

The Relationship between Empathy, Prosocial Behavior, Peer Relationships, and Emotional Problems in Elementary Schoolchildren in Indonesia

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Abstract

Introduction: Empathy is an essential attribute for coping in society. Empathy can be exhibited in the form of good prosocial behavior management and the ability to build peer relationships and regulate emotions. One of the most serious mental health problems is the antisocial behavior that arises from a lack of empathy. The study aimed to elaborate the association between empathy quotient and prosocial behavior, peer relationship and emotional problems among elementary schoolchildren. **Materials and Methods:** This was a cross-sectional study that included 620 parents and their children, and it was performed using an online questionnaire. The study used the Empathy Quotient-Children/Systemizing Quotient-Children Questionnaires and the strength and difficulties questionnaire, in which the Indonesian versions have been validated. The inclusion criteria were that the parents had a minimum educational background of junior high school level and had a child attending elementary school. The Chi-square analysis was done through the SPSS for Mac software, version 21. **Results:** The children ranged in age from 4 to 14 years. The study found that a lack of empathy was associated with emotional problems and problems with peer relations ($P < 0.05$). However, the relationship between empathy and prosocial behavior showed no statistically significant relationship ($P > 0.05$). **Conclusion:** Children require good empathy to properly function in their daily lives. Therefore, it is necessary to create and foster an educational environment that supports the development of empathy.

Keywords: Elementary schoolchildren, empathy, emotional problem, peer relation, prosocial behavior

INTRODUCTION

Empathy is initially self-oriented, but in the later stages, it begins to conform to others. For example, children possess empathy within 18–72 h after birth, as indicated by the fact that babies' crying reactions are enhanced when hearing another baby cry. From there, the development of empathy within children continues to evolve and grow.^[1] It is defined as a response in the form of emotions that are similar to the target emotions perceived by the observer. These emotions are generated based on the affective component of empathy. When children can control their emotions, they are better able to think critically and see a problem objectively. Uncontrolled emotions usually result from emotional problems within a child.^[2] Emotional problems are unpleasant for children and can be characterized by emotional responses that are too strong or weak to suit the existing conditions. These problems

encompass behaviors reflecting aggressiveness, defensiveness, hyperactivity, sadness, depression, and anxiety disorders.^[3] Studies conducted by the World Health Organization speculate that about 20% of children aged between 9 and 11 years experience emotional problems.^[4] Studies conducted at dr. Cipto Mangunkusumo General Hospital, Jakarta (RSCM) also reported that emotional problems are the second most commonly occurring disease in children and teenagers who seek treatment at the RSCM hospital pediatric psychiatric ward (42.2%).^[5] Children with such problems face difficulties

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in learning, in social relationships, and in understanding the emotions and motivation of others, and they often exhibit suicidal behavior in adulthood.

Moreover, in relation to emotional insight, empathy is closely associated with emotional expression and with the ability to understand the roles of other individuals. Since there is a known relationship between empathy and the ability to understand the roles of others, empathy becomes one of the motives or grounds for certain behaviors; one of these behaviors is prosocial behavior and interactions with friends. Maturity in regulating emotions to exhibit empathy is the basis for helping others in certain situations.^[6] As such, the empathy–altruism hypothesis states that prosocial behavior, which occurs when one aims to promote the welfare of others without prioritizing reciprocity, is often motivated by the sense of empathy that one possesses.^[7] Therefore, the ability of children to empathize may relate to behaviors that children at various developmental ages already exhibit. To develop adequate social relationships, children must have controllable emotions as well as prosocial behavior and good peer relationships. This is important for children, especially during the primary school age, where children learn many new things from their social environment for social development. Hence, there is an acute need for a better comprehension of the relationship between empathy and emotion and between peer relationships and prosocial behavior in elementary schoolchildren.

MATERIALS AND METHODS

This study employed the use of the Empathy Quotient-Children (EQ-C) Questionnaire and the Systemizing Quotient-Children (SQ-C) Questionnaire to assess children's empathy and systemizing skills. In addition, the Strengths and Difficulties Questionnaire (SDQ) was also used to assess emotional problems, prosocial behavior, and peer relationships in children. The questionnaires were disseminated online and filled in by one of the parents of elementary school students in Indonesia. To participate in the study, the parents were required to possess at least junior school level qualifications. Therefore, we can assure that the participant can use Internet-based gathering information. This study collected answers from 620 parents who were randomly selected based on their willingness to participate in the study, evidenced by their signing of the inform consent form. Questionnaires that were filled out completely and met the inclusion criteria are included in this study. The protocol of the study was approved by the Health Research Ethic Committee, Faculty of Medicine, Universitas Indonesia, Jakarta.

