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School Belonging as a Relational Resource for Adolescents' Behavioral Adjustment: The Role of Empathy and Self-Serving Cognitive Distortions

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Abstract: This study examined the associations between school belonging and adolescents' prosocial and antisocial behaviors, focusing on the mediating roles of cognitive and affective empathy and self-serving cognitive distortions. Participants were 351 Italian adolescents attending three secondary schools who completed self-report questionnaires assessing school belonging, perspective taking, empathic concern, self-serving cognitive distortions and prosocial and antisocial behavior. Path analysis showed that school belonging was positively associated with both empathy dimensions and prosocial behavior and negatively associated with antisocial behavior. Although perspective taking and empathic concern were both positively associated with prosocial behavior, only perspective taking was negatively associated with self-serving cognitive distortions and antisocial behavior. Cognitive distortions were positively associated with antisocial behavior and negatively associated with prosocial behavior. A significant indirect association emerged between school belonging and prosocial behavior, through empathic concern. Perspective taking was also indirectly associated with lower antisocial behavior through reduced cognitive distortions, whereas the hypothesized serial indirect association between school belonging and antisocial behavior approached, but did not reach, statistical significance. These findings highlight the distinct associations of cognitive and affective empathy with adolescents' behavioral adjustment, the role of self-serving cognitive distortions in linking socio-emotional processes to behavioral outcomes, and the potential relevance of school belonging to socio-moral functioning.

Keywords: school belonging; empathy; self-serving cognitive distortions; prosocial behavior; antisocial behavior

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1. Introduction

Adolescence represents a crucial developmental period for the consolidation of socio-emotional and moral competencies that support adaptive interpersonal functioning. During this stage, the school context plays a central role in promoting positive development by providing opportunities to establish meaningful relationships with peers and teachers and to experience a sense of belonging within the school community. School belonging has consistently been identified as a key relational resource for adolescents' socio-emotional adjustment (Allen et al., 2021; Korpershoek et al., 2020). Emerging evidence further suggests that students who experience a stronger sense of belonging within the school community tend to report higher levels of empathy and compassion, indicating that supportive and inclusive school environments may provide a relational context that facilitates the development of socio-emotional competencies (Jin et al., 2025). In turn, higher empathic abilities have been associated with greater prosocial behavior and lower involvement in aggressive and antisocial behaviors (Yin & Wang, 2023). Moreover, evidence suggests that the cognitive and affective dimensions of empathy may contribute differently to behavioral outcomes, with cognitive empathy showing a stronger inverse association with antisocial conduct (Jolliffe & Farrington, 2004; van Langen et al., 2014).

1.1 School Belonging, School Adjustment, and Empathy

School belonging refers to students' perceptions of being accepted, included, and supported within the school environment (Goodenow, 1993). It takes shape in everyday experiences with teachers and classmates, such as being listened to, included in activities, and treated as part of the group. The broader school environment also plays a role, as these relationships develop within its routines and expectations (Allen et al., 2021).

A meta-analysis of 82 studies found that school belonging was positively associated with a range of motivational, social-emotional, behavioral, and academic outcomes among secondary school students (Korpershoek et al., 2020). Specifically, positive associations emerged with motivational outcomes, such as mastery goal orientations; social-emotional outcomes, including self-concept and self-efficacy; and behavioral outcomes, particularly behavioral, cognitive, and agentic engagement. Smaller positive associations were also found with academic achievement, while negative associations emerged with absenteeism and dropout rates. Taken together, these findings highlight the relevance of school belonging to students' adjustment and participation in school life.

Consistently, emerging evidence also suggests associations between students' relationships at school and empathy. In a longitudinal study of early adolescents, Batanova and Loukas (2012) found that school connectedness predicted subsequent increases in both empathic concern and perspective taking among boys, while also buffering the negative association between parent–child conflict and later perspective taking among girls. More recently, a cross-national study involving adolescents from 62 countries found that both perspective taking and teacher connection were positively associated with school belonging (Dearth-Wesley et al., 2023).

Although these findings suggest meaningful connections between school belonging, empathy, and behavioral adjustment, less is known about how these factors may be interrelated during adolescence.

