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Empathy as a Predictor of Behavioral Problems in Early Childhood: A Gender-Based Analysis

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Abstract
Unaddressed behavioral problems in early childhood often persist into later life stages. This study aimed to analyze how empathy levels influence behavioral problems among young children and whether this relationship remains significant after controlling for gender. Using an explanatory quantitative design, data were obtained from 141 kindergarten and RA B teachers in Semarang City through a structured questionnaire. The results of frequency analysis showed that children's empathy levels were entirely within the high category (100%), while behavioral problems were mostly in the low category (70.9%) and moderate category (29%). Multiple regression testing confirmed that empathy significantly reduced problem behaviors ($p < 0.05$). Emotional contagion, concern for others, and prosocial behavior were the most influential dimensions. When gender was controlled, empathy remained a significant predictor, whereas gender had no direct effect. This study contributes to the growing body of global scholarship on early childhood socio-emotional development by highlighting empathy as a key psychological mechanism for behavioral regulation. It strengthens the theoretical integration between empathy development and behavioral adjustment, offering empirical evidence that supports cross-cultural understanding of emotional and behavioral competencies in early childhood education. The findings suggest that interventions emphasizing emotional contagion, caring, and prosocial responsiveness can effectively reduce behavioral issues regardless of gender. Further studies are recommended to explore cross-contextual factors such as emotional regulation, family interactions, and teacher–child relationships to enrich the explanatory model of empathy's influence on children's behavioral outcomes.

Introduction

One of the most important aspects of socialization is helping children develop good social behavior so that they can be easily accepted in their environment. This emphasizes the importance of communicating and fostering social behavior in children from an early age. One essential social behavior that children should develop is a sense of empathy (Lucas-Molina et al., 2018; Bulgarelli & Jones, 2023). Social and emotional development in early childhood includes the ability to demonstrate empathy, which is a fundamental human capacity necessary for daily social interactions. Empathy represents a basic psychological skill that supports interpersonal understanding and emotional connectedness, forming the foundation for moral and prosocial development throughout childhood.

Empathy is the ability to understand other people's feelings and problems, to think from their point of view, and to appreciate the differences in others' emotional responses (Dewi & Mangunsong, 2024). It reflects a child's capacity to recognize others' difficulties, understand their emotions, care about them, and pay attention to their needs (Aprilliani et al., 2023; Kumari et al., 2023). Empathy is not only demonstrated through emotional understanding but also through spoken words and actions (Abiddin et al., 2024). Therefore, cultivating empathy in children is essential to shape their ability to connect meaningfully with others and to manage emotions in a socially appropriate way.

Through nurturing empathy in children, it is expected that they can avoid feelings of envy, resentment, and hostility toward peers, allowing them to grow into kind, wise, and sociable individuals. One of the institutions that play a crucial role in supporting optimal child development is early childhood education (Fitri W et al., 2017). According to the Law of the Republic of Indonesia on the National Education System Number 20 of 2003, Article 1 Paragraph 14, "Early childhood education is a developmental effort" aimed at children from birth to six years old. This educational effort is designed to support both physical and mental development so that children are prepared for further education (Permendikbud No. 58, 2009).

Preschool education (PAUD) serves as a foundation for children's overall development, encompassing physical growth (fine and gross motor coordination), intelligence (thinking ability, creativity, emotional intelligence, spiritual intelligence), social understanding, attitudes, religious values, and language. These aspects are adapted to the child's individual characteristics and developmental stages (Ornaghi et al., 2020; Nafisah et al., 2024). One essential domain that needs to be strengthened in PAUD is the social domain, as childhood naturally involves continuous interaction with the surrounding environment. Through daily play activities with peers and teachers, children learn social cooperation and emotional awareness, which are vital for developing empathy and social competence.

An important aspect that can be nurtured through these interactions is the child's ability to empathize. Early signs of empathy can already be observed in infants who cry when they hear other babies cry. More distinct expressions of empathy typically emerge at around two or three years of age, though the emotional expression at this stage may not yet be clearly defined as other emotions are (Bensalah et al., 2016). Empathy is defined as an individual's capacity to understand others' feelings and emotions. Consistent with this, findings by Goleman (2016) and Nafisah et al. (2023) show that empathy is the ability to understand another person's experiences in a way that allows the individual to emotionally connect without losing their own sense of identity.

