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Special Issue Article

Are prosocial tendencies relevant for developmental psychopathology? The relations of prosocial behavior and empathy-related responding to externalizing problems, internalizing problems, and autism spectrum disorder

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Abstract

The field of developmental psychopathology tends to focus on the negative aspects of functioning. However, prosocial behavior and empathy-related responding – positive aspects of functioning– might relate to some aspects of psychopathology in meaningful ways. In this article, we review research on the relations of three types of developmental psychopathology– externalizing problems (EPs), internalizing problems (IPs), and Autism Spectrum Disorder (ASD) – to empathy-related responding (e.g., affective and cognitive empathy, sympathy, personal distress) and prosocial behavior. Empathy-related responding and prosocial behavior generally have been inversely related to EPs, although findings are sometimes reversed for young children and, for empathy, weak for reactive aggression. Some research indicates that children's empathy (often measured as emotional contagion) and personal distress are *positively* related to IPs, suggesting that strong sensitivity to others' emotions is harmful to some children. In contrast, prosocial behaviors are more consistently negatively related to IPs, although findings likely vary depending on the motivation for prosocial behavior and the recipient. Children with ASD are capable of prosocially and empathy-related responding, although parents report somewhat lower levels of these characteristics for ASD children compared to neurotypical peers. Issues in regard to measurement, motivation for prosociality, causal relations, and moderating and mediating factors are discussed.

Keywords: Autism spectrum disorder; empathy; externalizing problems; internalizing problems; prosocial behavior; sympathy

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Introduction

In the study of developmental psychopathology, researchers tend not to focus on positive traits and behaviors. The purpose of this article is to review connections between some types of developmental psychopathology and prosocial aspects of functioning – specifically, prosocial behavior and empathy-related responding. Definitional issues are considered first. Then we briefly discuss the theoretically expected and empirically obtained relations of different types of prosociality to three commonly studied aspects of psychopathology – externalizing problems, internalizing problems, and autism spectrum disorder – and summarize the relevant research.

Prosocial behavior often has been defined as voluntary behavior intended to benefit another, such as helping, donating, sharing, or comforting. Proximal motives for such behavior are diverse: They range from the morally relevant, such as upholding a moral principle or altruism (i.e., behavior intended to enhance another's welfare) to the egoistic (motivated by the ultimate goal of increasing one's own welfare; e.g., avoiding punishment or aversive arousal, seeking approval or rewards; Eisenberg et al., 2016).

Many researchers have argued that altruistic motivation is based on empathy and/or related vicariously induced emotional states. *Empathy* often has been defined as "an affective response that stems from the apprehension or comprehension of another's emotional state or condition, and that is identical or quite similar to what the other person is feeling or would be expected to feel" (Eisenberg et al., 2015, p. 611). Affective empathy is believed to sometimes, but not always, engender *sympathy* (frequently labeled empathic concern), defined as "feeling sorrow or concern for the distressed or needy other (rather than feeling the same emotion as the other person is experiencing or is expected to experience)" (Eisenberg et al., 2015, p. 611) or the highly related construct of *compassion* (i.e., "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help"; Goetz et al., 2010, p. 351). However, affective empathy sometimes might induce *personal distress* (Eisenberg et al., 2015), defined "self-focused emotion evoked by perceiving the other as in need . . . likely to produce egoistic motivation to reduce one's own distress"

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(Batson, 2011, p. 58). Batson (e.g., 2011) argued that personal distress motivates prosocial behavior only when doing so is necessary to reduce one's own aversive arousal; thus, it is not believed to motivate other-oriented prosocial behavior.

In this article, we focus primarily on the relations of different types of affective empathy-related reactions (empathy, sympathy, personal distress) and prosocial behaviors to externalizing or internalizing problems and autism spectrum disorder. Affective empathy, sympathy, and likely personal distress generally are believed to require some cognitive recognition of another's need or emotional state. The abilities to understand others' emotions, needs, and internal states – often defined as cognitive empathy, perspective-taking, or theory of mind – are, consequently, relevant to prosociality, but such understanding does not necessarily motivate sympathy or morally relevant prosocial behavior. For this reason, and due to space constraints, we focus somewhat less on research involving measures of such sociocognitive skills, although we do report some findings on cognitive empathy when relevant to theory or a pattern of findings.

Externalizing problems (EPs)

Theoretical expectations

The type of developmental psychopathology most obviously linked to prosociality is EPs. People who are aggressive or hurtful to others are intuitively low in sympathy and morally based or altruistic prosocial behavior. However, one would expect relations to vary depending on the type of prosocial behavior, empathy-related response, or EP examined.

The symptoms of EPs most often studied in children and youth are those of conduct disorders (i.e., more severe antisocial and aggressive behavior and serious violations of rules), oppositional defiant disorder (i.e., ongoing angry/irritable mood, defiant behavior, and vindictiveness), attention-deficit/hyperactivity disorder (ADHD) (impairments due to inattention and hyperactivity–impulsivity), and drug or alcohol disorders. It is reasonable to hypothesize that the EPs most associated with low prosocial behavior or sympathy are those that involve harm to others. One might also speculate that EPs performed to obtain a specific personal goal (i.e., proactive aggression), which are self-oriented and calculated, are more likely to be negatively related to prosocial/sympathy than reactive aggression (i.e., impulsive and emotionally driven aggression often associated with anger and frustration in response to provocation or an overreaction to perceived threat), partly because emotional people could be prone to both affective empathy and reactive aggression. Moreover, direct acts of physical or verbal aggression/EPs might be more negatively associated with prosociality than relational aggression (harming others socially; e.g., getting others to dislike or exclude a person) or the related construct, indirect aggression (i.e., the use of social manipulation to harm others via covert means; Ritchie et al., 2022) because the latter are subtler and socially based.

In regard to prosociality, one might expect other-oriented and perhaps principle-based prosocial behavior, as well as sympathy, to be negatively related to EPs, especially proactive aggression/EPs and other EPs motivated by hostile or selfish motives. Castano and Kidd (2018) argued that the greater people's capacity or readiness to establish a connection with other human beings (i.e., the greater their empathy or sympathy), the lower the probability that they will engage in behavior that disregards and disrupts this connection (i.e., EPs). Fonagy and Luyten (2018) proposed that conduct problems reflect temporary or chronic difficulties in the capacity to understand the self and others in terms of intentional mental states, leading to a failure to inhibit interpersonal aggression through perspective-taking and empathy. Others have suggested that sympathy shifts one's attention from the perceived benefits of aggression to the morally salient aspects of such acts, and spurs related protective emotions, such as guilt (Colasante et al., 2016).

Because empathy might sometimes engender personal distress and not activate an other-orientation, it would be expected to be less strongly negatively related than sympathy to EPs. Nonetheless, people who experience empathy or personal distress due to their own aggression might be less inclined to continue their hurtful behavior or to aggress in future interactions because the vicarious emotion is aversive (Miller & Eisenberg, 1988). Moreover, personal distress, due to its relation with emotionality and low regulation (Eisenberg et al., 2015), might also be positively related to EPs that involve negative emotion and the inability to manage it (e.g., reactive aggression, perhaps impulsive ADHD-type behavior).

Empirical relations of empathy-related responding to externalizing problems (EPs)

In an early meta-analysis including studies with children and adults, Miller and Eisenberg (1988) found that affective empathy was negatively related to aggression when it was assessed with questionnaires (involving self- or other-report), but not other measures of empathy. Jolliffe and Farrington (2004), in a meta-analysis including children and adults, found that violent and nonviolent offending (i.e., acts that, if detected, would be serious enough to warrant legal action) reported on questionnaires was substantially negatively related to cognitive empathy (average $d = -0.48$) and weakly but significantly negatively related to affective empathy (average $d = -0.11$; $-.17$ for youths only). Vachon et al. (2014), in a meta-analysis, found that adults' empathy was weakly, but significantly, negatively related to overall aggression ($-.11$), but some of the included empathy measures were arguably not valid measures of empathy. When they examined the most relevant measures of cognitive empathy and sympathy (i.e., empathic concern), they were significantly, negatively related to both verbal ($ds = -.26$ and $-.21$, respectively) and physical ($ds = -.14$ and $-.13$, respectively) aggression. Overall, their effect sizes were diluted by the inclusion of sexual violence, which was weakly negatively related to empathy.

Ritchie et al. (2022), in a recent meta-analysis involving studies with 5- to 20-year-olds, found significant negative relations of affective and cognitive empathy to general aggression, broadly defined ($rs = -13$ and $-.06$), with a more robust relation for general (i.e., undifferentiated by type) empathy ($rs = -. 26$). In another meta-analysis, children's and youths' school bullying was negatively associated with cognitive (odds ratio [OR] = 0.60) and affective (OR = 0.51) empathy (Zych, Ttofi, et al., 2019). In a similar meta-analysis, both affective (OR = 1.36) and cognitive empathy (OR = 1.87) were related to low cyber bullying (Zych, Baldry, et al., 2019). In a qualitative review, Winters et al. (2021) argued that empathy (cognitive and affective) is negatively associated with youths' substance abuse.

