



# The Relation of Empathy Levels with Internalizing and Externalizing Problems among Children and Adolescents Who Refer to Child Psychiatry Outpatients

Çocuk ve Ergen Psikiyatri Polikliniği'ne Başvuran Olgularda Empati Düzeylerinin İçe Yönelim ve Dışa Yönelim Sorunları ile İlişkisi

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## ABSTRACT

**Aim:** The aim of our study was to investigate the relationship between empathy levels and internalizing-externalizing problems in children and adolescents admitted to child psychiatry outpatient clinics for various reasons, and how this relationship changed according to gender. In addition, it was aimed to investigate the relationship between empathy and the child's functionality according to parental reporting.

**Materials and Methods:** In the period of May-June 2018, 39 girls and 61 boys ( $n=100$ ) aged 8-14 years ( $mean=11.1\pm2.23$ ) who applied to Pamukkale University Medical Faculty Child and Adolescent Psychiatry Department outpatient clinics and volunteered to participate in the study were included in the study. The participants' parents filled the socio-demographic data form and the Strengths and Difficulties Questionnaire (SDQ), and the children and adolescents filled an Index of Empathy for Children and Adolescents.

**Results:** The girls' empathy level was statistically significantly higher than boys ( $p=0.039$ ). There was no significant relationship between empathy skills and age and family income level ( $p>0.05$ ). There was a negative correlation between empathy levels and emotional problems, conduct problems, peer problems, internalizing and externalizing problems and the SDQ total difficulty score; and a positive relationship between empathy levels and prosocial behaviors ( $p<0.05$ ; correlation coefficients ( $r$ ) were between -0.201 and -0.393; 0.370 for prosocial behaviors). When only girls were evaluated, all relationships that were found to be statistically significant disappeared ( $p>0.05$ ), but stronger relationships were recorded when only boys were evaluated ( $p<0.05$ ; correlation coefficients ( $r$ ) were between -0.361 and -0.451; 0.403 for prosocial behaviors). Children and adolescents with better school success, homework habits, and peer relationships also had better empathy skills ( $p<0.05$ ).

**Conclusion:** Our study results showed an inverse association between children's internalizing and externalizing problems and their empathy ability. In the clinical sample, especially boys' empathy skills seem to be related to emotional and behavioral problems. Attempts to improve empathic attitudes can help reduce emotional and behavioral difficulties that children and adolescents will experience and improve their functionality.

**Keywords:** Empathy, emotional problems, conduct problems

## Öz

**Amaç:** Çalışmamızın amacı çocuk psikiyatrisi polikliniklerine çeşitli nedenlerle başvuran çocuk ve ergenlerde empati düzeylerinin, içe yönelik-dışa yönelik sorunları ile ilişkisini ve bu ilişkinin cinsiyete göre ne şekilde değiştiğini araştırmaktır. Ayrıca, empati ile ebeveyn bildirimine göre çocuğun işlevselliliğinin ilişkisinin incelenmesi amaçlanmıştır.

**Gereç ve Yöntem:** Mayıs-Haziran 2018 döneminde Pamukkale Üniversitesi Tıp Fakültesi, Çocuk ve Ergen Ruh Sağlığı ve Hastalıkları Anabilim Dalı polikliniklerine herhangi bir nedenle başvuran ve çalışmaya katılmaya gönüllü olan 8-14 yaş arası ( $ortalama=11,1\pm2,23$ ) 39'u kız, 61'i erkek ( $n=100$ ) olgu çalışmaya dahil edilmiştir. Çalışmada yer alan katılımcıların ebeveynleri sosyo-demografik veri formu ve Güçler ve Güçlükler Anketi'ni (GGA), çocuk ve ergenler de Çocuk ve Ergenler için Empati Ölçeği'ni doldurmuşlardır.