This perspective aligns with Berliner and Masterson (2015), who describe empathy as the ability to interpret and understand emotions from another person's point of view. Children, as social beings, constantly interact and build relationships with others (Brown et al., 2017; Maronta & Nafisah, 2024). The ability to understand others' thoughts and emotions becomes the foundation for establishing positive and meaningful relationships. When children can share and comprehend others' emotional reactions, particularly negative ones such as anger or sadness, they are less likely to engage in antisocial or aggressive behaviors. This capacity helps prevent and reduce the continuation of aggressive or problematic behaviors in the future (Shaleh, 2023).

Previous research identifies three main dimensions of empathy: emotional contagion, caring for others, and prosocial behavior. Emotional contagion refers to the tendency to imitate and synchronize others' facial expressions, tone of voice, posture, and movements, which can lead to emotional resonance (Ornaghi et al., 2020). Caring for others involves listening attentively and responding emotionally to others with sensitivity. Prosocial behavior refers to voluntary actions aimed at helping others without expecting any reward (Nafisah et al., 2022; Kumari et al., 2023). When empathy in children is not developed from an early age, it can have negative consequences in later life, particularly by contributing to problematic behaviors. What children see, observe, and hear from their environment tends to be imitated. However, not all children successfully navigate these developmental stages, which can result in behavioral issues.

Children's behavioral problems generally consist of two main types: externalizing and internalizing behaviors (Achenbach et al., 2016). Externalizing behaviors manifest through overt actions such as aggression and hyperactivity (Sun et al., 2022), while internalizing behaviors are characterized by symptoms of anxiety, depression, fear, social withdrawal, and somatic complaints (Göbel et al., 2016; Pranoto et al., 2024). Behavioral problems in early childhood vary greatly. Externalizing behaviors include aggression and oppositional tendencies, whereas internalizing behaviors include anxiety and social withdrawal (Perry et al., 2021).

These findings are consistent with Goldberg and Carlson (2014), who reported that problematic behavior in preschoolers often continues until around age nine, typically up to the fifth or sixth grade of primary school (Farmer et al., 2015). Other studies have shown that early behavioral problems may lead to negative long-term consequences in adulthood, such as school dropout, delinquency, and poor academic performance. Therefore, adults must pay close attention to children's developmental processes to prevent the persistence of these issues (Kurniawati & Nafisah, 2022; Nafisah et al., 2025).

Based on the above explanation, this research gap clearly highlights the importance of developing empathy as a fundamental social-emotional skill in early childhood, especially within early education institutions, to prevent both internalizing and externalizing problem behaviors. While prior studies have identified the three dimensions of empathy (emotional contagion, concern for others, and prosocial behavior), significant research gaps remain. Previous findings have shown that behavioral problems in early childhood can persist into adulthood, thus requiring specific and targeted interventions to strengthen empathy and promote adaptive behavior.

The differences identified in various studies regarding early childhood empathy need to be understood by multiple stakeholders, especially educators and policymakers in early childhood education. Researchers emphasize that teachers hold a strategic role in providing appropriate interventions to help children develop empathy. Although there is general agreement that empathy is crucial and that early childhood education is the most effective setting to foster it, there remains a lack of conceptual clarity and operational consistency in defining empathy across developmental stages. This is particularly true for its core dimensions, such as emotional contagion and cognitive understanding (Grazzani et al., 2017; Nurfazrina et al., 2020). These inconsistencies indicate a critical research gap in understanding how empathy manifests and evolves among young children within educational contexts.

Based on these considerations, this study aims to analyze the influence of early childhood empathy levels on problematic behavior by considering children's gender. The research involved kindergarten and RA B teachers in Semarang City, encompassing 141 institutions as samples. The findings are expected to provide empirical contributions to the development of early childhood education curricula, particularly in integrating empathy as a central component of social-emotional character formation. Furthermore, this study seeks to establish a foundation for future research in designing context-based educational interventions aimed at preventing behavioral problems from an early age, as well as informing policy frameworks that prioritize empathy development in children (Grazzani et al., 2017; Nurfazrina et al., 2020).