In all the aforementioned meta-analyses, sympathy and affective empathy were not systematically differentiated, which likely resulted in smaller effects. Brazil et al. (2023) tested the assertion that sympathy is more strongly related to adolescents' aggression than are affective or cognitive empathy. When the three

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self-reported empathy-related measures were joint predictors, only sympathy negatively predicted aggression and psychopathic traits.

An exception to the general negative relation of empathy/sympathy to aggression/EPs is in regard to toddlers, for whom a positive relation sometimes has been found (Gill & Calkins, 2003). Noten et al. (2020) found at 20 months, observed concern in a distress situation was marginally positively related to parent-reported physical aggression in boys and negatively related for girls. Observed empathic distress, but not concern, at 20 months predicted less physical aggression at 30 months, but only for girls (when controlling physical aggression at age 20 months). Paz et al. (2021) found negative associations between observed empathy (likely a measure of both sympathy and empathy) and adult-reported EPs for boys, and positive associations for girls that weakened with age. For both genders, empathy at 3, 6, and 18 months appeared to protect against increases in EPs from 18 to 36 months. The authors speculated that toddler boys' EPs might typically stem from low empathy, whereas girls' early EPs reflect heightened sensitivity and unregulated or assertive approach attempts.

Type of aggression seems to matter when examining relations to prosociality. In a meta-analysis, Ritchie et al. (2022) obtained a significantly stronger relation of affective empathy to proactive aggression ($r = -.18$) than reactive aggression ($r = -.10$). A similar pattern was found for cognitive empathy. In some studies, however, affective empathy has been positively related to children's or adolescents' reactive aggression (Chen et al., 2021), perhaps because both reflect susceptibility to emotion. In regard to the direct vs. indirect aggression distinction, in Ritchie et al.'s (2022) meta-analysis, affective and cognitive empathy were negatively related to both direct ($rs = -.21$ and $-.25$, respectively) and indirect aggression ($rs = -.11$ and $-.13$, respectively), but the relations were significantly stronger for direct aggression.

Of course, empathy or sympathy might be affected by aggression rather than (or in addition to) vice versa. Findings on the direction of relations are mixed and suggest that they can go either way, depending on a variety of factors (e.g., age and other sample characteristics, measures, and analytic approach). For example, in Cyprus, Stavrinides et al. (2010) found that higher initial levels of sixth graders' affective empathy predicted less bullying 6 months later and vice versa (controlling for their respective stabilities over time). In Spain, adolescents' sympathy at age 12 predicted less aggressive behavior one year later (Carlo et al., 2010), whereas self-reported cyberbullying has been negatively related to affective and cognitive empathy over 6- and 12-month time periods (Falla et al., 2023) (in neither study was the reverse relation presented). Tampke et al. (2020) found that a measure of combined empathy and sympathy inversely predicted proactive aggression 6 months later. Reactive aggression inversely predicted empathy/sympathy across time (controlling for initial levels of aggression), whereas proactive aggression was marginally, positively related to subsequent empathy. Because all three variables were predicting one another across time in the same models, relations for one type of aggression were obtained when controlling for the other type of aggression (and are difficult to interpret). In a study of Swiss children followed from mid-childhood to early adolescence, Zuffianò, Colasante et al., (2018) found a moderate, negative association between the slopes of sympathy and overt aggression (i.e., greater increases in sympathy were paralleled by greater decreases in aggression); however, the cross-lagged paths between the slopes were not significant, perhaps due to the high consistency of both behaviors over time. Farrell and Vaillancourt (2023), in within-person longitudinal analyses, found that adolescents' deviations from their average trajectory of indirect aggression negatively predicted deviations from an individual's average trajectory of sympathy (but not vice versa). In contrast, they found no evidence of temporal priority in between-person analyses. Thus, there are inconsistencies in findings in regard to whether affective empathy/sympathy predicts aggression or vice versa.

Relevant experimental studies, which are important for assessing causal relations, are rare. However, Weisz et al., (2022) found that middle school students who received an intervention designed to foster the belief that empathy is socially normative reported greater motivation to empathize (defined as sharing, understanding, and responding to the emotional and mental states of others), which in turn was associated with less peer-reported aggression.

Research on callous, unemotional (CU) traits, defined as involving a lack of guilt and empathy (Frick et al., 2014), is relevant to examining the relation of empathy/sympathy to EPs. Waller and Hyde (2018) argued that CU traits are the development of empathy and prosociality gone awry. Given that CU traits involve a lack of caring, they seem to reflect low sympathy. In fact, in a meta-analysis, children's and youths' CU traits were substantially negatively related to affective empathy/sympathy ($r = -.33$) and cognitive empathy ($r = -.44$), as well as prosociality ($r = -.66$; Waller et al., 2020), and children high in CU traits reported less concern than non-CU peers that aggression will result in suffering by victims (Pardini & Byrd, 2012).

CU traits have fairly consistently been positively associated with aggression and EPs (Frick et al., 2014; Herpers et al., 2014). In a meta-analysis, Longman et al. (2016) found a positive relation between CU traits and conduct problem severity ($r = .39$) for children less than age 5. Similar negative relations between CU traits and most measures of EPs were found in a review focusing on Asian children and adolescents, with the exception that CU traits were not related to reactive aggression (Sng et al., 2020). Moreover, Zych, Ttofi, et al., (2019) found that perpetration of school bullying was positively related to CU traits (OR = 2.55), and Graziano and Garcia (2016) reported that youths with ADHD were high in CU traits ($d = .68$), even after accounting for conduct problems and emotion recognition/understanding (aspects of cognitive empathy). CU traits also have been positively related to children's indirect aggression, although CU traits did not predict trajectories of indirect aggression when the latter was simultaneously predicted by conduct problems and the other aspects of psychopathy (Boutin et al., 2023).

In summary, the research on empathy-related responding generally supports an inverse relation of these constructs with EPs, although findings are less consistent for young children and reactive aggression. Longitudinal findings vary but suggest possible bidirectional relations.

Empirical relations of prosocial behavior to EPs

In studies of very young children, the relation between prosocial behavior and aggression sometimes has been nonsignificant or even positive, likely due to sociability or assertiveness contributing to both types of behavior (Eisenberg et al., 2015; Hay et al., 2021). However, the relation becomes increasingly negative with age in the early years (Hay et al., 2021). In childhood and beyond, the relation of prosocial behavior to EPs, in general, appears to be negative (Eisenberg et al., 2015). In a meta-analysis including adolescents and emerging adults, Memmott-Elison et al. (2020)

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found that greater prosocial behavior was significantly associated with low levels of EPs ($r = .20$), including aggression ($r = .23$), risky sexual behavior ($r = .15$), substance use ($r = .11$), and delinquency/general EPs ($r = .17$).

Similarly, Card et al. (2008) found that both direct and indirect aggression were negatively related to children's and adolescents' prosocial behavior. However, when controlling for the other kind of aggression, the unique relation for direct aggression was negative whereas the unique relation for indirect aggression was positive. The authors suggested that latter reflects the high degree of social skills involved in both indirect aggression and prosocial behavior.

There is scant research on the relations of different types of prosocial behavior to children's and youths' EPs. In a 3-year observational study of children aged 22 to 40 months initially, Persson (2005) found that requested prosocial behavior was unrelated, whereas altruistic behavior was negatively related, to aggression, especially proactive hostile aggression. Carlo et al. (2003) found that adolescents' self-reported aggression was negatively related to self-reported altruistic (selfless helping, usually motivated by sympathy) and compliant (helping because it has been requested by another) prosocial behaviors. In a similar study with college students, McGinley and Carlo (2007) found the same pattern of results with the addition that public prosocial behavior (helping in public, usually motivated by the desire to gain approval, respect from others, and self-worth) was positively related to aggression. Thus, there is initial evidence that the motive behind prosocial behavior matters for relations with EPs.

There are numerous studies examining longitudinal relations between EPs and prosocial behavior. In studies involving relatively sophisticated longitudinal statistical designs (e.g., taking into account stability of the constructs or looking at trajectories), researchers have found evidence consistent with the views that there is a negative relation between the trajectories of prosocial behavior and physical aggression (Nantel-Vivier et al., 2014), prosocial behavior affects future aggression/EPs (e.g., Padilla-Walker et al., 2018; also see Flynn et al., 2015), aggression/EPs affect subsequent prosocial behavior (Obsuth et al., 2015), relations are bidirectional (Memmott-Elison & Toseeb, 2023), or across-time predictive relations are nonsignificant (Laible et al., 2014) or mixed depending on the specific measure of prosocial behavior and if the analysis tapped between individual relations or within-individual change (e.g., Zondervan-Zwijnenburg et al., 2022). In some studies with limited relations between the two constructs, longitudinal lags were a year or less (e.g., Perren et al., 2007). Findings likely differ with the age of children, the measures of prosocial behavior and EPs, the time interval between measures, and the type of analysis, and it is quite possible that relations sometimes are bidirectional across development.