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## Öz

**Bulgular:** Kız çocukların empati düzeyi erkek çocukların从中ististik olarak anlamlı şekilde daha yüksektir ( $p=0,039$ ). Empati becerisi ile yaş ve ailenin gelir düzeyi arasında anlamlı bir ilişki yoktur ( $p>0,05$ ). Emosyonel sorunlar, davranış sorunları, akrabalar sorunları, içe yönelik ve dışa yönelik sorunlar ve GGA toplam güçlük puanı ile empati düzeyi arasında negatif yönlü; prososyal davranışlar ile empati düzeyi arasında pozitif yönlü bir ilişki mevcuttur [ $p<0,05$ ; korelasyon katsayıları ( $r$ ): -0,201 ve -0,393 arasında; prososyal davranışlar için 0,370]. Yalnızca kız çocukların değerlendirmeye alındığında istatistiksel olarak anlamlı elde edilen tüm ilişkiler kaybolmuş ( $p>0,05$ ), yalnızca erkek çocukların değerlendirmeye alındığında ise daha güçlü ilişkiler kaydedilmiştir [ $p<0,05$ ; korelasyon katsayıları ( $r$ ): -0,361 ve -0,451 arasında; prososyal davranışlar için 0,403]. Okul başarısı, ödev yapma alışkanlıklarını ve akrabalarla ilişkileri daha iyi olan çocuk ve gençlerin empati becerileri daha iyi düzeyde bulunmuştur ( $p<0,05$ ).

**Sonuç:** Çalışma sonuçlarımız, çocukların içe yönelik ve dışa yönelik sorunları ile empati becerisi arasında ters yönde bir ilişki varlığı ortaya koymuştur. Klinik örneklemde, özellikle erkek çocukların empati becerisi, emosyonel ve davranışsal sorunlarıyla ilişkili gözükmemektedir. Empatik tutumları iyileştirmeye yönelik yapılacak girişimler, çocuk ve gençlerin yaşayacağı emosyonel ve davranışsal güçlüklerin azalmasına, işlevselliliklerinin artmasına yardım edebilir.

**Anahtar Kelimeler:** Empati, emosyonel sorunlar, davranış sorunları

## INTRODUCTION

Empathy is an important social cognitive ability that ensures the adaptation of living things and individuals to social life<sup>1</sup>. There are many definitions that explain the concept of empathy and emphasize various aspects of empathy<sup>2</sup>. In addition to studies that report empathy as a multidimensional structure, there are also studies to classify them in two dimensions as cognitive (understanding the emotions of others) and emotional (feeling the emotion of others, and giving appropriate emotional response) empathy<sup>2-4</sup>. In the model that defines empathy, at least three basic elements are mentioned: (1) recognizing emotions in himself and others through facial expressions, speech or behavior, (2) sharing emotional states with others, the ability to experience similar emotions with others, with the awareness that the emotion experienced in the meantime is a simulation and not one's own (emotional sensitivity); and (3) taking of another's perspective without disrupting the distinction between self and other (emotional perspective taking)<sup>5</sup>. Empathy has been defined as the core component of social and emotional functioning throughout development<sup>6</sup>. According to meta-analytical findings, it is known that adolescents who have higher quality relationships with their environment, especially with their peers, are more interested in understanding the feelings of others<sup>7</sup>. There are literature studies showing that better empathy skills have a mediating role not only in social life but also in academic success<sup>8,9</sup>. Therefore, empathy seems to be an effective concept on the social and academic functionality of the child.

The relationship between empathy and mental disorders is an ongoing research topic. It has been repeatedly demonstrated that low empathy skills are associated with conduct disorder and related callous unemotional traits, oppositional defiant disorder (ODD), and aggressive behavior<sup>10-13</sup>. Findings from studies examining the relationship between anxiety and affective disorders and empathy are less consistent than externalising disorders. Many studies in adults and adolescents