Methods

Research Design

This study employed an explanatory quantitative survey design with a causal-comparative approach to examine the influence of early childhood empathy levels on problem behavior by controlling for children's gender. The quantitative design was selected to measure the strength and direction of the relationship between variables using numerical data and inferential statistics (Creswell, 2018). A structured questionnaire was used as the primary data collection instrument. The analysis utilized a multiple regression model to assess both the direct effect of empathy on problem behavior and the model that included gender as a control variable.

Participants and Sampling Procedure

The population of this study consisted of kindergarten and RA teachers in Semarang City. The sample included 141 teachers representing 141 kindergartens and RA B institutions. The quota sampling technique was applied to ensure adequate representation across educational institutions. This sampling approach was used to validate that gender influenced the dependent variable only as a main effect, without altering the nature or strength of the relationship between the key variables in the model. All participants voluntarily agreed to participate and

provided informed consent before completing the online questionnaire distributed via Google Forms to maintain accessibility and confidentiality.

Instrumentation

Two standardized instruments were employed in this study. The Problematic Behavior Scale was adapted from the instrument developed by (Major & Seabra-Santos, 2016), which comprises 46 items divided into two dimensions: *external problem behavior* (29 items) and *internal problem behavior* (17 items). Each item was rated using a 4-point Likert scale (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Often). The original scale demonstrated internal consistency reliability ranging from $\alpha = 0.78$ to 0.97.

The Empathy Questionnaire was adapted from (Grazzani et al., 2017) and consists of 13 items encompassing three dimensions of empathy: *emotional contagion*, *caring for others*, and *prosocial behavior*. Each item was rated on a 5-point Likert scale (1 = Never to 5 = Always). Reported internal consistency coefficients were $\alpha = 0.73$ for emotional contagion, $\alpha = 0.74$ for caring for others, and $\alpha = 0.80$ for prosocial behavior. Both instruments were translated and culturally adapted into Indonesian using a back-translation procedure to ensure semantic, conceptual, and cultural equivalence.

Validity and Reliability Testing

Instrument validity was examined through item-total correlation analysis to evaluate the discriminating power of each item. Reliability was measured using Cronbach's alpha coefficient. A pilot test was conducted with 25 respondents. The empathy instrument produced 13 valid items with a Cronbach's alpha of 0.779, indicating high internal consistency. The problematic behavior scale yielded 46 valid items with a Cronbach's alpha of 0.763, demonstrating strong reliability. These results confirmed that both instruments were psychometrically sound and suitable for the Indonesian early childhood education context.

Data Collection and Analysis Procedures

Data were collected online using a structured questionnaire distributed to teachers through Google Forms. All responses were reviewed for completeness and accuracy before proceeding to statistical analysis. Prior to performing the regression tests, the assumptions of normality, linearity, and multicollinearity were examined to ensure the validity and reliability of the regression model. The statistical analyses were conducted using SPSS version 25, which enabled a comprehensive examination of the relationships among variables within the proposed framework.

The analysis was carried out in two stages to ensure robustness and precision. The first stage tested the influence of empathy as the independent variable on problem behavior as the dependent variable without the inclusion of any control variable. The second stage re-examined the model by incorporating child gender as a control variable to assess whether gender acted as a confounding or moderating factor in the relationship between empathy and problem behavior. This two-phase analytical process allowed the researcher to capture both the direct effect of empathy and the potential indirect influence of gender. Throughout the study, ethical research principles were strictly upheld, including voluntary participation, participant anonymity, and data confidentiality.

Result

Descriptive Statistical Analysis

The results of the data collection and processing using SPSS version 25 are presented in the following tables. Descriptive statistical analysis was conducted to examine the overall distribution, central tendency, and variability of each variable and indicator. The descriptive results provide an overview of how empathy and problem behavior were distributed among the study participants. Table 1 presents the descriptive statistics for the empathy dimensions, which include emotional contagion, attention to others, and prosocial behavior, as well as the indicators of children's problem behavior such as aggression, oppositional behavior,

hyperactivity, social withdrawal, and anxiety. The control variable of child gender is also displayed in the table to show the demographic distribution of the respondents.