The EQ-C/SQ-C questionnaires consisted of a total of 38 questions (18 EQ-C and 20 SQ-C). The Indonesian version of the EQ-C/SQ-C questionnaires was validated using a Cronbach's alpha value of 0.979.^[8] For the EQ-C questionnaire, a score of 2 points was given if the research subjects filled in strongly agree and 1 point if they filled in agree for questions 9, 11, 15, 18, 19, 28, 29, and 31. They were also given a score

of 2 points if the research subjects filled in strongly disagree and 1 point if they filled in disagree for questions 1, 3, 4, 6, 12, 20, 23, 35, 37, and 38. Aside from these, the answers were awarded a score of 0. Hence, the maximum score that could be obtained was 36. For the SQ-C questionnaire, a score of 2 points was given if the research subjects filled in strongly agree and 1 point if they filled in agree for questions 5, 7, 8, 13, 17, 21, 22, 24, 25, 27, 30, 32, 34, and 35. In addition, a score of 2 points was given if they filled out strongly disagree and 1 point if they filled out disagree for questions 2, 10, 14, 16, 32, and 36. Aside from these, the answers were awarded a score of 0. Therefore, the maximum score that could be obtained was 40. Following the completion of scoring, brain types were classified according to Goldenfeld's study, using the standardized scores for EQ-C and SQ-C with the following formula:

$$E (\text{standardized}) = \frac{\text{EQ-C observed} - \text{EQ-C mean for typical population}}{\text{maximum score for SQ-C}}$$

$$S (\text{standardized}) = \frac{\text{SQ-C observed} - \text{SQ-C mean for typical population}}{\text{maximum score for SQ-C}}$$

In this study, the mean EQ-C score was 17.26, and the mean SQ-C score was 14.20. The standardized E and S values were used to find the difference score (D).

$$D = \frac{S \text{ standardized} - E \text{ standardized}}{2}$$

After obtaining the D value, the brain type was classified based on the percentile of D. The extreme empathizing (E) type lies in the percentile score of <2.5%; the E-type is in the percentile score of 2.5%–3.5%; the balance (B) type is in the percentile score of 35%–65%; the systemizing (S) type is in the percentile score of 65%–97.5%; and the extreme S-type is in the percentile score of >97.5%. In this study, the researchers combined the classifications of extreme E- and E-type brains into the E brain type and extreme S- and S-type brains into the S brain type. Type E indicates that subjects have high empathy, Type B contains subjects with sufficient empathy, and type S contains subjects with deficient empathy.

Furthermore, the SDQ questionnaire was used in this study. The questionnaire consisted of 25 questions where questions 3, 8, 13, 16, and 24 assessed emotional problems; questions 6, 11, 14, 19, and 23 assessed peer relation problems; and questions 1, 4, 9, 17, and 20 assessed prosocial behavior. The results for questions 7, 11, 14, 21, and 25 were given a score of 2 points if the subjects answered incorrectly, a score of 1 point if the subjects filled them in partially correctly, and a score of 0 points if the subjects filled them in correctly. For the other questions, a score of 2 points was given if the subject filled it in correctly, a score of 1 for partially correct answers, and a score of 0 for incorrect answers. The scores were then totaled

in each domain and were classified according to the total score. The emotional states were classified as normal if the score was 0–3, borderline if the score was 4, and abnormal if the score was 5–10. Peer relationships were classified as normal if the score was between 0 and 2, borderline if the score was 3, and abnormal if the score was between 4 and 10. Prosocial behavior was classified as normal if the score was 6–10, borderline if the score was 5, and abnormal if the score was 0–4. In this study, subjects in borderline categories were combined with abnormal groups, who are at risk of developing problems.

After classifying the brain types, emotional problems, peer relationships, and prosocial behaviors, Chi-square tests were performed between them.

RESULTS

This study was conducted with elementary school students within the age range of 4–14 years. Parents who filled out the questionnaires consisted of 369 fathers and 251 mothers. The ethnicity of the subjects' parents was dominated by Sundanese people (40.8% of participants) and Javanese people (44.5%). The highest level of education of the subjects' parents was dominated by high school graduates (56%), followed by junior high school graduates (26.8%), those with a bachelor's degree (11.3%), those with diplomas (5.4%), and those with master's degree (0.6%). Other demographic data distributions are shown in Table 1.

There was a significant relationship between empathy and emotional problems and between empathy and peer relationship problems ($P < 0.05$). However, the relationship between empathy and prosocial behavior problems ($P > 0.05$) was not statistically significant. In addition, the proportion of subjects with an S-type brain was found to be predominant in groups of children who had a higher risk of facing emotional problems, issues with peer relationships, and prosocial behaviour [Tables 2-4 and Figures 1-3].

