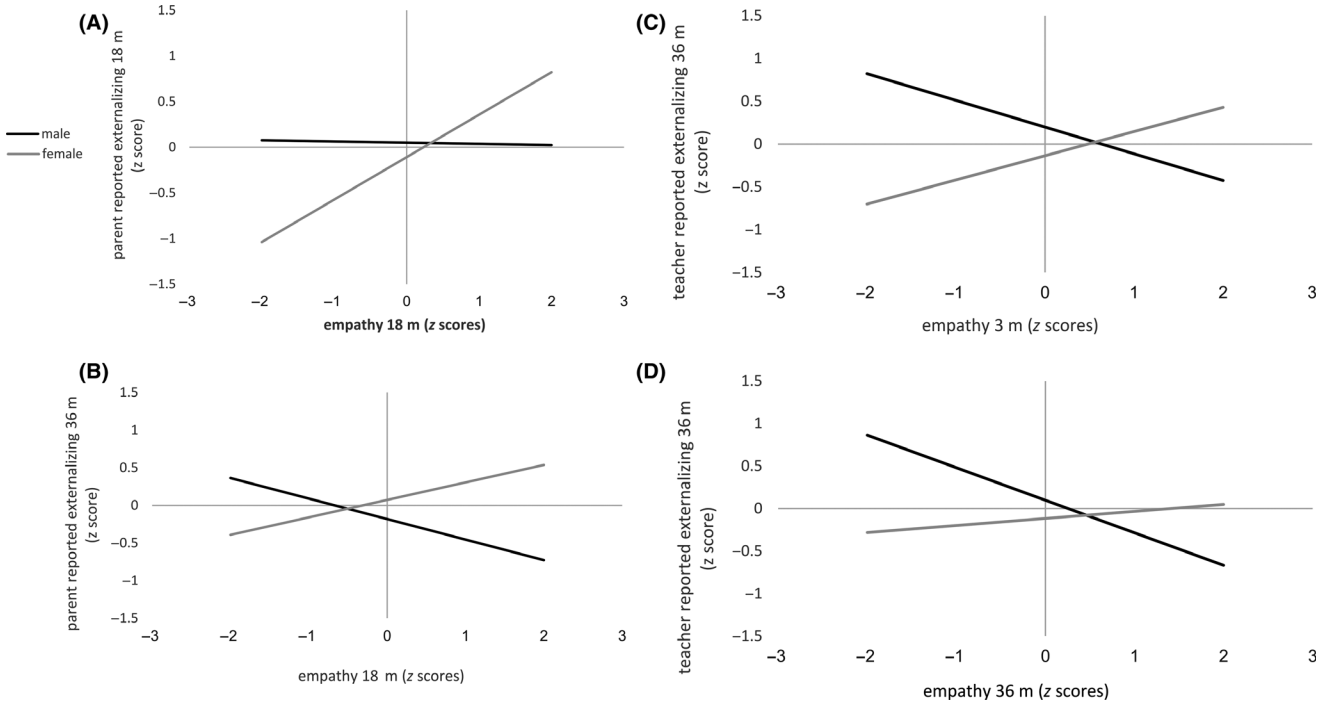

Figure 1 Interaction graphs presenting simple slopes of the relation between empathy and externalization (*z*-scores) by gender. (A) The concurrent links between empathy and parent-reported externalizing at 18 months. (B) The longitudinal links between empathy at 18 months and parent-reported externalizing at 36 months. (C) The longitudinal links between empathy at 3 months and teacher-reported externalizing at 36 months. (D) The concurrent links between empathy and teacher-reported externalizing at 36 months

Table 2 Summary of interactions between empathy group and age of externalizing from repeated measures analyses

	Empathy group-by-age of externalizing interaction			Mean externalizing					
				Low-empathy group			High-empathy group		
Empathy age	*F* score	*df*	*p* Value	18 months	36 months	Mean difference	18 months	36 months	Mean difference
3 months	4.13	1,127	.044*	6.80	10.20	3.41**	7.20	8.15	0.95
6 months	3.94	1,126	.049*	6.98	10.49	3.51**	7.18	8.18	1.00
12 months	0.77	1,127	.382	6.35	8.99	2.64**	7.70	9.40	1.70*
18 months	7.85	1,127	.006**	5.84	9.10	3.26*	8.58	8.78	0.21