Table 1. Descriptive Statistical Analysis Results

Indicator	N	Min	Maks	Mean	Std. Deviation
Emotional contagion	141	3	21	11.25	3.078
Attention to others	141	0	12	4.95	2.700
Prosocial behavior	141	5	14	7.81	2.522
Aggressive	141	4	10	4.82	1.228
Oppositional	141	4	12	5.61	2.027
Hyperactivity	141	0	12	7.94	2.119
Social withdrawal	141	5	16	4.37	1.514
Anxiety	141	4	13	5.12	3.699
Child gender	141	1	2	2.38	0.414

As shown in Table 1, all standard deviation values are smaller than their respective mean values, indicating that the data distribution is consistent and not highly dispersed. The mean scores suggest that emotional contagion (M = 11.25, SD = 3.08) was relatively high among participants, while attention to others (M = 4.95, SD = 2.70) and prosocial behavior (M = 7.81, SD = 2.52) were in the moderate range. In terms of behavioral problems, hyperactivity (M = 7.94, SD = 2.12) recorded the highest mean, followed by oppositional behavior (M = 5.61, SD = 2.03). These findings indicate that externalizing behaviors such as hyperactivity and opposition were more dominant than internalizing behaviors such as social withdrawal or anxiety. The descriptive analysis shows that children in this study demonstrated moderate to high empathy levels accompanied by generally low to moderate levels of behavioral problems.

The Effect of Empathy on Problem Behavior in Children

The first analysis tested the direct effect of empathy on children's problem behavior. Table 2 displays the results of the multiple regression analysis used to examine this relationship. The regression model was developed to identify whether children's empathy significantly predicts their behavioral outcomes. The analysis was conducted by entering empathy as the independent variable and problem behavior as the dependent variable. The statistical results are summarized in Table 2 below.

Table 2. Multiple Regression Test Results of the Effect of Empathy on Problematic Behavior in Children

	Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Empathy	-0.433	0.166	-0.218	-2.610	0.010	-0.761	-0.105

As shown in Table 2, the significance value of empathy was 0.010 (p < 0.05) with a regression coefficient (B) of -0.433, indicating a statistically significant negative relationship. This means that higher empathy scores are associated with lower levels of problem behavior in children. The standardized beta coefficient (β = -0.218) indicates a small to moderate effect, suggesting that empathy contributes meaningfully to the prediction of behavioral outcomes. The negative direction of the coefficient implies that empathy acts as a protective factor in early childhood development, reducing the likelihood of behavioral difficulties. These findings support the first hypothesis, confirming that empathy significantly influences the level of children's problem behavior.

The Effect of Each Empathy Dimension on Problem Behavior

A further analysis was conducted to determine which dimensions of empathy most strongly influence children's problem behavior. The regression analysis examined three specific components of empathy: emotional contagion, attention to others, and prosocial behavior. The results of this analysis are presented in Table 3 below.

Table 3. Multiple Regression Test Results of the Effect of Empathy on Problematic Behavior in Children Per Indicator

	Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Penularan emosi	-0.412	0.174	-0.200	-2.376	0.019	-0.756	-0.069
Memperhatikan orang lain	-0.409	0.169	-0.190	-2.376	0.015	-0.764	-0.046
Perilaku prososial	-0.074	0.078	0.080	0.950	0.044	-0.080	0.228

As presented in Table 3, all significance values are below 0.05, indicating that each empathy dimension significantly affects children's problem behavior. The results show that emotional contagion (B = -0.412, p = 0.019) and attention to others (B = -0.409, p = 0.015) had stronger effects compared to prosocial behavior (B = -0.074, p = 0.044). This indicates that the affective and attentional aspects of empathy play a more critical role in reducing behavioral problems than prosocial tendencies. The negative values of all coefficients demonstrate that as each empathy dimension increases, children's problem behaviors tend to decrease. These findings support the theoretical assumption that empathy, when well developed in early childhood, helps regulate emotional responses and promotes adaptive social interactions.