have reported an increase in internalizing disorders with increased empathy pattern<sup>14-17</sup>. However, there are also studies that found that children and adolescents with anxiety disorder have less empathy skills<sup>18-20</sup>. There are few studies in the literature that examine the relationship between internalizing and externalizing problems and empathy together. In a study conducted by Gambin and Sharp<sup>14</sup> (2016) on a clinical adolescent sample, empathy was evaluated with its cognitive and emotional sub-dimensions; as a result of the study, some differences were revealed according to gender. Accordingly, both cognitive and emotional empathy in girls were found to be inversely related to behavioral problems, but no such relationship was found in boys. Internalizing problems showed a positive relationship with emotional empathy in both girls and boys. Differently, in a study with community samples, total empathy and cognitive empathy were found to be negatively associated with internalizing and externalizing problems and positively with prosocial behaviors. Emotional empathy, on the other hand, differs by gender, negatively correlated with all emotional and behavioral problems in girls, and positively correlated with only prosocial behaviors in males<sup>21</sup>. Although it is known that female gender's empathy skill is better than male gender<sup>22</sup>, how gender plays a role in the relationship between empathy and internalizing and externalizing problems is a research question that requires new studies.

The relationship between child and adolescent mental health problems/disorders and empathy have been investigated in very few studies carried out in Turkey; in terms of results, there are areas that overlap and diverge with the literature. These studies were conducted with children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD) and anxiety disorders, which are the most common mental disorders in children and adolescents and also the most common reasons for admission to child psychiatry outpatient clinics<sup>18,23-27</sup>. In one study examining the ADHD group, empathy level was found to be lower in the ADHD group compared to the control group in the other one, no difference was found between

the two groups<sup>26,27</sup>. The common point of the two studies is that ODD symptoms accompanying ADHD are associated with low empathy. In another study conducted with children and adolescents with anxiety disorders, it was found that the empathy levels of the anxiety disorder group were lower than the control group, and the aggression levels were higher in this group<sup>18</sup>. We could not reach a study conducted in our country that evaluated the relationship between internalizing and externalizing problems and empathy.

Considering that the concept of empathy can be shaped by cultural influences<sup>28,29</sup>, it was thought that, by evaluating the relationship between internalizing and externalizing problems and empathy skills in a clinical sample of children and adolescents, we may contribute to the literature that consists mostly of studies from Western countries. Based on this, in our study, we aimed to investigate the relationship between externalizing and internalizing problems and empathy in clinical sample cases who applied to child and adolescent psychiatry outpatient clinics with various problems; and we also aimed to determine how this relationship changed according to gender. A second aim of our study was to examine the relationship between empathy and the child's functionality level according to the parent statement.

## MATERIALS AND METHODS

Children and adolescents aged 8-14 years and their parents who applied voluntarily to Pamukkale University Faculty of Medicine, Child and Adolescent Psychiatry Outpatient Clinics for any reason in the period of May-June 2018 were included in our study, which was designed as a cross-sectional study. Being literate, not having mental disorders that prevents filling the forms (mental retardation, autism, acute psychotic attack, acute manic attack) and completing the study forms completely and reliably are the inclusion criteria. One-hundred children and young people who met the inclusion criteria formed the study sample. The data collection tools used in the study were filled in the waiting room by the child or adolescent and their parents at the time they waited for a psychiatric interview. First, the parents and the child or adolescent were informed about the study, and the volunteers were asked to fill in the forms in the waiting room. It took about 15 minutes to complete the study scales. Prior to the study, the Ethics Committee approval was obtained from the Pamukkale University Non-Invasive Research Ethics Committee with the number 60116787-020/34252, dated 18.05.2018. Participants and their parents signed a study consent form before the study.

### Study Scales

In the study, the parents filled in the socio-demographic data form in which socio-demographic characteristics and information about the functionality of the child or young

person were questioned. In addition, the child or adolescent was asked to fill the Empathy Scale for Children and Adolescents, and the Strengths and Difficulties Questionnaire (SDQ) from the parents. Data collection tools are detailed below.

**1. Socio-demographic Data Form:** This form was created by the study authors for the current study. "In the form, questions were asked that question the functionality of the child's school success, homework habits, peer and sibling relationships according to the parent's own perception; as well as the age and gender of the child, educational status of the parents (primary education, high school, university) and the family income. (Ex: "If you consider the last semester grades on the school report, how is your child's school success?", "How is your child's peer relationships in your opinion?", "How is your child's ability to do homework in your opinion?", "In your opinion, how is your child's relationship with his siblings?"). Parents evaluated the questions in a 5-point Likert style, ranging from "very problematic" (1 point) to "very good" (5 points). In the socio-demographic data form, it was aimed to directly evaluate the situation of the child in the relevant areas in line with the perception of the parent and independent of the behavioral and emotional difficulties experienced by the child.