1.2 Empathy and behavioral adjustment

Empathy encompasses related but distinct cognitive and affective components. Cognitive empathy involves perspective taking, namely the tendency to consider another person's point of view, whereas affective empathy includes empathic concern, referring to feelings of sympathy and care for others (Davis, 1983). Both components are relevant to understand behavior: an individual may understand why a friend is upset without necessarily feeling motivated to help, or may feel concern without fully understanding the situation or their friend's needs. A recent meta-analysis found positive associations between prosocial behavior and both cognitive and affective empathy, although the strength of these associations varied according to sample characteristics and methodological factors (Yin & Wang, 2023). However, some studies suggest that the two components may play different roles. In a longitudinal study involving six waves of data collection, empathic concern was directly associated with subsequent prosocial behavior, whereas perspective taking was indirectly associated with prosocial behavior through empathic concern (Van der Graaff et al., 2018).

Previous research has consistently documented negative associations between empathy and antisocial behavior, although the strength of these associations varies across different components of empathy and forms of antisocial behavior (Jolliffe & Farrington, 2004; van Langen et al., 2014). More recent meta-analytic evidence has also identified small to moderate negative associations between cognitive and affective empathy and aggression among children and adolescents (Ritchie et al., 2022)

One potential mechanism linking empathy to adolescents' behavioral adjustment may be represented by self-serving cognitive distortions, namely biased patterns of thinking that justify, minimise, or externalise responsibility for antisocial behavior (Barriga et al., 2008). Empirical evidence indicates that adolescents with higher levels of empathy report lower endorsement of these distortions, suggesting that greater sensitivity to others' perspectives and emotions may reduce the tendency to interpret harmful behaviors through self-serving moral cognitions (Barriga et al., 2009).

1.3 Self-serving cognitive distortions as a moral-cognitive link

Self-serving cognitive distortions are ways of interpreting harmful behavior that protect one's view of oneself. They include prioritising one's own needs (self-centered), blaming others, downplaying the harm caused (minimizing/mislabelling), and expecting the worst of others (assuming the worst) (Barriga et al., 2000, 2008). Such thoughts can make aggressive responses seem justified or their consequences appear less serious.

Self-serving cognitive distortions have been extensively studied in relation to problem behaviors, with research consistently documenting positive associations between these distortions and externalising and antisocial behaviors (Barriga et al., 2000; Brugman et al., 2024; Helmond et al., 2015). Moreover, although their

relationship with prosocial behavior has received comparatively less attention, available evidence shows a negative association (Cardona-Isaza et al., 2026).

Self-serving cognitive distortions have also been linked to empathy. In a study involving adjudicated adolescents, higher levels of self-serving cognitive distortions were associated with lower levels of empathy (Barriga, 2009). Similarly, Bacchini et al. (2016) found negative associations between both perspective taking and empathic concern and all four categories of self-serving cognitive distortions in a sample of Italian adolescents. Taken together, these findings suggest that self-serving cognitive distortions may represent a moral-cognitive link between socio-emotional processes and behavioral outcomes.

Building on these findings, the present study extends previous research integrating school belonging, cognitive and affective empathy, and self-serving cognitive distortions within a single explanatory model of behavior. Specifically, we asked whether the association between school belonging and adolescents' behavioral adjustment can be explained by distinct pathways involving perspective taking and empathic concern and, subsequently, self-serving cognitive distortions. We therefore examined whether perspective taking, empathic concern, and self-serving cognitive distortions sequentially mediate the association between school belonging and adolescents' prosocial and antisocial behaviors.

2. Materials and Methods

2.1 Participants

Participants were 351 Italian adolescents attending the second and fourth years of upper secondary education. The sample comprised 169 boys (48.1%), 178 girls (50.7%), one non-binary participant (0.3%), and three participants who preferred not to disclose their gender (0.9%). Participants were recruited from three public secondary schools (two vocational schools and one academic high school). Their mean age was 16.07 years (SD = 1.11).