Mean difference = increase in externalizing score from 18 months to 36 months (in raw scores).
$^{\dagger}p < .10$, $^{*}p < .05$, $^{**}p < .01$.

with empathy at 3 months, the interaction approached significance, $p = .057$); girls had a steeper increase than boys in mother-reported externalizing from 18 to 36 months. Important to our research questions, there were three empathy group-by-age of externalizing interactions on externalizing behavior, for empathy assessed at 3, 6, and 18 months. These interactions are summarized in Table 2. These interactions were not moderated by gender, as none of the 3-way interactions, gender-by-empathy group-by-age of externalizing, was significant. Pairwise comparisons revealed that at each age (with the exception of 12 months), the low-empathy group increased in externalizing from 18 to 36 months, whereas the high-empathy group remained stable. Hence, in line with our hypothesis, early empathy appeared to serve as a protective factor against increase in externalizing behavior.

To examine how empathy might protect against increases in externalizing for both genders, despite the positive associations between 18 months empathy and externalizing reported earlier for girls, we explored the pattern of the empathy group-by-age of externalizing interactions within gender. Low- and

high-empathy boys tended to begin with the same level of externalizing (e.g. for 18 months, low- vs. high-empathy groups: 7.11 vs. 7.44, respectively); then, the low-empathy boys increased in externalizing over time, whereas the high-empathy boys remained low (respective means at 36 months: 9.32 vs. 6.48). This pattern was also true for girls at early ages (3 and 6 months). In contrast, at 18 months, low-empathy girls started at *lower* levels of externalizing than the high-empathy girls (e.g. for 18 months, low- vs. high-empathy groups: 4.70 vs. 9.80); then, the low-empathy girls increased steeply in externalizing over time, catching up with the high-empathy girls who remained stable (respective means at 36 months: 9.80 vs. 11.40, the difference between the groups at this age was nonsignificant).

Discussion

This report focused on the relations between empathy and externalizing problems from infancy to early childhood and is the first to examine this link so early in development. The role of empathy in early externalizing behaviors appears to depend on both gender and age. Boys showed the negative association typically seen at later ages. Thus, boys' higher empathy, observed as early as 3 and 6 months (as well as later), prospectively predicted less externalizing behavior more than two years later, at 36 months (particularly when reported by teachers). Moreover, boys' empathy acted as a protective factor against increases in externalizing from toddlerhood to early childhood. For girls, the connection was more complex. In toddlerhood (18 months), girls showed a positive link between empathy and externalizing (similar to Gill & Calkins's, 2003 finding for the whole sample). This positive association subsequently weakened and disappeared by the time the girls reached early childhood (36 months). Empathy also served as a protective factor against increases in externalizing for girls, but in a more nuanced way. Notably, for both genders, empathy continued to predict externalizing at 36 months even after controlling for earlier externalizing levels. This indicates that empathy is not merely a proxy of current behavior problems, but rather affects the risk of later externalizing.

Our findings are inconsistent with those of Noten et al. (2019), who found a different interaction with gender, in which the negative association between empathy and externalizing at 20 months (but not at 30 months) emerged only for girls. Yet our findings are in line with the majority of the literature on this topic, which shows that given a gender interaction in the association between empathy and aggression/externalizing, the negative link is stronger for boys (e.g. Dadds et al., 2009; Miller & Eisenberg, 1988). Nevertheless, replications are needed in order to better understand the role of gender as a moderator of the link between empathy and externalizing behavior (when and how moderation occurs).