DISCUSSION

The results of the analysis showed a significant relationship ($P < 0.05$) between empathy and emotional problems and

Table 1: Parents' demographic characteristics (n=620)

Parent characteristics	n	Percentage
Ethnic		
Sundanese	253 people	40.8
Javanese	276 people	44.5
Other	91 people	14.7
Education		
Junior high school	166 people	26.8
Senior high school	347 people	56.0
Diploma	33 people	5.4
Bachelor's degree	70 people	11.3
Master's degree	4 people	0.6
Total	620 people	100

Table 2: Brain type and emotional problem (n=620)

Brain type	Emotional problem (-)	Emotional problem (+)	Total	P
E	121	48	169	0.001
B	142	45	187	
S	157	107	264	
Total	420	200	620	

Table 3: Brain type and prosocial behavior (n=620)

Brain type	Prosocial behaviour (-)	Prosocial behaviour (+)	Total	P
E	154	15	169	0.667
B	175	12	187	
S	241	23	264	
Total	570	50	620	

Table 4: Brain type and peer relationships (n=620)

Brain type	Peer relationship (-)	Peer relationship (+)	Total	P
E	131	38	169	0.002
B	128	59	187	
S	161	103	264	
Total	420	200	620	

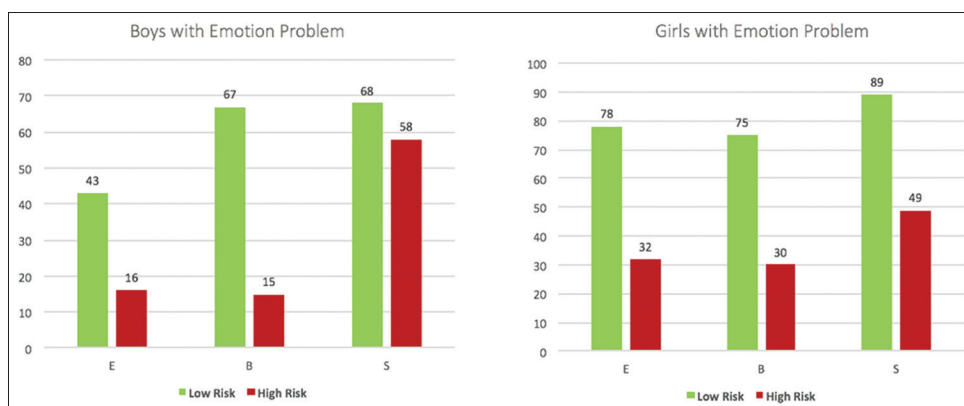


Figure 1: Brain type and emotional problem categorized by gender

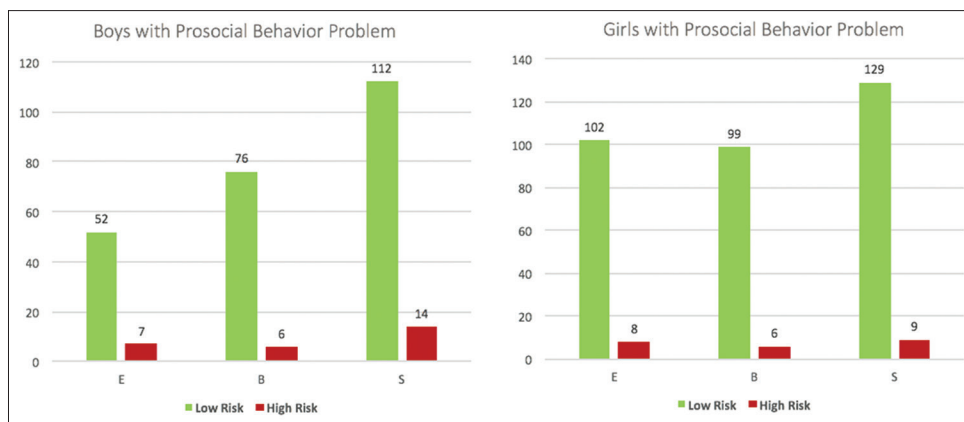


Figure 2: Brain type and prosocial behavior categorized by gender

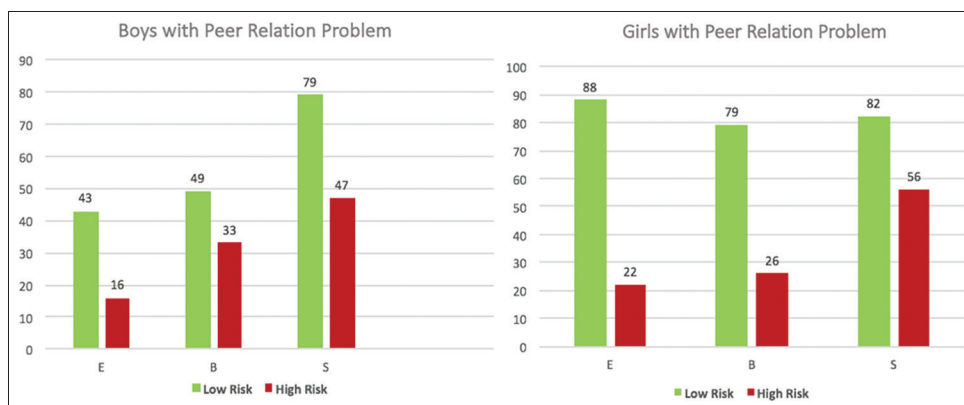


Figure 3: Brain type and peer relationship categorized by gender

between empathy and peer relationship problems. Conversely, empathy and prosocial behavior problems had an insignificant relationship ($P > 0.05$).