**2. Empathy Scale for Children and Adolescents:** Empathy Scale for Children and Adolescents (ESCA) was created by Bryant<sup>30</sup> (1982) to measure the empathy skills of children and adolescents. The original form of the scale contains 22 items. The Turkish validity and reliability study of the scale was conducted by Gürtunca<sup>31</sup> (2013) and the scale was reported as a valid and reliable measurement tool that can be used to evaluate empathy skills in children aged 8-14 years. One item was removed in the Turkish adaptation and validity reliability study, thus the scale included 21 items. Scale questions are evaluated as "no" (0 point) or "yes" (1 point) by the child or young person. The lowest score that can be obtained from the scale is 0, and the highest score is 21. Increasing scores indicate higher empathy skills.

**3. Strengths and Difficulties Questionnaire-parent Form:** The SDQ is an assessment tool consisting of 25 items developed by Goodman<sup>32</sup> (1997) to evaluate the emotional and behavioral difficulties experienced by children and young people. Each item is scored between 0-2 points in a 3-point likert as "not correct", "partially correct" and "absolutely correct". The scale evaluates the difficulties and strengths experienced by the child on 5 dimensions (emotional problems, behavioral problems, hyperactivity, peer problems and prosocial behaviors). An increasing score indicates improved functionality in prosocial behavior and increased problems in other sub-dimensions. The sum of the sub-dimensions other than prosocial behavior gives the total difficulty score. The total score of internalizing

problems is obtained from the sum of the emotional problems and peer problems sub-dimensions, and the total score of the externalizing problems is obtained from the behavioral problems and hyperactivity sub-dimensions. The Turkish validity and reliability study of the scale was conducted by Güvenir et al.<sup>33</sup> (2008), and the scale has been reported as a valid and reliable measurement tool to measure the emotional and behavioral problems of children and adolescents aged 4-17.

## Statistical Analysis

SPSS 15.0 package program was used to evaluate the data. Descriptive data are presented with mean, standard deviation (SD), number, and percentage. Whether the data is normally distributed or not was tested with the Kolmogorov-Smirnov test. Student's t-test was used for the comparison of continuous variables between normally distributed groups, and Mann-Whitney U test was used to compare continuous variables that did not show normal distribution. Correlations between numerical data that are not normally distributed were evaluated using the Spearman correlation test. Statistical significance is defined for cases of  $p<0.05$ .

## RESULTS

One-hundred children and adolescents, including 39 (39%) girls and 61 (61%) boys, participated in the study. The average age of the participants was 11.1 ( $SD=2.23$ ). The socio-demographic characteristics of the children and adolescents included in the study are presented in Table 1.

**Table 1. Socio-demographic characteristics of the participants**

|   | Mean $\pm$ SD / n (%) |
|---|-----------------------|
| <b>Age</b>                              | 11.1 $\pm$ 2.23       |
| <b>Gender</b>                           |                       |
| Girls                                   | 39 (39%)              |
| Boys                                    | 61 (61%)              |
| <b>Educational status of the mother</b> |                       |
| Primary school                          | 51 (51%)              |
| Secondary school                        | 34 (34%)              |
| University                              | 15 (15%)              |
| <b>Educational status of the father</b> |                       |
| Primary school                          | 36 (36%)              |
| Secondary school                        | 38 (38%)              |
| University                              | 26 (26%)              |
| <b>Monthly income</b>                   |                       |
| Less than 3,000 TL                      | 45 (45%)              |
| 3,000-5,000 TL                          | 29 (29%)              |
| More than 5,000 TL                      | 26 (26%)              |
| SD: Standard deviation                  |                       |