Why was a positive association between empathy and externalizing found for girls? First, at this early age, aggressive behavior might not yet be underlain by an intention to harm, but rather by a desire to interact with others, albeit in immature, unregulated ways. Thus, both empathic responding and very early aggression appear to reflect similar socially oriented tendencies, such as approach and positive affect (Putnam & Stifter, 2005; Volbrecht, Lemery-Chalfant, Aksan, Zahn-Waxler & Goldsmith, 2007; Young, Fox & Zahn-Waxler, 1999). This shared variance might be more pronounced for girls, because girls show higher interpersonal sensitivity than boys (Zahn-Waxler, 2000; Zahn-Waxler et al., 1995). For example, even in early childhood, girls are more emotionally aroused by the state of others, with girls high on aggression sometimes particularly sensitive/reactive (Zahn-Waxler et al., 1995). The positive association between girls' empathy and aggression disappears as they grow older, possibly because they become more regulated and socially skilled (compared to their younger selves), and/or because girls are more likely than boys to develop links between their aggression and guilt (Zahn-Waxler & Robinson, 1995); heightened guilt reduces aggressive behavior, but enhances internalizing problems. In support, young aggressive girls are likely to show heightened anxiety symptoms in adolescence (Zahn-Waxler, Park, Essex, Slattery & Cole, 2005). Second, young empathic girls who, as noted above, are socially oriented and approaching/assertive, may be evaluated as more aggressive then they truly are. Parents, teachers, and others perceive assertive girls as more aggressive than boys who behave similarly (Condry & Ross, 1985). Many studies found differential socialization toward boys and girls encouraging sex-stereotyped activities, including harsher reactions and disapproval when girls express anger or try to assert themselves (Zahn-Waxler, 2000). Even in infancy, girls are more likely to get a reaction from adults when they behave in a more gender-expected manner, and communicate gently (babbling, gestures, touch) rather than demand assertively (unlike boys, who get reactions in both cases; Fagot, Hagan, Leinbach & Kronsberg, 1985). Observations of naturally occurring behavior (e.g. at daycare) may further inform these two (not mutually exclusive) explanations.

It is also worth addressing why the negative associations between empathy and externalizing appeared primarily for boys. Boys are on average more aggressive than girls (e.g. Alink et al., 2006; Baillargeon et al., 2007), and their socialization is more accepting/permissive of aggressive behavior (Dodge, et al., 1994). This leaves greater room for individual differences in shaping boys' level of externalizing, including the role of empathy as an

important internal motivation for inhibiting aggressive/hurtful behavior.

In contrast to empathy, the association between active disregard and externalizing was simpler: It appeared at 36 months and characterized both genders. This finding implies that by early childhood, aggressive behavior likely already reflects some hostility and lack of caring for others (rather than unregulated attempts to engage the other). Moreover, active disregard appears to be much less prevalent than empathic responding in the early years and may emerge later in ontogeny. Interestingly, active disregard and low empathy explained different parts of the variance in externalizing behaviors; these links may reflect the operation of two mechanisms underlying externalizing (Kimonis & Frick, 2010) – lack of caring and dysregulation, respectively.

There are limitations to these findings. We relied on reports of externalizing; observational methods could help increase validity and shed light on potential biases in reporting, due to child's gender. Teacher reports were available only at a single time point, limiting the ability to examine development of externalizing problems from their perspective. As well, there was only a single measure of empathy at 36 months. Moreover, inclusion of additional measures, such as cognitive development and/or language skills, might have helped in the interpretation of the results. Finally, this was a low-risk sample; further studies of at-risk populations are needed.

Nevertheless, the study has important strengths, including its longitudinal and prospective design, observational methods, and use of two informants. The findings shed new light on links between empathy and externalizing difficulties in the early years. The findings also have clinical implications. Early externalizing behaviors in girls and boys can reflect different mechanisms, pointing to the need for more delineated definitions and measurement of aggression and related constructs in young children. Thus, girls' early externalizing may be more often underlain by heightened sensitivity and unregulated approach attempts, and/or assertiveness; in contrast, externalizing in toddler boys may more typically stem from low empathy. Moreover, by early childhood, externalizing behavior is already partly underlain by disregard for others, for both genders. Different preventative approaches may be required, depending on both age and gender of children, in order to reduce risk of aggressive behavior. Above all, this study underscores that individual differences in empathy, assessed in infancy, have important consequences for the quality of children's subsequent functioning and may often protect against later externalizing problems.

Supporting information

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Table S1. Correlations between externalizing reports, mean empathy scores and demographic variables.

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Key points

- Early externalizing behaviors are a risk factor for more severe later adjustment problems. Empathy has been often shown to be negatively linked with externalizing from middle childhood onward, but findings regarding the link at earlier ages are highly inconsistent.
- This study was the first to examine whether empathy assessed in infancy can predict externalizing in toddlerhood and early childhood.
- The findings differed by gender. For boys, there were negative associations between early empathy and subsequent externalizing; for girls, there was a positive association that weakened with age. For both genders, however, early empathy appeared to protect against a subsequent increase in externalizing.
- The findings suggest that early externalizing is underlain by different mechanisms, depending on both gender and age. Preventative efforts should take these differences into account.

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