The relationship between empathy and emotions in children

Based on the results of the analysis in this study, emotional problems in children have a statistically significant in relation to empathy. The relationship between the two was clinically illustrated when it was seen that the proportion of children at a higher risk for emotional problems tended to have an S-type brain. An S-type brain indicates insufficient empathy; therefore, this study finds that a high risk for emotional problems is associated with a deficiency in empathy. Empathy is comprised cognitive and affective empathy. Cognitive empathy is the ability to accurately envision the experiences of others, while affective empathy is the representation of an experience based on other people's emotional states that may have been previously experienced by the children.^[9] Based on the research conducted by Jolliffe and Farrington,^[10] a low level of affective empathy has a relationship with bullying behavior in children, while a low level of cognitive empathy has no effect on bullying behavior. Bullying behavior is caused by emotional problems in children. Based on this, emotional problems may be linked to empathy through the affective component, although further study is needed to understand

the relationship between emotional problems and affective and cognitive empathy. However, those with an S-type brain compared to the E-type brain also dominate the proportion of children who did not have emotional problems. This shows that it cannot be confirmed that children without emotional problems have an E-type brain or high empathy. This may be due to a person's emotional state also being influenced by factors other than empathy, such as genetics and biological factors, family factors, and environmental factors, which were not studied in this research.

The relationship between empathy and prosocial behavior in children

This study concludes that prosocial behavior was not statistically significant in relation to empathy for the 620 children studied. This is contradictory to the results of the empathy–altruism hypothesis, which states that empathy often motivates altruistic behavior.^[7] However, it cannot be denied that prosocial behavior is a positive action that is very broad in aspect and can be influenced by many factors. The level of prosocial behavior, according to other studies, can be influenced by both personal factors and situational factors. Personal factors include personal values and norms, empathy, and the desire to receive rewards from other people. Situational factors include kin selection, mood, the degree of need of those who demand help, prior experience, bystander

effects that create pluralistic ignorance, and the diffusion of responsibility (i.e., such that someone is more likely to help others or not care about their surroundings).^[11] In the distribution of the children's brain-type characteristics, the sample of children with an S-type brain (i.e., children who had low empathy scores based on the EQ-C/SQ-C questionnaires) was the highest in number. This illustrates that most of the study population did not have the ability to empathize. This might, in some way, affect the results of the statistical tests from this study.

The relationship between empathy and peer relationships in children

A significant ($P = 0.002$) relationship was observed between empathy and peer relationships. The result is in accordance with the study by Denham *et al.* on preschool children, aged four to 6 years, while free playing, which found that children who can understand peer emotions and have a high empathy score on the questionnaire exhibit positive interactions, such as sharing toys, showing positive emotions, and helping friends.^[12] Another study, consisting of 116 fifth-grade elementary school students, concluded that children with a lack of empathy or the ability to analyze the thoughts and feelings of others, were more likely to experience adaptation problems with their class peers than those with high empathy accuracy.^[13] This is very important because the process of adaptation in empathy and the interaction between peers are examples of the processes involved in child development. In the distribution of the characteristics of the 620 children in this study, it is seen that children with peer relationship problems most often possess the S-type brain, and the ones without problems most commonly possess the E-type brain. This is in accordance with Ayeung's research, which describes the E-type brain as a child with high empathy ability and the S-type brain as a child with low empathy ability.^[14] Therefore, this illustrates that empathy plays an important role in positive interactions between peers, especially in children. However, it needs to be noted that this study was performed considering only a particular time in a child's life; according to the past research, a child's ability to interact continues to develop with age.^[15]

Statistically, this study indicates that there are significant associations between empathy and children's emotions and peer relations. However, the association between empathy and prosocial behavior is insignificant. This may be due to the many factors that can influence children's behavior. To further develop children's empathy ability, primary school programs are suggested to help children consider the emotions of others and to implement feelings of empathy in appropriate behaviors. For further research, the authors recommend analyzing the relationship between the components of affective

and cognitive empathy with emotions, prosocial behaviors, and peer relationships to determine which aspects are more strongly related factors that are important to supporting children's growth and development.

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Conflicts of interest

There are no conflicts of interest.

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