Evidence suggestive of a relation between prosocial behavior and aggression also comes from a meta-analysis of the effects of interventions with control groups designed to promote prosocial behavior. Such interventions not only increased prosocial behavior but also decreased aggressive behavior (Mesurado et al., 2018).

Internalizing problems (IPs)

Theoretical expectations

An aspect of developmental psychopathology that is less consistently associated with empathy-related responding and prosocial behavior is internalizing problems (IPs). Empathy, sympathy, and prosocial behaviors are, in most situations, considered part of a larger domain of social and emotional competence and positive adjustment; thus, they could be expected to be negatively related to IPs. People who experience depression, anxiety, social withdrawal, and/or phobias might be expected to be prone to self-focused responses (e.g., personal distress) and to focus on their own distress; consequently, they would seem more likely than children with fewer IPs to turn away from or not process others' distress, and, thus, show deficits in other-oriented prosocial behavior and sympathy. Also, anxious youths, especially those who have fears about social interactions, might find it difficult to behave prosocially toward unfamiliar people or in unfamiliar settings.

It is also possible that prosociality affects children's level of IPs, rather than vice versa. Helping and feeling concern for others might improve individuals' psychological health by buffering and distracting people from their own problems, providing a sense of meaning and value in life, elevating mood, and promoting social integration. In a meta-analysis of adult participants, Hui et al. (2020) found that prosocial behavior was positively associated with hedonic well-being (e.g., life satisfaction, happiness, and psychological positive well-being, $r = .13$). Similarly, when young children engage in prosocial behavior, they experience more positive affect (e.g., Aknin et al., 2012). Prosocial behaviors or vicariously induced emotional responses that are other-oriented (i.e., altruism and sympathy respectively) might be especially likely to contribute to individuals' well-being (see Eisenberg et al., 2015) and buffer against IPs. In contrast, compliant prosocial behaviors (those in response to someone's request) may be related to relatively high levels of IPs if they reflect low levels of assertiveness and self-assuredness. Egoistically motivated prosocial behaviors might not be consistently related to IPs.

Moreover, some aspects of personality/temperament associated with prosocial behavior – such as positive affect and regulatory skills (Eisenberg et al., 2015) – would be expected to buffer against depressive and anxious symptoms and, thus, could produce a negative association between the two constructs. Alternatively, however, temperamental negative emotionality could render children susceptible to both IPs and empathy or personal distress.

Although empathy and concern for others are typically viewed as adaptive (and, hence, might be expected to be negatively related to maladjustment), Zahn-Waxler and Van Hulle (2012) suggested that excessive empathy, particularly for girls, could increase children's vulnerability to IPs. They proposed that in some circumstances, particularly in troubled families (i.e., maternal depression, marital distress), empathy and prosocial behavior (e.g., toward a depressed parent) can be maladaptive. For example, when chronically exposed to maternal depression and negative emotions, there is a possibility of an emotional cost to experiencing concern, such as pathological guilt, anxiety, and self-blame. Further, more generally, extreme empathy or being overly sensitive to others' distress could increase vulnerability to IPs.

Empirical relations of empathy-related responding to IPs

The literature regarding the association of empathy-related responding with children's IPs is relatively small. Consistent with the view that empathy and sympathy are part of a larger domain of social competence, there has been some evidence of either no relation or a negative relation between children's empathic concern/sympathy and IPs (e.g., Bray et al., 2021; Helland et al., 2022).

In contrast, consistent with the arguments of Zahn-Waxler and Van Hulle (2012), some researchers have reported positive relations

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between empathy and youths' social anxiety (Batanova & Loukas, 2011; Tarlow & La Greca, 2021) and depression (Cui et al., 2023; see Yan et al., 2021, for a meta-analysis). However, it is important to note that in many of these studies, empathy was assessed with reports of emotional contagion or sharing another person's emotions. For example, items such as, "I get caught up in other people's feelings easily" or "I get nervous when others around me are nervous" may be indicative of children's proneness to emotional experiences or possibly personal distress reactions. Few researchers studying the relations of empathy to IPs have differentiated between emotional contagion and sympathy (or empathic concern; see Batanova & Loukas, 2011, for an exception). In one such study, social anxiety was positively correlated with youths' dispositional personal distress but not sympathy (Davis & Franzoi, 1991).

When researchers have explicitly examined children's and adolescents' self-focused personal distress reactions, it often has been associated with increased risk for a variety of maladaptive outcomes, including anxiety (Bray et al., 2021; Smith, 2015), guilt, and depression (Olweus & Endresen, 1998). Support for this notion has been found even with young children. Liew et al. (2011) found that toddlers' personal distress reactions in response to a feigned injury of an unfamiliar adult were positively related to their concurrent fearfulness, an emotional response that is likely predictive of some forms of anxiety and/or phobias (see Buss et al., 2013). Thus, when researchers differentiate among empathy-related responses, there is fairly consistent evidence that personal distress reactions are related to maladaptive outcomes. This relation might be due to temperamental negative emotionality and/or emotional dysregulation contributing to both self-focused overarousal when exposed to another's distress and IPs.

It stands to reason that children who take on the emotions of others are at risk for IPs only under certain conditions (Zahn-Waxler & Van Hulle, 2012). In fact, researchers have found support for the notion that the positive relations between emotional contagion and IPs are moderated by both contextual and intrinsic factors. In one study, affective empathy was positively related to IPs for young children whose mothers were depressed for at least three years of the child's lifetime but not for children whose mothers were not depressed (Tully & Donohue, 2017). Similarly, Green et al. (2018) found that adolescents' affective empathy/emotion contagion was positively related to their depression only when they perceived their mothers' psychological control as relatively high. These findings suggest that empathy (or emotional contagion) functions differently in environments in which mothers' negative emotions are chronic and salient to offspring. More generally, researchers need to tease apart whether relations between empathy-related responses and IPs vary with age, gender, and context, as well as whether there are quadratic relations (e.g., a level of empathy that is considered "too much").

Empirical relations of prosocial behavior to IPs

The majority of empirical evidence shows a negative relation between prosocial behavior and IPs. In a recent meta-analysis, Memmott-Elison et al. (2020) confirmed a significant (albeit weak) effect size across 26 studies that specifically examined the association of adolescents' prosocial behavior to lower levels of IPs ($r = .08$). Similarly, Hui et al. (2020) conducted a meta-analysis using adult samples and found a weak to modest relation between prosocial behavior and lower psychological malfunctioning – a construct that included IPs such as depression and anxiety.

Not surprisingly, the type of prosocial behavior is an important consideration when examining its relation to IPs. In one recent study, public-facing prosocial behavior (e.g., helping when people are watching) was positively related to Latine college students' IPs, but altruistic (other-oriented) prosocial behavior was unrelated to IPs (Maiya et al., 2021). Compliant prosocial behaviors might reflect being overly cooperative with others' needs and lack of self-assertion (see Groeben et al., 2011). Preschoolers higher in compliant prosocial behavior tend to be high in personal distress reactions, especially boys (Eisenberg et al., 1990). Thus, some forms of prosocial behaviors are likely to be positively related IPs.

Volunteerism, on the other hand, appears to be negatively related to IPs. Individuals engage in volunteering behaviors for a variety of reasons, including self-serving motivations (e.g., gaining experience for professional activities) or altruistic ones (e.g., to help less fortunate people; Mannino et al., 2011). Despite such variability, research consistently shows volunteering is negatively related to IPs such as depression in college students (Lederer et al., 2015) and older adults (Musick & Wilson, 2003). Perhaps volunteering behaviors, regardless of the motivation, contribute to individuals' sense of meaning in life and feeling good to do good.

Some helping behaviors, such as those that are directed toward victims of their transgressions, might be motivated by self-concern but still appear to be adaptive. This form of prosocial behavior, known as reparative prosocial behavior, is thought to alleviate guilt (Caprara et al., 2001). If individuals are unable to make amends following transgressions, they may experience destructive and maladaptive forms of guilt. In turn, these individuals are expected to face poorer adjustment outcomes. Donohue et al. (2020) found that preschool-onset depression predicted children's membership in a group of children classified as low in reparative prosocial behaviors from preschool to early adolescence. In addition, membership in a low and stable trajectory of reparative prosocial behavior was related to adolescents' greater depressive symptoms and social withdrawal (Donohue et al., 2020). Thus, children who have chronic difficulty "righting their wrongs" may be at risk for social withdrawal and depression (and this relation may be bidirectional).