The mean total score of the ESCA, which was filled out by children and adolescents within the scope of the study, was 12.67 ( $SD=3.37$ ). In the statistical analysis conducted to investigate whether the empathy level differs according to gender, age and income level, it was seen that girls have higher empathy skills at a statistically significant level compared to boys ( $t=2.094$ ,  $p=0.039$ ). In order to examine whether the empathy scores differ between the child age group and the adolescent age group, the analysis was conducted by dividing the participants into two groups as under 12 and equal to and over 12 years old, and no significant difference was found between the groups according to age ( $t=-0.247$ ,  $p=0.805$ ). In addition, the relationship between age and empathy level was analyzed with Spearman correlation analysis and no statistically significant relationship was found ( $r=0.007$ ,  $p=0.942$ ). Empathy level did not show a statistically significant difference according to the income level of the participants ( $t=0.380$ ,  $p=0.705$ ) (Table 2).

In our study, the distribution of the SDQ subscale and total score averages in the whole group, in girls and in boys, filled by the parents is presented in Table 3. In the paired group comparisons, there was no statistically significant difference between girls and boys in any subscale scores, internalizing, externalizing, and total scale scores ( $p>0.05$ ) (Table 3).

Correlation analysis was conducted to investigate the presence and direction of the relationship between the total score of the ESCA and the SDQ subscale scores, internalizing, externalizing, and total scale score. In the whole group, it was found that there was a mild-moderate inverse relationship between the empathy level of the child and adolescent and emotional problems, behavioral problems, peer problems, internalizing problems, externalizing problems and total difficulty score ( $r=-0.201$   $p=0.045$ , respectively,  $r=-0.393$   $p=0.000$ ,  $r=-0.213$   $p=0.033$ ,  $r=-0.239$   $p=0.017$ ,  $r=-0.287$   $p=0.004$ ,  $r=-0.277$   $p=0.005$ ), there was no significant

**Table 2. Empathy level by gender, age and income**

|  | ESCA-Total empathy score |        |       |
|--|--------------------------|--------|-------|
|  | Mean $\pm$ SD            | T      | p     |
| <b>Gender</b>  |                          |        |       |
| Girl   | 13.53 $\pm$ 3.35         | 2.094  | 0.039 |
| Boy  | 12.11 $\pm$ 3.29         |        |       |
| <b>Age</b>   |                          |        |       |
| Child age group (8-11 years)   | 12.59 $\pm$ 3.49         | -0.247 | 0.805 |
| Adolescent age group (12-14 years)                                       | 12.76 $\pm$ 3.26         |        |       |
| <b>Monthly Income</b>  |                          |        |       |
| Less than the minimum wage   | 12.83 $\pm$ 3.75         | 0.380  | 0.705 |
| Minimum wage and over  | 12.57 $\pm$ 3.15         |        |       |
| Student's t-test.  |                          |        |       |
| ESCA: Empathy Scale for Children and Adolescents, SD: Standard deviation |                          |        |       |

relationship with hyperactivity ( $p=0.033$   $r=-0.173$ ). Empathy level is positively correlated with prosocial behavior ( $r=0.370$   $p=0.000$ ). When the same analysis was conducted with only girls, there was no statistically significant relationship; when it was applied only with boys, it was observed that the same-direction relationship preserved for the same items and even the correlation coefficients were increased (Table 4).

In functional evaluations, the mean scores ( $\pm SD$ ) obtained in the whole group are as follows: School achievement  $3.8 \pm 1.0$ , homework habits  $3.6 \pm 1.1$ , peer relations  $3.8 \pm 0.9$ , and sibling relationships  $3.7 \pm 1.1$ . When the relationship between total empathy level and functionality parameters was evaluated, it was observed that there was a moderate positive correlation between school achievement, homework habits and peer relationships in the whole group ( $r=0.394$   $p=0.000$ ,  $r=0.332$   $p=0.001$ ,  $r=0.407$   $p=0.000$ , respectively). When the analysis was made only with the girls group, school achievement and homework habits were positively correlated with the total empathy level, when the analysis was made only with the boys school achievement, peer relationships and sibling relationships were found to be positively correlated with the total empathy level (Table 5).