Moreover, the consistent significance across all empathy dimensions suggests that empathy is a multidimensional construct that contributes holistically to behavioral regulation. Emotional contagion reflects a child's capacity to resonate with others' feelings, while attention to others involves sensitivity to emotional cues in social contexts. Prosocial behavior, although weaker in predictive power, still contributes to reducing behavioral problems by fostering helping attitudes and social cooperation. Together, these results emphasize that empathy development in early childhood education has both affective and behavioral implications for children's social adjustment.

The regression analyses confirmed that empathy significantly predicts children's problem behavior in a negative direction. Higher empathy levels are associated with lower levels of aggression, oppositional behavior, hyperactivity, social withdrawal, and anxiety. These results demonstrate that empathy functions as a fundamental social-emotional skill that mitigates problematic behaviors in early childhood. Furthermore, the findings reveal that both general empathy and its specific dimensions contribute to improving social competence and emotional regulation among children. The consistent pattern of negative coefficients across analyses reinforces the conclusion that empathy serves as a protective factor against early behavioral problems.

These findings provide empirical evidence that developing empathy in early childhood education settings can promote positive social behavior and emotional well-being. Teachers and caregivers play a pivotal role in shaping children's empathy through daily interactions and modeling supportive emotional responses. The next section will discuss the theoretical and practical implications of these findings, along with their relevance to previous research and educational policy.

The Influence of Empathy on Problematic Behavior in Children by Controlling for Child Gender

The second analysis aimed to determine whether the relationship between empathy and problematic behavior in children remained significant when controlling for child gender. This stage of analysis was designed to test whether gender acts as a confounding or moderating variable in the relationship between the dimensions of empathy and behavioral outcomes. The regression analysis included the three dimensions of empathy—emotional contagion, attention to others, and prosocial behavior—along with the control variable of child gender. The statistical results are presented in Table 4 below.

Table 4. Multiple Regression Test Results of the Effect of Empathy on Problematic Behavior in Children by Controlling for Child Gender

	Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
Emotional contagion	-0.452	0.176	-0.219	-2.571	0.011	-0.800	-0.104
Concerning others	-0.090	0.078	0.096	1.148	0.035	-0.065	0.244
Prosocial behavior	-0.275	0.578	-0.040	-0.475	0.041	-1.419	0.869
Gender of child	-0.239	1.141	-0.020	-0.210	0.834	-2.491	2.013

As shown in Table 4, the significance values for emotional contagion (p = 0.011), attention to others (p = 0.035), and prosocial behavior (p = 0.041) are all less than 0.05, indicating that these three dimensions of empathy have a statistically significant influence on children's problematic behavior. Each of the empathy dimensions has a negative regression coefficient, meaning that higher empathy scores are associated with lower levels of problematic behavior. The results therefore confirm that empathy continues to play an important role in reducing problem behavior even when child gender is statistically controlled.

The finding that empathy remains significant while gender does not suggests that the effect of empathy on behavior is robust across male and female children. The coefficient for gender (B = -0.239, p = 0.834) was not statistically significant, indicating that gender does not contribute meaningfully to explaining the variance in problematic behavior. In other words, both boys and girls who display higher empathy tend to exhibit fewer behavioral problems, and the influence of empathy operates similarly across gender groups. This result supports the assumption that empathy functions as a universal socio-emotional capacity that transcends gender differences in early childhood.

These results highlight that the three components of empathy collectively contribute to children's emotional regulation and social adjustment, whereas gender does not modify the strength or direction of this relationship. Emotional contagion, which reflects the affective aspect of empathy, demonstrated the strongest predictive power, indicating that the ability to resonate emotionally with others is key to minimizing disruptive behavior. Attention to others and prosocial behavior also had meaningful effects, suggesting that awareness of others' emotions and the tendency to act helpfully both contribute to better behavioral outcomes. Taken together, these findings imply that empathy development is more critical than gender differences in shaping behavioral adjustment among young children.