Some research indicates that the identity of the recipient of prosocial behavior moderates the relation between prosocial behavior and IPs. For example, as already discussed, when children are asked to behave prosocially toward unfamiliar people, children who suffer from social anxiety, social inhibition, or shyness, compared to more sociable children, are unlikely to extend help toward strangers (Eisenberg et al., 2015). For example, Eisenberg et al. (2019) found that shyness–a temperamental characteristic considered a risk for social anxiety symptoms–was negatively related to prosocial behavior toward an unfamiliar adult.

Behaving prosocially towards family members might be either negatively related or unrelated to IPs. Adolescents reported feeling a sense of happiness when helping family members (Telzer & Fuligni, 2009). However, findings in relation to participating in family tasks (i.e., such as household chores or taking care of younger siblings) and adolescents' IPs seem to depend on the family context. In one study, Latine teens who engaged in more family assistance behaviors (such as helping around the house) decreased in IPs across one year only in the context of family stress (i.e., having two or more negative life events). No relation between family assistance and IPs was found when there were few negative events in the family context (Telzer et al., 2015). Perhaps engaging in helpful behaviors toward family members benefits youth by

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fostering a sense of purpose and resiliency when faced with challenging life events.

In summary, the relation between children's and adolescents' prosocial behaviors and their IPs has generally been negative. However, findings likely vary depending on the type of prosocial behavior and perhaps the recipient. To delineate the probable nuance in the relation between prosocial behavior and IPs, it is important to distinguish among different types of prosocial behaviors, type of IP (i.e., depression, social anxiety), and context.

Autism spectrum disorder (ASD)

Theoretical expectations

As detailed in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013), ASD is a neurodevelopmental disorder characterized by repetitive patterns of behavior/interests and difficulties in social skills. For instance, children with ASD struggle with understanding other people's points of view (i.e., Theory of Mind [ToM; Baron-Cohen & Wheelwright, 2004], also referred to as cognitive empathy or perspective-taking) that could limit their capacity to respond emotionally and reciprocate during everyday social interactions (Scheeren et al., 2013). Moreover, difficulties in their verbal and nonverbal social communication skills could hinder their ability to develop and maintain personal relationships.

Given such difficulties in the social-emotional domain, developmental and clinical scholars (e.g., Ryan-Enright et al., 2022) have theorized that children with ASD likely suffer from limited prosocial functioning, including impairments in their empathy-related responding (Deschamps et al., 2014), compared to their neurotypical peers (NT). Yet, although some results point to an overall lower level of prosocial behavior (e.g., Russell, Golding et al., 2012), the high variability of abilities and social skills possessed by children with ASD (Wozniak et al., 2017), the type(s) of prosocial actions (e.g., instrumental helping versus sharing; Dunfield et al., 2019) and empathy-related facets considered (e.g., perspective-taking versus affective empathy; Deschamps et al., 2014), as well as the different designs (e.g., cross-sectional versus longitudinal) and methods (laboratory tasks, observations, and questionnaires) used across studies, suggest a more nuanced view of the development of prosocial functioning within the ASD group. Because researchers often have considered both prosocial behavior and empathy-related dimensions in relation to ASD (e.g., Deschamps et al., 2014; Dunfield et al., 2019; McDonald et al., 2017), in the following section, we review the empirical evidence for both aspects of prosocial functioning together.

Empirical relations of prosocial behavior and empathy-related responding to ASD

Although a consistent body of empirical research has focused on the relation between prosocial functioning and ASD, longitudinal works are still sparse, thereby limiting a thorough understanding of prosocial development among children and adolescents with ASD. The few longitudinal studies on this topic mostly relied on the use of questionnaires – such as the Strength and Difficulties Questionnaires (SDQ; Goodman, 1997) – in which parents rated the general level of their children's prosocial functioning (e.g., Rosello et al., 2023). Overall, the available longitudinal evidence converges on delineating a profile of children with ASD who, despite mean-level increases in their prosocial behavior (mostly parent-reported) from early childhood to adolescence (e.g., roughly from 3 to 14 years of age), are still lower compared to their NT peers (e.g., Russell, Golding, et al., 2012; Russell, Kelly, et al., 2012; Totsika et al., 2015). For instance, in a large longitudinal study with almost 14,000 children from the UK, Russell, Golding, et al (2012) found that ASD children not only reported a lower level of overall prosocial behavior compared to their NT peers but also higher difficulties in social-emotional facets such as emotion regulation, emotion recognition, and social communication skills. Similar results were obtained in a recent study conducted by Rosello et al. (2023): Although ASD children showed increases in their parent-reported prosocial behavior throughout adolescence, they scored significantly lower than their NT peers both in childhood and adolescence. Importantly, parents' and teachers' reports indicated that ASD children also were lower in other relevant areas for prosocial functioning such as ToM, socialization skills, emotion control, working memory, and inhibitory control, thereby suggesting the presence of a broader constellation of cognitive, social, and emotional challenges experienced by ASD children (Rosello et al., 2023). To the best of our knowledge, the only longitudinal study that did not find differences between ASD and NT peers on prosocial behavior was conducted by McDonald and Messinger (2012) with 3-year-olds later diagnosed with ASD. Using a laboratory task in which the parents pretended to have something in their eyes, the researchers video-recorded empathic concern and prosocial behavior of children at 24 and 30 months of age. Prosocial behavior increased (after six months) in both groups without any statistically significant difference between NT children and those later diagnosed with ASD. Yet, toddlers later diagnosed with ASD consistently displayed lower empathic concern (via facial and vocal signs) at both 24 and 20 months of age compared to the NT children. Using a similar age group, Totsika et al. (2015), instead, found that parents rated (using the SDQ) their young children with ASD as less prosocial than NT peers at 3 years of age (as well as two years later).

If the limited longitudinal evidence based on parents' reports is fairly consistent in reporting low levels of general prosocial behavior and its social-emotional correlates (e.g., empathic concern, ToM) in young children with ASD, cross-sectional studies have obtained more mixed findings. For instance, in line with longitudinal findings, data obtained via parent reports mostly indicate a lower general level of prosocial behavior in children with ASD compared to those without ASD (e.g., Russell et al., 2013; Ziv et al., 2014; but see for different results, Wang et al., 2022). In a secondary data analysis of the Millenium Birth Cohort study (n >19,000), parents' report of (low) prosocial behavior was the best predictor of ASD diagnosis compared to the other SDQ subscales (Russell et al., 2013). Of importance, similar results were also obtained in studies using instruments other than the SDQ such as the Child Behavior Scale (Ladd & Profilet, 1996; see Jahromi et al., 2013) and the Social Skills Rating System (Elliott et al., 1988; see Ziv et al., 2014).

Cross-sectional data collected via behavioral tasks, instead, have yielded greater variability in results. For instance, the evidence about low-cost instrumental helping (e.g., passing an object to the experimenter) in laboratory-based contexts indicated that ASD children, compared to NT children, showed lower levels (Dunfield et al., 2019; O'Connor et al., 2019; Liebal et al., 2008, at $p < .06$), higher levels (Paulus & Rosal-Grifoll, 2017), or similar levels (helping an adult collect toys; McDonald et al., 2017) of instrumental helping. Mixed results were also found for costly prosocial actions such as sharing goods (e.g., snacks/stickers), in

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which ASD children shared both less (e.g., Dunfield et al., 2019; Wang et al., 2022) or more (e.g., Paulus & Rosal-Grifoll, 2017) than their age-matched typically developed peers.

Interestingly, similar mixed findings have also been obtained when empathy-related responding has been measured via laboratory tasks. Deschamps et al. (2014) found similar levels of empathy-induced prosocial behavior on a computer-based task between 6/7-year-olds with ASD and NT. Yet, both parents and teachers reported lower levels of perspective-taking (i.e., cognitive empathy) in children with ASD but no differences in affective empathy across the two groups (Deschamps et al., 2014). Moreover, no differences across groups in children's emotion recognition were obtained via the Feshbach Affective Situation Test for Empathy (Feshbach & Roe, 1968). Similarly, McDonald et al. (2017) did not find differences in empathic concern between children with and without ASD, although children with ASD showed significantly lower levels of personal distress in a laboratory-based assessment. In a recent study with children from China, Wang et al. (2022) found that children with ASD scored lower on ToM ability (measured by a series of ToM tasks) than their NT peers whereas no differences in cognitive and affective empathy were detected via parents' reports of children's empathy (when an experimenter pretended to be hurt).

As noted by the authors themselves (Wang et al., 2022), these inconsistencies likely reflect the methodological uniquenesses represented by each specific assessment procedure (questionnaires versus behavioral tasks). Indeed, whereas parents' reports capture children's general tendency to act prosocially or respond empathetically (e.g., Zuffianò, Sette, et al., 2018), children's performance on laboratory tasks is affected by several factors (e.g., children's familiarity with the situation, children's mood during the task, shyness in some situations) that make it more context- and occasion-specific. Although in a recent meta-analysis including 51 studies, Song et al. (2019) concluded that children with ASD have deficits in cognitive empathy and empathic concern (but no differences in personal distress), the authors did not consider the method of assessment as a potential moderator, thereby preventing them from shedding light on the pattern of inconsistencies.