## DISCUSSION

Our study, examining the relationship between the parent-rated internalizing and externalizing problems and self-rated empathy levels of the cases who applied to child and adolescent psychiatry outpatients for various reasons, found that the empathy skill of girls was better than that of boys and empathy levels were negatively correlated with internalizing and externalizing scores, total difficulty score and all problem areas except hyperactivity subscale and positively correlated with prosocial behavior. In other words, as the empathy skills of children and adolescents increase, behavioral problems in particular, emotional problems and peer problems decrease and prosocial behaviors increase. Interestingly, when only girls were evaluated, all relationships that were found to be statistically significant disappeared, while stronger relationships were recorded when only boys were taken into consideration. Empathy levels also seem to be related to the areas of functionality specified by the family. In this clinical sample, there was no effect of age and socioeconomic level (SEL) on empathy.

**Table 3. Score distribution of the Strengths and Difficulties of the Participants**

|                            | SDQ<br>Whole sample<br>(n=100)<br>Mean $\pm$ SD | SDQ<br>Girls<br>(n=39)<br>Mean $\pm$ SD | SDQ<br>Boys<br>(n=61)<br>Mean $\pm$ SD |
|----------------------------|---|---|--|
| <b>Emotional problems</b>  | 4.2 $\pm$ 4.3                                   | 5.2 $\pm$ 6.1                           | 3.5 $\pm$ 2.5                          |
| <b>Behavioral problems</b> | 2.6 $\pm$ 1.9                                   | 2.4 $\pm$ 1.9                           | 2.8 $\pm$ 1.9                          |
| <b>Hyperactivity</b>       | 5.0 $\pm$ 2.4                                   | 4.6 $\pm$ 2.5                           | 5.2 $\pm$ 2.3                          |
| <b>Peer problems</b>       | 3.7 $\pm$ 1.9                                   | 3.6 $\pm$ 2.1                           | 3.8 $\pm$ 1.8                          |
| <b>Prosocial behavior</b>  | 7.0 $\pm$ 2.2                                   | 7.1 $\pm$ 2.2                           | 6.9 $\pm$ 2.2                          |
| <b>Introversion issues</b> | 7.9 $\pm$ 5.3                                   | 8.8 $\pm$ 7.1                           | 7.4 $\pm$ 3.8                          |
| <b>Extroversion issues</b> | 7.7 $\pm$ 3.8                                   | 7.1 $\pm$ 4.0                           | 8.0 $\pm$ 3.6                          |
| <b>Total difficulty</b>    | 15.6 $\pm$ 7.7                                  | 15.9 $\pm$ 9.4                          | 15.5 $\pm$ 6.5                         |

\*There was no statistically significant difference in the paired group comparisons of all subscale and total scale scores in girls and boys.  $P>0.05$ ; Student's t-test was used for group comparison of normally distributed data, and Mann-Whitney U test was used for group comparison of non-normally distributed data.

SDQ: Strengths and Difficulties Questionnaire, SD: Standard deviation

**Table 4. The relationship between empathy level and internalizing and externalizing problems**

| Total empathy                  | Emotional problems           | Behavioral problems          | Hyperactivity           | Peer problems                | Prosocial behavior          | Introversion issues          | Extroversion issues          | Total difficulty             |
|--------------------------------|------------------------------|------------------------------|-------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|
| <b>Whole sample</b><br>(n=100) | $p=0.045$<br>$r=-0.201^*$    | $p=0.000$<br>$r=-0.393^{**}$ | $p=0.086$<br>$r=-0.173$ | $p=0.033$<br>$r=-0.213^*$    | $p=0.000$<br>$r=0.370^{**}$ | $p=0.017$<br>$r=-0.239^{**}$ | $p=0.004$<br>$r=-0.287^{**}$ | $p=0.005$<br>$r=-0.277^{**}$ |
| <b>Girls</b><br>(n=39)         | $p=0.997$<br>$r=0.001$       | $p=0.101$<br>$r=-0.267$      | $p=0.538$<br>$r=-0.102$ | $p=0.653$<br>$r=0.074$       | $p=0.062$<br>$r=0.302$      | $p=0.963$<br>$r=0.008$       | $p=0.474$<br>$r=-0.118$      | $p=0.821$<br>$r=-0.038$      |
| <b>Boys</b><br>(n=61)          | $p=0.004$<br>$r=-0.361^{**}$ | $p=0.000$<br>$r=-0.451^{**}$ | $p=0.181$<br>$r=-0.174$ | $p=0.001$<br>$r=-0.402^{**}$ | $p=0.001$<br>$r=0.403^{**}$ | $p=0.001$<br>$r=-0.418^{**}$ | $p=0.004$<br>$r=-0.366^{**}$ | $p=0.000$<br>$r=-0.448^{**}$ |