The non-significant result for gender also points to an important theoretical and practical implication. It indicates that empathy-based interventions and educational programs can be implemented universally for both boys and girls without the need for gender-specific differentiation. This reinforces the importance of focusing on empathy cultivation through classroom interactions, teacher modeling, and social-emotional learning activities that are inclusive of all children. The findings ultimately strengthen the evidence that empathy, rather than gender, serves as a key determinant of early childhood behavioral competence.

Discussion

The results of this study empirically confirmed that empathy significantly and negatively affects children's problematic behavior, meaning that higher empathy levels correspond to fewer behavioral difficulties. This finding is consistent with previous research showing that empathy influences social competence and reduces external problematic behavior (Bulgarelli & Jones, 2023). Similarly, prior evidence emphasized that empathy functions as a protective factor capable of reducing the negative impact of external threats on children's behavior (Zhang et al., 2019). These findings reinforce the theoretical perspective that empathy acts as a self-regulatory mechanism connecting emotional understanding and behavioral control, where children internalize others' emotions to shape prosocial behavior.

Aggressive behavior is one of the external manifestations of problematic behavior that is strongly influenced by empathy. The absence of empathetic modeling from adults or teachers can trigger aggression in children. Previous research found that the absence of teachers during early years contributes to aggressive tendencies when children reach preschool age (Septiani & Nasution, 2017). Similar findings demonstrated that higher empathy corresponds to lower aggressive behavior in children (Orri et al., 2019; Setiawan et al., 2022). The present study aligns with these findings, showing that children who are more empathetic tend to refrain from physical aggression, teasing, or destructive behavior because empathy fosters emotional awareness and moral reasoning that prevent harmful actions.

From the perspective of socio-emotional development, empathy functions as an internal brake that inhibits aggression. When children understand others' suffering, they develop vicarious distress that discourages them from hurting others. This interpretation is supported by findings that empathy significantly affects oppositional behavior (Sebre et al., 2015). Children with higher empathy levels show less defiance and are more likely to cooperate. Supporting evidence also reported that empathy contributes to reducing oppositional behavior by decreasing irritability, impatience, and defiance in social interactions (Gustafsson et al., 2018; Liu et al., 2021). In the present study, empathy suppressed oppositional behavior, enabling children to wait their turn, share, and control emotional outbursts more effectively.

Empathy also shows a significant relationship with hyperactive behavior. The findings of this study reveal that children with higher empathy tend to be calmer and more attentive, which minimizes hyperactive tendencies. Prior evidence demonstrated that empathy influences hyperactivity by helping children maintain focus and emotional stability (Perry et al., 2021). Other studies also found that empathy reduces hyperactivity by enhancing emotional awareness and rule compliance (Braza et al., 2013; Pranoto et al., 2021). The ability to recognize the emotions of peers and teachers acts as a behavioral moderator, guiding children toward self-regulation and lowering disruptive tendencies during classroom learning.

Another dimension of behavioral problems addressed in this study is social withdrawal. Children who possess low empathy tend to isolate themselves, avoid play, and display apathy toward peers. The results of this study are consistent with findings showing that empathy reduces social withdrawal by enhancing interpersonal sensitivity (Besnard et al., 2013; Pranoto et al., 2024). Supporting results also revealed that empathy fosters social involvement and prevents detachment (Rahayu & Nafisah, 2024). In this study, children with higher empathy levels were more likely to engage in peer activities, respond to emotional cues, and express joy in collective play. This indicates that empathy helps children build social connections and strengthens their sense of belonging in educational settings.

In terms of anxiety-related behaviors, the results show that empathy has a suppressive effect. Evidence suggests that empathy influences anxiety by improving emotional understanding and resilience (Georgea et al., 2016). Other studies confirmed that empathetic children are less likely to exhibit whining, sensitivity, or excessive fear (Nafisah et al., 2022). Additional evidence emphasized that empathy correlates with anxiety and emotional sensitivity in early childhood (Lucas-Molina et al., 2018). The findings of this study complement these results, showing that empathy, particularly in the form of emotional contagion and caring for others, helps children regulate fear and stress by creating a sense of shared emotional security.