To summarize, although children with ASD behave prosocially and are capable of understanding someone else's point of view and emotionally responding to others, they appear to exhibit such characteristics to a lesser extent when compared to their NT peers. Yet, these results mostly pertain to parents' reports of children's behavior, namely when the focus is on the general tendency of the child to function prosocially. Results obtained in context-specific environments such as laboratory tasks, instead, offer a more nuanced view of children's prosocial behavior in which children with ASD could act even more prosocially than their peers (e.g., Paulus & Rosal-Grifoll, 2017). More multi-method, multi-informant studies are needed to clarify to what extent such idiosyncrasies could be attributed to methodological effects or could reflect meaningful variability of ASD children's ability to display their prosocial skills.

Future directions and methodological issues

Despite a considerable amount of evidence connecting impairments in prosocial behavior and empathy-related responding (especially for EPs and ASD) to several forms of psychopathology, we highlight some points that might further strengthen research in this area.

First, in line with recent recommendations to draw causal inferences in psychology (e.g., Rohrer, 2018), more attention should be devoted to understanding the potential causal link between prosocial behavior and psychopathology. Controlled experiments are not always feasible and researchers should carefully consider the possible different types of "third variables" that could bias the validity of their conclusions and include them in their data collection. For example, because the impairment in the self-regulatory domain is a *common cause* (i.e., a confounder) of (low) prosocial functioning and several aspects of psychopathology (including the three considered in this article), controlling for self-regulation would help avoid spurious conclusions about the effect – for instance – of low sympathy on EPs (or any other theoretically-relevant psychopathological outcomes). Other possible common causes are genetic factors and socialization experiences. Yet, as noted by Rohrer (2018), researchers should carefully think about which variables should be (or should not be) controlled to reduce bias. Moreover, the presence of longitudinal data could help researchers to control for possible *unmeasured* time-invariant confounding effects via the inclusion of latent random factor(s). Memmott-Elison and Toseeb (2023), for instance, in a series of bivariate random intercept cross-lagged panel models, mitigated the risk of obtaining confounded reciprocal paths between prosocial behavior and IPs/EPs by accounting for stable, unmeasured between-person factors (e.g., individual differences such as intelligence, emotional stability) that could bias such cross-lagged effects (see also Zondervan-Zwijnenburg et al., 2022).

Researchers' causal interpretations could be also strengthened by using instrumental variable approaches to isolate the exogenous part of the intended cause (e.g., prosocial behavior) affecting the outcome of interest (e.g., anxiety). Instruments are variables that "do not depend on other variables or disturbances in the system of equations" (Antonakis et al., 2010, p. 1100), allowing the researchers to estimate the putative causal effect of the independent variable x on the outcome y while dealing with the *endogeneity issue* (i.e., the correlation of the independent variable with the error term of the outcome, reflecting both unmeasured causes and measurement error). In this regard, the *within-person encouragement design* proposed by Schmiedek and Neubauer (2020) represents a promising approach combining instrumental variable modeling and (intensive) longitudinal data. For instance, let's imagine a hypothetical daily diary study about the protective role of prosocial behavior against anxiety in which participants report their prosocial actions and anxiety once a day over four weeks. In this scenario, on half of the days (randomly chosen), participants receive on their smartphones a morning encouragement to behave prosocially (e.g., "Good morning, today we encourage you to help/take care of other people more than what you usually do in your everyday life"). On the encouragement days, participants are asked to adhere to the prompt received (e.g., to make an effort to be more prosocial than what they usually are), whereas on the days without encouragement, participants should behave as they would normally do. The random encouragement would then serve as an instrumental variable to predict the exogenous part of the variability in daily prosocial behavior (i.e., the treatment behavior) that, in turn, will impact students' daily anxiety. Hence, only the portion of the variability in prosocial behavior predicted by the encouragement (i.e., the instrument) is used to estimate the putative causal effect of prosocial behavior on anxiety. We refer interested readers to Antonakis et al. (2010) and Schmiedek and Neubauer (2020) for a more in-depth discussion of this method.

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Second, more work is needed to unravel the possible mediational mechanisms between prosocial behavior and psychopathology. For instance, Padilla-Walker et al. (2018) found that adolescents' prosocial behavior toward their friends predicted lower levels of anxiety via the mediational role of (high) quality relationships with a best friend. Similarly, difficulties in social information processing could be partly responsible for the lower levels of prosocial behavior of children with ASD compared to their NT peers (e.g., Ziv et al., 2014).

Third, we are aware that collecting data from children and adolescents with some clinical conditions is difficult and might result in small samples with limited inter-individual variability and limited statistical power. Hence, we strongly believe that the use of integrative data analysis (Hussong et al., 2013) – a methodology through which independent datasets are pooled together – offers an invaluable opportunity to have stronger statistical power as well as to assess the possible sources of heterogeneity across studies (e.g., different informants/methods) that could limit our understanding of the relation between prosocial functioning and psychopathology.

In summary, we believe, and the data suggest, that prosocial functioning is relevant to at least some aspects of developmental psychopathology. The adaptive and less adaptive aspects of children's functioning would be expected to be interrelated, albeit sometimes in complex ways. Nuance in terms of differentiating among various forms of prosocial behavior, empathy-related responding, and developmental psychopathology is necessary if reliable patterns of findings are to be identified. Different components of prosociality are more relevant for some forms of psychopathology (and some aspects of a particular form of psychopathology) than others. Moreover, it is important in future work to better test causal relations, third variables that could account for associations, mediators of relations, and moderators of the associations in question (e.g., context, type of measure).

References

Aknin, L. B., Hamlin, J. K., & Dunn, E. W. (2012). Giving leads to happiness in young children. *PLoS ONE*, *7*(6), 4. https://doi.org/10.1371/journal.pone.0039211

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders*, 5th edn. American Psychiatric Association. https://doi.org/10.1176/appi.books.9780890425596

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, *21*(6), 1086–1120. https://doi.org/10.1016/j.leaqua.2010.10.010

Baron-Cohen, S., & Wheelwright, S. (2004). The empathy quotient: An investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, *34*(2), 163–175. https://doi.org/10.1023/b:jadd.0000022607.19833.00

Batanova, M. D., & Loukas, A. (2011). Social anxiety and aggression in early adolescents: Examining the moderating roles of empathic concern and perspective taking. *Journal of Youth and Adolescence*, *40*(11), 1534–1543. https://doi.org/10.1007/s10964-011-9634-x

Batson, C. D. (2011). *Altruism in humans*. Oxford University Press.

Boutin, S., Bégin, V., & Déry, M. (2023). Impacts of psychopathic traits dimensions on the development of indirect aggression from childhood to adolescence. *Developmental Psychology*, *59*(9), 1716–1726. https://doi.org/10.1037/dev0001582

Bray, K. O., Anderson, V., Pantelis, C., Pozzi, E., Schwartz, O. S., Vijayakumar, N., Richmond, S., Deane, C., Allen, N. B., & Whittle, S. (2021). Associations between cognitive and affective empathy and internalizing symptoms in late childhood. *Journal of Affective Disorders*, *290*, 245–253. https://doi.org/10.1016/j.jad.2021.04.034

Brazil, K. J., Volk, A. A., & Dane, A. V. (2023). Is empathy linked to prosocial and antisocial traits and behavior? It depends on the form of empathy. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, *55*(1), 75–80. https://doi.org/10.1037/cbs0000330

Buss, K. A., Davis, E. L., Kiel, E. J., Brooker, R. J., Beekman, C., & Early, M. C. (2013). Dysregulated fear predicts social wariness and social anxiety symptoms during kindergarten. *Journal of Clinical Child and Adolescent Psychology*, *42*(5), 603–616. https://doi.org/10.1080/15374416.2013.769170

Caprara, G. V., Barbaranelli, C., Pastorelli, C., Cermak, I., & Rosza, S. (2001). Facing guilt: Role of negative affectivity, need for reparation, and fear of punishment in leading to prosocial behaviour and aggression. *European Journal of Personality*, *15*(3), 219–237. https://doi.org/10.1002/per.402

Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development*, *79*(5), 1185–1229. https://doi.org/10.1111/j.1467-8624.2008.01184.x

Carlo, G., Hausmann, A., Christiansen, S., & Randall, B. A. (2003). Sociocognitive and behavioral correlates of a measure of prosocial tendencies for adolescents. *The Journal of Early Adolescence*, *23*(1), 107–134. https://doi.org/10.1177/0272431602239132