2.2 Measures

Participants completed a set of self-report measures assessing:

School belonging. School belonging was assessed using the School Belonging subscale of the Multidimensional School Climate Questionnaire (Grazia & Molinari, 2021). The subscale consists of 5 items assessing students' feelings of acceptance, connectedness, and identification with their school. Responses were provided on a 6-point Likert scale, with higher scores indicating a stronger sense of school belonging. Cronbach's alpha was= .80 in the present study.

Empathy. Empathy was assessed using the Brief Interpersonal Reactivity Index (Ingoglia et al., 2016). We included the Perspective Taking (4 items) and Empathic Concern (4 items) subscales, assessing the cognitive and affective components of empathy, respectively. Participants responded using a 5-point Likert scale with higher scores indicating greater empathic disposition. Cronbach's alpha in the present study were= .81 for empathic concern and .74 for perspective taking.

Self-serving cognitive distortions. Self-serving cognitive distortions were measured using the How I Think Questionnaire (Barriga et al., 2001). The questionnaire comprises

39 items assessing all the four types of self-serving cognitive distortions. Participants rated each statement on a 6-point Likert scale, with higher scores indicating greater endorsement of cognitive distortions. Cronbach's alpha was= .95 in the present study.

Prosocial behavior. Prosocial behavior was assessed using the Prosociality Scale (Caprara et al., 1994). The scale consists of 10 items assessing adolescents' tendency to engage in helping, sharing, comforting, and caring behaviors toward others. Participants rated each item on a 5-point Likert scale, with higher scores indicating greater prosocial behavior. Cronbach's alpha was= .89 in the present study.

Antisocial behavior. Antisocial behavior was assessed using a self-report scale developed by Bacchini and colleagues (2011). The scale assesses the frequency with which adolescents engage in a range of antisocial behaviors. Participants rated each item on a 5-point Likert scale, with higher scores indicating greater involvement in antisocial behavior. Cronbach's alpha was= .91 in the present study.

3. Results

Preliminary Pearson's correlation analyses were conducted among the study variables. Results showed a coherent pattern of associations. School belonging was positively correlated with empathic concern ($r = .16$, $p = .003$), perspective taking ($r = .14$, $p = .008$), and prosocial behavior ($r = .29$, $p < .001$), and negatively correlated with antisocial behavior ($r = -.13$, $p = .012$), whereas no significant association emerged with self-serving cognitive distortions ($r = -.01$, $p = .837$). Empathic concern and perspective taking were strongly and positively associated with each other ($r = .63$, $p < .001$), and both were positively related to prosocial behavior ($r = .574$ and $r = .52$, respectively, $ps < .001$) and negatively related to self-serving cognitive distortions ($r = -.24$ and $r = -.34$, respectively, $ps < .001$) and antisocial behavior ($r = -.24$ and $r = -.35$, respectively, $ps < .001$). Self-serving cognitive distortions were negatively associated with prosocial behavior ($r = -.29$, $p < .001$) and positively associated with antisocial behavior ($r = .43$, $p < .001$). Finally, prosocial and antisocial behaviors were negatively correlated ($r = -.21$, $p < .001$).

Subsequently, a multivariate analysis of variance (MANOVA) was conducted using IBM SPSS Statistics, with gender and school grade as fixed factors and school belonging, empathic concern, perspective taking, self-serving cognitive distortions, prosocial behavior, and antisocial behavior as dependent variables. A significant multivariate effect of gender emerged, Wilks' $\Lambda = .917$, $F(18, 956.494) = 1.647$, $p = .043$, whereas no significant multivariate effect of school grade was found. The tests of between-subjects effects revealed significant gender differences in empathic concern, perspective taking, prosocial behavior, and antisocial behavior, whereas no significant differences emerged for school belonging and self-serving cognitive distortions. Descriptive statistics indicated that girls reported higher levels of empathic concern, perspective taking, and prosocial behavior than boys, whereas boys reported higher levels of antisocial behavior.