The present findings support behavioral theory, which asserts that positive stimuli produce positive responses. When empathy is nurtured through supportive interactions, children develop more adaptive behaviors. Empirical evidence found that emotional contagion plays a critical role in suppressing problematic behaviors, as children who can resonate emotionally with others are less likely to engage in aggression or defiance (Craig et al., 2021).

Other research demonstrated that the ability to pay attention to others, as one of the empathy dimensions, encourages cooperative and prosocial actions (Seymour et al., 2021). The results of this study affirm that empathy not only prevents negative behavior but also strengthens prosocial tendencies that contribute to classroom harmony.

When controlling for child gender, the regression analysis revealed that empathy remained a significant predictor, while gender did not show any meaningful effect on problematic behavior. This result confirms that a child's gender does not significantly affect behavioral outcomes (Zhang et al., 2019; Sari et al., 2024). The lack of gender effect in this study suggests that empathy functions universally across male and female children, and that socio-emotional learning experiences in early education settings in Indonesia are not strongly gender-differentiated. This reflects the cultural and pedagogical context that promotes emotional equality and collective learning experiences.

The novelty of this study lies in its integration of empathy's three dimensions—emotional contagion, attention to others, and prosocial behavior—into a single explanatory framework that predicts behavioral regulation in early childhood. Unlike previous models that examined empathy as a singular trait, this study offers an integrative model combining affective, cognitive, and behavioral components within a sociocultural context. The model contributes to extending Western-based theoretical constructs of empathy into the Indonesian educational setting, emphasizing empathy as both an individual and contextual determinant of behavior (Bulgarelli & Jones, 2023; Lucas-Molina et al., 2018). This cross-cultural validation reinforces the universality of empathy as a predictor of socio-emotional adjustment.

Future studies should explore the interaction of empathy with environmental and cultural moderators. As suggested in prior research, future studies should examine how parental warmth, teacher–child relationships, and school climate shape empathy development and behavior (Craig et al., 2021; Seymour et al., 2021). Methodologically, it is important to test whether gender acts as a mediator or moderator under different cultural conditions. Mixed-method or longitudinal designs can reveal how empathy evolves as a function of cultural exposure and educational practices. Thus, this study not only confirms previous evidence but also advances the theoretical model of empathy as a cross-contextual mechanism that regulates children's problematic behavior.

Conclusion

The key findings of this study confirm a significant negative effect of empathy on problem behavior among children aged 5 to 6 years. Multiple regression analyses indicate that empathy remains a significant predictor of children's behavioral outcomes both with and without controlling for gender, although the regression coefficient slightly decreases when gender is included. This reinforces the robustness of empathy's influence across gender lines. Specifically, the dimensions of emotional contagion, concern for others, and prosocial behavior were shown to meaningfully reduce problematic behaviors such as aggression, hyperactivity, and social withdrawal. Interestingly, gender did not exert a significant effect on behavioral outcomes, aligning with some contemporary studies yet differing from earlier research that emphasized gender-related differences in social emotional development. These findings contribute a new empirical perspective from Indonesia, underscoring the universality of empathy's regulatory function in early childhood behavior across cultural contexts.

The implications of this study are both practical and theoretical. For early childhood care and education (ECE) settings, empathy emerges as a critical protective factor against behavioral problems, suggesting that curricula and interventions should prioritize developing empathy related skills, particularly emotional contagion, concern for others, and prosocial responsiveness, through structured play and teacher child interactions. Educators and parents can nurture empathy by modeling supportive emotional engagement, such as comforting

peers, recognizing others' feelings, and promoting cooperative play. At the global level, this study contributes to cross cultural discussions on socio emotional development by highlighting empathy as a universal developmental mechanism for behavioral regulation, transcending cultural and gender boundaries. Future research should further investigate cultural moderators and mediators such as parenting style, emotional regulation, and classroom climate to refine the theoretical integration of empathy within global frameworks of early childhood behavioral competence

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All authors contributed equally and approved the final manuscript.

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