Carlo, G., Mestre, M. V., Samper, P., Tur, A., & Armenta, B. E. (2010). Feelings or cognitions? Moral cognitions and emotions as longitudinal predictors of prosocial and aggressive behaviors. *Personality and Individual Differences*, *48*(8), 872–877. https://doi.org/10.1016/j.paid.2010.02.010

Castano, E., & Kidd, D. (2018). Antisocial behavior in individuals and groups: An empathy-focused approach. In K. Deaux, & M. Snyder (Eds.), *The Oxford handbook of personality and social psychology* (2nd ed. pp. 489–512). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190224837.013.18

Chen, F.R., Fung, A.L.C., & Raine, A. (2021). The Cognitive, Affective, and Somatic Empathy Scales (CASES): Cross-cultural replication and specificity to different forms of aggression and victimization. *Journal of Personality Assessment*, *101*(1), 80–91. https://doi.org/10.1080/00223891.2019.1677246

Colasante, T., Zuffianò, A., & Malti, T. (2016). Daily deviations in anger, guilt, and sympathy: A developmental diary study of aggression. *Journal of Abnormal Child Psychology*, *44*(8), 1515–1526. https://doi.org/10.1007/s10802-016-0143-y

Cui, D., Liu, L., & Li, Y. (2023). Association between children's empathy and depression: The moderating role of social preference. *Child Psychiatry and Human Development*, *54*(3), 857–869. https://doi.org/10.1007/s10578-021-01312-5

Davis, M. H., & Franzoi, S. L. (1991). Stability and change in adolescent self-consciousness and empathy. *Journal of Research in Personality*, *25*(1), 70–87. https://doi.org/10.1016/0092-6566(91)90006-C

Deschamps, P. K., Been, M., & Matthys, W. (2014). Empathy and empathy induced prosocial behavior in 6- and 7-year-olds with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *44*(7), 1749–1758. https://doi.org/10.1007/s10803-014-2048-3

Donohue, M. R., Tillman, R., & Luby, J. (2020). Reparative prosocial behavior difficulties across childhood predict poorer social functioning and depression in adolescence. *Journal of Abnormal Child Psychology*, *48*(8), 1077–1088. https://doi.org/10.1007/s10802-020-00646-3

Dunfield, K. A., Best, L. J., Kelley, E. A., & Kuhlmeier, V. A. (2019). Motivating moral behavior: Helping, sharing, and comforting in young children with autism spectrum disorder. *Frontiers in Psychology*, *10*, 25. https://doi.org/10.3389/fpsyg.2019.00025

Eisenberg, N., Fabes, R., Miller, P. A., Shell, R., Shea, C., & May-Plumlee, T. (1990). Preschoolers' vicarious emotional responding and their situational and dispositional prosocial behavior. *Merrill-Palmer Quarterly*, *36*(4), 507–529. https://www.proquest.com/scholarly-journals/preschoolers-vicarious-emotional-responding-their/docview/617897859/se-2

Eisenberg, N., Spinrad, T. L., & Knafo-Noam, A. (2015). Prosocial development. In M. E. Lamb, & R. M. Lerner (Eds.), *Handbook of child psychology and developmental science: Socioemotional processes*. (Vol. *3*, 7th ed. pp. 610–656). John Wiley. https://doi.org/10.1002/9781118963418.childpsy315

Eisenberg, N., Spinrad, T. L., Taylor, Z. E., & Liew, J. (2019). Relations of inhibition and emotion-related parenting to young children's prosocial and

https://doi.org/10.1017/S0954579424000063 Published online by Cambridge University Press

vicariously induced distress behavior. *Child Development*, *90*(3), 846–858. https://doi.org/10.1111/cdev.12934

Eisenberg, N., VanSchyndel, S. K., & Spinrad, T. L. (2016). Prosocial motivation: Inferences from an opaque body of work. *Child Development*, *87*(6), 1668–1678. https://doi.org/10.1111/cdev.12638

Elliott, S. N., Gresham, F. M., Freeman, T., & McCloskey, G. (1988). Teacher and observer ratings of children's social skills: Validation of the Social Skills Rating Scales. *Journal of Psychoeducational Assessment*, *6*(2), 152–161. https://doi.org/10.1177/073428298800600206

Falla, D., Ortega-Ruiz, R., da Costa Ferreira, P., Veiga Simão, A. M., & Romera, E. M. (2023). The effect of cyberbullying perpetration on empathy and moral disengagement: Testing a mediation model in a three-wave longitudinal study. *Psychology of Violence*, *13*(5), 436–446. https://doi.org/10.1037/vio0000472

Farrell, A. H., & Vaillancourt, T. (2023). Indirect aggression, anxiety, and empathy: Disaggregating between and within person longitudinal associations during childhood and adolescence. *Development and Psychopathology*, *35*(1), 228–240. https://doi.org/10.1017/S0954579421001450

Feshbach, N. D., & Roe, K. (1968). Empathy in six- and seven-year-olds. *Child Development*, *39*(1), 133–145. https://doi.org/10.2307/1127365

Flynn, E., Ehrenreich, S. E., Beron, K. J., & Underwood, M. K. (2015). Prosocial behavior: Long-term trajectories and psychosocial outcomes. *Social Development*, *24*(3), 462–482. https://doi.org/10.1111/sode.12100

Fonagy, P., & Luyten, P. (2018). Conduct problems in youth and the RDoC approach: A developmental, evolutionary-based view. *Clinical Psychology Review*, *64*, 57–76. https://doi.org/10.1016/j.cpr.2017.08.010

Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and adolescents? A comprehensive review. *Psychological Bulletin*, *140*(1), 1–57. https://doi.org/10.1037/a0033076

Gill, K. L., & Calkins, S. D. (2003). Do aggressive/destructive toddlers lack concern for others? Behavioral and physiological indicators of empathic responding in 2-year-old children. *Development and Psychopathology*, *15*(1), 55–71. https://doi.org/10.1017/S095457940300004X

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin*, *136*(3), 351–374. https://doi.org/10.1037/a0018807

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Graziano, P. A., & Garcia, A. (2016). Attention-deficit hyperactivity disorder and children's emotion dysregulation: A meta-analysis. *Clinical Psychology Review*, *46*, 106–123. https://doi.org/10.1016/j.cpr.2016.04.011

Green, L. M., Missotten, L., Tone, E. B., & Luyckx, K. (2018). Empathy, depressive symptoms, and self-esteem in adolescence: The moderating role of the mother-adolescent relationship. *Journal of Child and Family Studies*, *27*(12), 3964–3974. https://doi.org/10.1007/s10826-018-1216-z

Groeben, M., Perren, S., Stadelmann, S., & von Klitzing, K. (2011). Emotional symptoms from kindergarten to middle childhood: Associations with self- and other-oriented social skills. *European Child & Adolescent Psychiatry*, *20*(1), 3–15. https://doi.org/10.1007/s00787-010-0139-z

Hay, D. F., Paine, A. L., Perra, O., Cook, K. V., Hashmi, S., Robinson, C., Kairis, V., & Slade, R. (2021). Prosocial and aggressive behavior: A longitudinal study. *Monographs of the Society for Research in Child Development*, *86*(2), 7–103. https://doi.org/10.1111/mono.12427

Helland, S. S., Røysamb, E., Schjølberg, S., Øksendal, E., & Gustavson, K. (2022). Pathways from preschool language difficulties to school-age internalizing problems. *Journal of Speech, Language, and Hearing Research*, *65*(4), 1561–1573. https://doi.org/10.1044/2021_JSLHR-21-00548

Herpers, P. C. M., Scheepers, F. E., Bons, D. M. A., Buitelaar, J. K., & Rommelse, N. N. J. (2014). The cognitive and neural correlates of psychopathy and especially callous-unemotional traits in youths: A systematic review of the evidence. *Development and Psychopathology*, *26*(1), 245–273. https://doi.org/10.1017/S0954579413000527

Hui, B. P. H., Ng, J. C. K., Berzaghi, E., Cunningham-Amos, L., & Kogan, A. (2020). Rewards of kindness? A meta-analysis of the link between prosociality and well-being. *Psychological Bulletin*, *146*(12), 1084–1116. https://doi.org/10.1037/bul0000298

Hussong, A. M., Curran, P. J., & Bauer, D. J. (2013). Integrative data analysis in clinical psychology research. *Annual Review of Clinical Psychology*, *9*(1), 61–89. https://doi.org/10.1146/annurev-clinpsy-050212-185522

Jahromi, L. B., Bryce, C. I., & Swanson, J. (2013). The importance of self-regulation for the school and peer engagement of children with high-functioning autism. *Research in Autism Spectrum Disorders*, *7*(2), 235–246. https://doi.org/10.1016/j.rasd.2012.08.012

Jolliffe, D., & Farrington, D. P. (2004). Empathy and offending: A systematic review and meta-analysis. *Aggression and Violent Behavior*, *9*(5), 441–476. https://doi.org/10.1016/j.avb.2003.03.001