Finally, a path analysis was conducted using Mplus 7.4 to test the hypothesized model in which perspective taking, empathic concern, and self-serving cognitive distortions sequentially mediate the associations between school belonging and adolescents' prosocial and antisocial behaviors. The model showed a good fit to the data, $\chi^2(4) = 1.43$, $p = .840$, CFI = 1.00, TLI = 1.00, RMSEA = .00 (90% CI [.00,

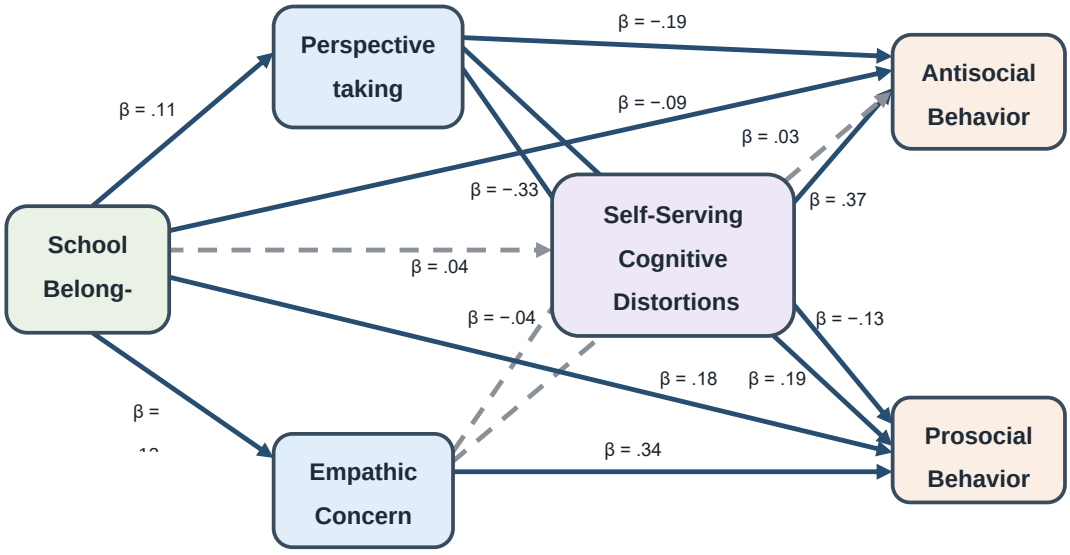
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.05]), and SRMR = .01. The model explained 44.2% of the variance in prosocial behavior, 26.1% in antisocial behavior, 13.8% in empathic concern, 10.6% in perspective taking, and 12.0% in self-serving cognitive distortions.

School belonging was positively associated with both empathic concern (β = .12, p = .016) and perspective taking (β = .11, p = .032). In turn, perspective taking was negatively associated with self-serving cognitive distortions (β = −.33, p < .001), whereas empathic concern was not significantly related to cognitive distortions (β = −.04, p = .567). School belonging did not show a direct association with self-serving cognitive distortions (β = .04, p = .424).

Regarding behavioral outcomes, prosocial behavior was positively predicted by school belonging (β = .18, p < .001), empathic concern (β = .34, p < .001), and perspective taking (β = .19, p = .001), whereas self-serving cognitive distortions were negatively associated with prosocial behavior (β = −.13, p = .003). Conversely, antisocial behavior was negatively predicted by school belonging (β = −.09, p = .045) and perspective taking (β = −.19, p = .002), while self-serving cognitive distortions emerged as the strongest predictor (β = .37, p < .001). No significant association was found between empathic concern and antisocial behavior (β = .03, p = .601). All standardized path coefficients are presented in Figure 1.

Figure 1. Standardized direct path coefficients



Note. Solid arrows: p < .05; dashed arrows: p ≥ .05

Analysis of indirect effects showed a significant overall indirect effect of school belonging on prosocial behavior (β = .057, p = .025). This indirect association was primarily explained by empathic concern (β = .038, p = .025), whereas the indirect effect through perspective taking alone was only marginally significant (β = .019, p = .069). Furthermore, a significant indirect effect of perspective taking on prosocial behavior through reduced self-serving cognitive distortions emerged (β = .042, p = .010). Regarding antisocial behavior, perspective taking showed a significant negative indirect effect through self-serving cognitive distortions (β = −.087, SE = .021, p < .001). In addition, the serial indirect effect of school belonging on

antisocial behavior through perspective taking and self-serving cognitive distortions approached statistical significance (β = −.009, SE = .005, p = .057).