Spearman correlation analysis.

\*The correlation is statistically significant at the  $p=0.05$  level.

\*\*The correlation is statistically significant at the  $p=0.01$  level

**Table 5. The relationship of empathy level with the child's functionality according to parental statement**

| Total empathy                   | School achievement   | Homework habits      | Peer relations       | Sibling relations   |
|---------------------------------|----------------------|----------------------|----------------------|---------------------|
| <b>Whole sample<br/>(n=100)</b> | p=0.000<br>r=0.394** | p=0.001<br>r=0.332** | p=0.000<br>r=0.407** | p=0.290<br>r=0.111  |
| <b>Girls<br/>(n=39)</b>         | p=0.034<br>r=0.340*  | p=0.010<br>r=0.407*  | p=0.236<br>r=0.194   | p=0.171<br>r=0.224  |
| <b>Boys<br/>(n=61)</b>          | p=0.001<br>r=0.411** | p=0.060<br>r=0.242   | p=0.000<br>r=0.525** | p=0.048<br>r=0.272* |

Spearman correlation analysis.  
 \*The correlation is statistically significant at the p=0.05 level.  
 \*\*The correlation is statistically significant at the p=0.01 level.

In our study, empathy level was found significantly higher in girls compared to boys, as expected. This finding is consistent with the literature, which is supported by other studies in which girls have higher empathy levels compared to boys<sup>34,35</sup>. It has been reported that these gender differences seen in empathy are based on phylogenetic and ontogenetic origins, females develop empathic adaptations to be sensitive to the signals of their babies, these differences persist throughout life, and the female brain gives different neuronal empathic responses to that of the male brain<sup>22</sup>.

In the analyzes we conducted to investigate the change in empathy by age, it was found that empathy levels did not change according to age. There are different results in the literature regarding the effect of age on empathy. In one study, it was reported that there was no difference in empathy scores between the 1<sup>st</sup> and 4<sup>th</sup> grades, but empathy scores at the 7<sup>th</sup> grade level were higher than these two classes<sup>30</sup>. Another study showed that the empathy level decreases as the age increases in the boys, while the empathy levels in the girls increase with the age<sup>36</sup>. In the first of two studies with large population samples including 9-18 and 4-16 age groups, it was found that both emotional and cognitive empathy levels increased with age, in the other, age was found to be effective only on the increase in cognitive empathy level<sup>21,37</sup>. Another study found that there was no increase in empathy levels between the ages of 10-14, similar to our study<sup>38</sup>. Findings regarding the effect of age on empathy do not seem consistent. The lack of change in empathy levels according to age in our study may be due to the narrow age range in our study, or to the fact that the children and adolescents included in the study were selected from the clinical sample. In addition, the fact that the emotional and cognitive components of empathy were not evaluated separately may be another factor. However, studies conducted in our country have also found have also found no relationship between age and empathic tendency levels in adults and adolescents<sup>39,40</sup>.

In our study, no significant difference was found in empathy scores between the two groups, which were compared in terms

of SEL as below the minimum wage and the minimum wage and above. Similar to our study, in a study conducted with secondary school students in our country, no difference was found between empathy and SEL<sup>41</sup>. In another study, in support of these findings, no difference was found between SEL and empathy levels<sup>42</sup>. In studies abroad, in addition to studies reporting that there is no relationship between empathy and SEL, there are also studies showing that there is a relationship between SEL and empathy level<sup>43-45</sup>. However, it is important to evaluate what factors the relationship between empathy and SEL depends on. One possible approach is that excessive emotional arousal caused by economic tension and related family conflicts may prevent empathy<sup>46</sup>. We may consider that that we could not find a relationship between SEL and empathy because that our study was conducted with a relatively small study group in a clinical sample. This relation may be better revealed by studies that investigate the effects of economic difficulties and the familial responses to them in more detail.