Ladd, G. W., & Profilet, S. M. (1996). The Child Behavior Scale: A teacher-report measure of young children's aggressive, withdrawn, and prosocial behaviors. *Developmental Psychology*, *32*(6), 1008–1024. https://doi.org/10.1037/0012-1649.32.6.1008

Laible, D., McGinley, M., Carlo, G., Augustine, M., & Murphy, T. (2014). Does engaging in prosocial behavior make children see the world through rose-colored glasses? *Developmental Psychology*, *50*(3), 872–880. https://doi.org/10.1037/a0033905

Lederer, A. M., Autry, D. M., Day, C. R. T., & Oswalt, S. B. (2015). The impact of work and volunteer hours on the health of undergraduate students. *Journal of American College Health*, *63*(6), 403–408. https://doi.org/10.1080/07448481.2015.1015028

Liebal, K., Colombi, C., Rogers, S. J., Warneken, F., & Tomasello, M. (2008). Helping and cooperation in children with autism. *Journal of Autism and Developmental Disorders*, *38*(2), 224–238. https://doi.org/10.1007/s10803-007-0381-5

Liew, J., Eisenberg, N., Spinrad, T. L., Eggum, N. D., Haugen, R. G., Kupfer, A., Reiser, M. R., Smith, C. L., Lemery-Chalfant, K., & Baham, M. E. (2011). Physiological regulation and fearfulness as predictors of young children's empathy-related reactions. *Social Development*, *20*(1), 111–134. https://doi.org/10.1111/j.1467-9507.2010.00575.x

Longman, T., Hawes, D. J., & Kohlhoff, J. (2016). Callous-unemotional traits as markers for conduct problem severity in early childhood: A meta-analysis. *Child Psychiatry and Human Development*, *47*(2), 326–334. https://doi.org/10.1007/s10578-015-0564-9

Maiya, S., Carlo, G., Davis, A. N., & Streit, C. (2021). Relations among acculturative stress, internalizing symptoms, and prosocial behaviors in Latinx college students. *Journal of Latinx Psychology*, *9*(2), 77–91. https://doi.org/10.1037/lat0000177

Mannino, C. A., Snyder, M., & Omoto, A. M. (2011). Why do people get involved? Motivations for volunteerism and other forms of social action. In D. Dunning (Eds.), *Social motivation; Social motivation* (pp. 127–146, 282 Pages). Psychology Press.

McDonald, N. M., & Messinger, D. S. (2012). Empathic responding in toddlers at risk for an autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *42*(8), 1566–1573. https://doi.org/10.1007/s10803-011-1390-y

McDonald, N. M., Murphy, H. G., & Messinger, D. S. (2017). Empathic responding in preschool-aged children with familial risk for autism. *Autism Research*, *10*(10), 1621–1628. https://doi.org/10.1002/aur.1819

McGinley, M., & Carlo, G. (2007). Two sides of the same coin? The relations between prosocial and physically aggressive behaviors. *Journal of Youth and Adolescence*, *36*(3), 337–349. https://doi.org/10.1007/s10964-006-9095-9

Memmott-Elison, M. K., Holmgren, H. G., Padilla-Walker, L., & Hawkins, A. J. (2020). Associations between prosocial behavior, externalizing behaviors, and internalizing symptoms during adolescence: A meta-analysis. *Journal of Adolescence*, *80*(1), 98–114. https://doi.org/10.1016/j.adolescence.2020.01.012

Memmott-Elison, M. K., & Toseeb, U. (2023). Prosocial behavior and psychopathology: An 11-year longitudinal study of inter- and intraindividual reciprocal relations across childhood and adolescence. *Development and Psychopathology*, *35*(4), 1982–1996. https://doi.org/10.1017/S0954579422000657

Mesurado, B., Guerra, P., Richaud, M. C., & Rodriguez, L. M. (2018). Effectiveness of prosocial interventions: A meta-analysis. In P. A. Gargiulo & H. L Mesone Arroyo (Eds.), *Psychiatry and neuroscience update* (pp. 259–271). Springer Nature Switzerland. https://doi.org/10.1007/978-3-319-95360-1_21

Miller, P. A., & Eisenberg, N. (1988). The relation of empathy to aggressive and externalizing/antisocial behavior. *Psychological Bulletin*, *103*(3), 324–344. https://doi.org/10.1037/0033-2909.103.3.324

Musick, M. A., & Wilson, J. (2003). Volunteering and depression: The role of psychological and social resources in different age groups. *Social Science & Medicine*, *56*(2), 259–269. https://doi.org/10.1016/S0277-9536(02)00025-4

Nantel-Vivier, A., Pihl, R. O., Côté, S., & Tremblay, R. E. (2014). Developmental association of prosocial behaviour with aggression, anxiety and depression from infancy to preadolescence. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *55*(10), 1135–1144. https://doi.org/10.1111/jcpp.12235

Noten, M. M. P. G., Van der, H., Kristiaan, B., Huijbregts, S. C. J., Van, G., Stephanie, H. M., & Swaab, H. (2020). Associations between empathy, inhibitory control, and physical aggression in toddlerhood. *Developmental Psychobiology*, *62*(6), 871–881. https://doi.org/10.1002/dev.21951

O'Connor, R. A. G., Stockmann, L., & Rieffe, C. (2019). Spontaneous helping behavior of autism and non-autism (Pre-)adolescents: A matter of motivation? *Autism Research*, *12*(12), 1796–1804. https://doi.org/10.1002/aur.2182

Obsuth, I., Eisner, M. P., Malti, T., & Ribeaud, D. (2015). The developmental relation between aggressive behaviour and prosocial behaviour: A 5-year longitudinal study. *BMC Psychology*, *3*(1), 1–15. https://doi.org/10.1186/S40359-015-0073-4

Olweus, D., & Endresen, I. M. (1998). The importance of sex-of-stimulus object: Age trends and sex differences in empathic responsiveness. *Social Development*, *7*(3), 370–388. https://doi.org/10.1111/1467-9507.00073

Padilla-Walker, L. M., Carlo, G., & Nielson, M. G. (2015). Does helping keep teens protected? Longitudinal bidirectional relations between prosocial behavior and problem behavior. *Child Development*, *86*(6), 1759–1772. https://doi.org/10.1111/cdev.12411

Padilla-Walker, L. M., Memmott-Elison, M. K., & Coyne, S. M. (2018). Associations between prosocial and problem behavior from early to late adolescence. *Journal of Youth and Adolescence*, *47*(5), 961–975. https://doi.org/10.1007/s10964-017-0736-y

Pardini, D. A., & Byrd, A. L. (2012). Perceptions of aggressive conflicts and others' distress in children with callous-unemotional traits: 'I'll show you who's boss, even if you suffer and I get in trouble'. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *53*(3), 283–291. https://doi.org/10.1111/j.1469-7610.2011.02487.x

Paulus, M., & Rosal-Grifoll, B. (2017). Helping and sharing in preschool children with autism. *Experimental Brain Research*, *235*(7), 2081–2088. https://doi.org/10.1007/s00221-017-4947-y

Paz, Y., Orlitsky, T., Roth-Hanania, R., Zahn-Waxler, C., & Davidov, M. (2021). Predicting externalizing behavior in toddlerhood from early individual differences in empathy. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *62*(1), 66–74. https://doi.org/10.1111/jcpp.13247

Perren, S., Stadelmann, S., von Wyl, A., & von Klitzing, K. (2007). Pathways of behavioural and emotional symptoms in kindergarten children: What is the role of pro-social behaviour? *European Child & Adolescent Psychiatry*, *16*(4), 209–214. https://doi.org/10.1007/s00787-006-0588-6

Persson, G. E. B. (2005). Developmental perspectives on prosocial and aggressive motives in preschoolers' peer interactions. *International Journal of Behavioral Development*, *29*(1), 80–91. https://doi.org/10.1080/01650250444000423

Ritchie, M. B., Neufeld, R. W. J., Yoon, M., Li, A., & Mitchell, D. G. V. (2022). Predicting youth aggression with empathy and callous unemotional traits: A meta-analytic review. *Clinical Psychology Review*, *98*, 1–14. https://doi.org/10.1016/j.cpr.2022.102186

Rohrer, J. M. (2018). Thinking clearly about correlations and causation: Graphical causal models for observational data. *Advances in Methods and Practices in Psychological Science*, *1*(1), 27–42. https://doi.org/10.1177/2515245917745629

Rosello, R., Martinez-Raga, J., Tomas, J. M., Rosello, B., Berenguer, C., & Cortese, S. (2023). Exploring developmental trajectories throughout adolescence of children with autism spectrum disorder without intellectual disability. *Journal of Neural Ttransmission (Vienna, Austria: 1996)*, *130*(3), 299–312. https://doi.org/10.1007/s00702-022-02554-w

Russell, G., Golding, J., Norwich, B., Emond, A., Ford, T., & Steer, C. (2012). Social and behavioural outcomes in children diagnosed with autism spectrum disorders: A longitudinal cohort study. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *53*(7), 735–744. https://doi.org/10.1111/j.1469-7610.2011.02490.x

Russell, G., Kelly, S. E., Ford, T., & Steer, C. (2012). Diagnosis as a social determinant: The development of prosocial behaviour before and after an autism spectrum diagnosis. *Social Science & Medicine (1982)*, *75*(9), 1642–1649. https://doi.org/10.1016/j.socscimed.2012.06.019.