4. Discussion

The present study examined whether perspective taking, empathic concern, and self-serving cognitive distortions explain the associations between school belonging and adolescents' prosocial and antisocial behaviors. Overall, the findings support previous evidence identifying school belonging as an important relational resource associated with positive socio-emotional adjustment and adaptive behavioral functioning during adolescence (Korpershoek et al., 2020).

Consistent with our hypotheses, in our sample adolescents reporting higher levels of school belonging also reported greater perspective taking and empathic concern. Moreover, school belonging showed direct associations with both higher prosocial behavior and lower antisocial behavior, further highlighting its relevance to adaptive behavioral adjustment during adolescence. These findings are consistent with previous research documenting positive associations between school belonging and perspective taking (Dearth-Wesley et al., 2023), as well as longitudinal evidence suggesting that school connectedness predicts subsequent increases in cognitive and affective empathy (Batanova & Loukas, 2012). Furthermore, they align with socio-ecological perspectives suggesting that supportive and inclusive school environments may provide opportunities for developing socio-emotional competencies through positive interactions with peers and teachers (Allen et al., 2021).

Importantly, our findings provide a more nuanced understanding of the pathways linking school belonging to adolescents' behavioral adjustment. The two dimensions of empathy appeared to play different roles. Although both perspective taking and empathic concern were positively associated with prosocial behavior, consistent with previous research (Van der Graaff et al., 2018; Yin & Wang, 2023), only perspective taking was associated with lower levels of self-serving cognitive distortions and antisocial behavior. In contrast, empathic concern showed no significant associations with either cognitive distortions or antisocial behavior. Although this finding differs from previous research documenting significant associations between antisocial behavior and both cognitive and affective empathy, it is nevertheless consistent with evidence suggesting that these associations tend to be stronger for cognitive empathy (Jolliffe & Farrington, 2004; Ritchie et al., 2022; van Langen et al., 2014). In our sample, empathic concern primarily contributed to the indirect association between school belonging and prosocial behavior, whereas perspective taking was more closely linked to the moral-cognitive processes associated with both prosocial and antisocial adjustment. Taken together, these findings suggest that concern for others may be particularly relevant to the motivation to help, whereas the ability to adopt another person's perspective may be more closely related to how individuals interpret and justify potentially harmful behavior.

Consistent with Gibbs' social-cognitive theory (Barriga et al., 2000) and previous research (Barriga et al., 2000; Brugman et al., 2024; Cardona-Isaza et al., 2026; Helmond et al., 2015), higher tendency to self-serving cognitive distortions were associated with higher involvement in antisocial behavior and lower involvement in prosocial behavior, confirming their relevance to adolescents'

behavioral adjustment. As noted above, higher perspective taking, but not empathic concern, was associated with lower levels of self-serving cognitive distortions, suggesting that cognitive empathy may represent a potential link between relational experiences at school and adolescents' moral-cognitive functioning. Furthermore, perspective taking showed a significant negative indirect association with antisocial behavior through self-serving cognitive distortions, whereas the serial indirect effect of school belonging on antisocial behavior through perspective taking and self-serving cognitive distortions approached, but did not reach, statistical significance. Although this latter finding should be interpreted cautiously, it suggests a possible pathway that warrants further investigation. From an educational perspective, these findings highlight the potential value of supportive and inclusive school environments that foster students' sense of belonging while providing opportunities to adopt others' perspectives and critically reflect on cognitive justifications for harmful behavior.

4.1 Limitations and future directions

Several limitations should be acknowledged. First, all variables were assessed using self-report measures, potentially introducing shared method variance and response biases. Moreover, the cross-sectional design precludes conclusions about the temporal ordering or directionality of the observed associations, particularly those underlying the hypothesized mediation pathways. Future longitudinal studies incorporating multiple informants, such as teachers and peers, could help clarify how these relationships unfold over time and reduce reliance on a single source of information. Finally, the sample was drawn from three Italian secondary schools, which may limit the generalizability of the findings. Replication across different educational contexts, age groups, and cultural settings would therefore be valuable in establishing the robustness and broader applicability of the observed associations.

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