Russell, G., Rodgers, L. R., & Ford, T. (2013). The Strengths and Difficulties Questionnaire as a predictor of parent-reported diagnosis of autism spectrum disorder and attention deficit hyperactivity disorder. *PLoS ONE*, *8*(12), e80247. https://doi.org/10.1371/journal.pone.0080247

Ryan-Enright, T., O'Connor, R., Bramham, J., & Taylor, L. K. (2022). A systematic review of autism children's prosocial behaviour. *Research in Autism Spectrum Disorders*, *98*, 102023. https://doi.org/10.1016/j.rasd.2022.102023

Scheeren, A. M., de Rosnay, M., Koot, H. M., & Begeer, S. (2013). Rethinking theory of mind in high-functioning autism spectrum disorder. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *54*(6), 628–635. https://doi.org/10.1111/jcpp.12007

Schmiedek, F., & Neubauer, A. B. (2020). Experiments in the wild: Introducing the within-person encouragement design. *Multivariate Behavioral Research*, *55*(2), 256–276. https://doi.org/10.1080/00273171.2019.1627660

Smith, R. L. (2015). Adolescents' emotional engagement in friends' problems and joys: Associations of empathetic distress and empathetic joy with friendship quality, depression, and anxiety. *Journal of Adolescence*, *45*(1), 103–111. https://doi.org/10.1016/j.adolescence.2015.08.020

Sng, K. I., Hawes, D. J., Hwang, S., Allen, J. L., & Fung, D. S. S. (2020). Callous-unemotional traits among children and adolescents in Asian cultures: A systematic review. *Journal of Cross-Cultural Psychology*, *51*(7-8), 576–596. https://doi.org/10.1177/0022022120944475

Song, Y., Nie, T., Shi, W., Zhao, X., & Yang, Y. (2019). Empathy impairment in individuals with autism spectrum conditions from a multidimensional perspective: A meta-analysis. *Frontiers in Psychology*, *10*, 1902. https://doi.org/10.3389/fpsyg.2019.01902.

Stavrinides, P., Georgiou, S., & Theofanous, V. (2010). Bullying and empathy: A short-term longitudinal investigation. *Educational Psychology*, *30*(7), 793–802. https://doi.org/10.1080/01443410.2010.506004

Tampke, E. C., Fite, P. J., & Cooley, J. L. (2020). Bidirectional associations between affective empathy and proactive and reactive aggression. *Aggressive Behavior*, *46*(4), 317–326. https://doi.org/10.1002/ab.21891

Tarlow, N., & La Greca, A. M. (2021). The role of empathy and social anxiety in Latinx adolescents' indirect peer aggression during the transition to high school. *Aggressive Behavior*, *47*(1), 17–27. https://doi.org/10.1002/ab.21926

Telzer, E. H., & Fuligni, A. J. (2009). Daily family assistance and the psychological well-being of adolescents from Latin American, Asian, and European backgrounds. *Developmental Psychology*, *45*(4), 1177–1189. https://doi.org/10.1037/a0014728

Telzer, E. H., Tsai, K. M., Gonzales, N., & Fuligni, A. J. (2015). Mexican American adolescents' family obligation values and behaviors: Links to internalizing symptoms across time and context. *Developmental Psychology*, *51*(1), 75–86. https://doi.org/10.1037/a0038434

Totsika, V., Hastings, R. P., Emerson, E., Berridge, D. M., & Lancaster, G. A. (2015). Prosocial skills in young children with autism, and their mothers' psychological well-being: Longitudinal relationships. *Research in Autism Spectrum Disorders*, *13-14*, 25–31. https://doi.org/10.1016/j.rasd.2015.01.001

Tully, E. C., & Donohue, M. R. (2017). Empathic responses to mother's emotions predict internalizing problems in children of depressed mothers. *Child Psychiatry and Human Development*, *48*(1), 94–106. https://doi.org/10.1007/s10578-016-0656-1

Vachon, D. D., Lynam, D. R., & Johnson, J. A. (2014). The (non)relation between empathy and aggression: Surprising results from a meta-analysis. *Psychological Bulletin*, *140*(3), 751–773. https://doi.org/10.1037/a0035236

Waller, R., & Hyde, L. W. (2018). Callous-unemotional behaviors in early childhood: The development of empathy and prosociality gone awry. *Current Opinion in Psychology*, *20*, 11–16. https://doi.org/10.1016/j.copsyc.2017.07.037

Waller, R., Wagner, N. J., Barstead, M. G., Subar, A., Petersen, J. L., Hyde, J. S., & Hyde, L. W. (2020). A meta-analysis of the associations between callous-unemotional traits and empathy, prosociality, and guilt. *Clinical Psychology Review*, *75*, 101809. https://doi.org/10.1016/j.cpr.2019.101809

Wang, X., Auyeung, B., Pan, N., Lin, L. Z., Chen, Q., Chen, J. J., Liu, S. Y., Dai, M. X., Gong, J. H., Li, X. H., & Jing, J. (2022). Empathy, theory of mind, and prosocial behaviors in autism children. *Frontiers in Psychiatry*, *13*, 844578. https://doi.org/10.3389/fpsyt.2022.844578

Weisz, E., Chen, P., Ong, D. C., Carlson, R. W., Clark, M. D., & Zaki, J. (2022). A brief intervention to motivate empathy among middle school students. *Journal of Experimental Psychology: General*, *151*(12), 3144–3153. https://doi.org/10.1037/xge0001249

Winters, D. E., Brandon-Friedman, R., Yepes, G., & Hinckley, J. D. (2021). Systematic review and meta-analysis of socio-cognitive and socio-affective processes association with adolescent substance use. *Drug and Alcohol Dependence*, *219*, 108479. https://doi.org/10.1016/j.drugalcdep.2020.108479

Wozniak, R. H., Leezenbaum, N. B., Northrup, J. B., West, K. L., & Iverson, J. M. (2017). The development of autism spectrum disorders: Variability and causal complexity. *Wiley Interdisciplinary Reviews. Cognitive Science*, *8*(1-2), e1426. https://doi.org/10.1002/wcs.1426

Yan, Z., Zeng, X., Su, J., & Zhang, X. (2021). The dark side of empathy: Meta-analysis evidence of the relationship between empathy and depression. *PsyCh Journal*, *10*(5), 794–804. https://doi.org/10.1002/pchj.482

Zahn-Waxler, C., & Van Hulle, C. (2012). Empathy, guilt, and depression: When caring for others becomes costly to children. In B. Oakley, A. Knafo, G. Madhavan, & D. S. Wilson (Eds.), *Pathological altruism* (pp. 321–344). Oxford University Press.

Ziv, Y., Hadad, B. S., Khateeb, Y., & Terkel-Dawer, R. (2014). Social information processing in preschool children diagnosed with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *44*(4), 846–859. https://doi.org/10.1007/s10803-013-1935

Zondervan-Zwijnenburg, M., Dobbelaar, S., van der Meulen, M., & Achterberg, M. (2022). Longitudinal associations between prosocial behavior and behavioral problems across childhood: A robust random-intercept cross-lagged panel model. *Developmental Psychology*, *58*(6), 1139–1155. https://doi.org/10.1037/dev0001346

Zuffianò, A., Colasante, T., Buchmann, M., & Malti, T. (2018). The codevelopment of sympathy and overt aggression from middle childhood to early adolescence. *Developmental Psychology*, *54*(1), 98–110. https://doi.org/10.1037/dev0000417

Zuffianò, A., Sette, S., Colasante, T., Buchmann, M., & Malti, T. (2018). Cross-informant assessment of children's sympathy: Disentangling trait and state agreement. *Frontiers in Applied Mathematics and Statistics*, *4*, 8. https://doi.org/10.3389/fams.2018.00008

Zych, I., Baldry, A. C., Farrington, D. P., & Llorent, V. J. (2019). Are children involved in cyberbullying low on empathy? A systematic review and meta-analysis of research on empathy versus different cyberbullying roles. *Aggression and Violent Behavior*, *45*, 83–97. https://doi.org/10.1016/j.avb.2018.03.004

Zych, I., Ttofi, M. M., & Farrington, D. P. (2019). Empathy and callous-unemotional traits in different bullying roles: A systematic review and meta-analysis. *Trauma, Violence, & Abuse*, *20*(1), 3–21. https://doi.org/10.1177/1524838016683456