One of the main aims of our study was to evaluate the relationship between internalizing and externalizing problems and the empathy level of children and adolescents in a clinical sample. For this purpose, the SDQ subscale, internalizing, externalizing, and total scale scores were evaluated, and then the relationship between SDQ scores and total empathy score was investigated in the whole sample, in girls and in boys. It is seen that the mean scores obtained from the SDQ are close to or slightly lower than the scores reported by Güvenir et al.<sup>33</sup> (2008) in the clinical sample. In our study, the mean scores ( $\pm$ SD) of emotional problems, behavioral problems, hyperactivity, peer problems and total difficulty evaluated by the parents were respectively  $4.2 \pm 4.3$ ;  $2.6 \pm 1.9$ ;  $5.0 \pm 2.4$ ;  $3.7 \pm 1.9$  and  $15.6 \pm 7.7$ , while the mean score values found by Güvenir et al.<sup>33</sup> for the same evaluations were  $4.1 \pm 2.5$ ;  $3.3 \pm 2.0$ ;  $6.2 \pm 2.6$ ;  $3.6 \pm 1.8$  and  $17.4 \pm 6.0$ . We found that the SDQ scores did not show a statistically significant difference between female and male participants. According to the information obtained from the literature<sup>47</sup>, as expected, emotional problems score is higher for girls and behavioral problems score is higher for boys; however, the difference is not at the level of statistical

significance. The fact that girls' and boys' scores were close to each other, in other words, their having difficulties with similar severity, enabled us to evaluate the relationship of empathy level with internalizing and externalizing problems in different genders, regardless of the potential confounding effect of the problem level difference.

Studies that repeatedly reveal the relationship between low empathy levels and behavioral problems in the literature are consistent with the findings of our study<sup>14,21,48,49</sup>. It has been reported that individuals with externalizing disorders have cognitive distortions that protect themselves and blame others, and aggressive, antisocial behaviors may stem from low empathy skills<sup>50-52</sup>. Empathy development has been shown to be associated with cognitive and social-environmental processes<sup>53</sup>. Empathy deficiencies in children with behavioral problems have been suggested to be linked to impaired neurocognitive capacities related to emotional attention and response to certain stimuli and neurochemical systems in related brain pathways<sup>53</sup>. In light of this information, as we reported in our study, the fact that children and adolescents with better empathy have lower behavioral problems and more prosocial behaviors is an expected finding.

Studies investigating the relationship between empathy skills and ADHD symptoms are limited and did not reveal consistent results such as behavioral problems. As there are studies showing that ADHD diagnosis or symptoms are associated with low empathy<sup>21,54</sup>, similar to our study<sup>55</sup>, there are studies that fail to show this association or that this relationship exists only in the presence of opposition or behavioral problems<sup>27,56</sup>. In another study, contrary to expectations, a positive relationship was reported between the ADHD problems and empathy skills<sup>14</sup>.

In some of the studies examining the relationships between internalizing problems and empathy, it has been found that, unlike externalizing disorders, high levels of empathy are associated with depression and anxiety disorders<sup>14,57</sup>. These studies suggest that high levels of empathy may be associated with being more prone to get emotionally affected by other peoples problems, the anxiety of giving harm to others and experiencing worry and anxiety. However, there are also studies in the literature that find a reverse relationship. Dadds et al.<sup>21</sup> (2008), in a study conducted with a population sample of 2,612 participants between the ages of 4-16, found that children and adolescents with high levels of empathy show lower emotional problems according to the SDQ scores completed by the parents. Similarly, a study from our country compared children aged 8-12 with anxiety disorders with controls, and reported that the anxiety disorder group had lower levels of empathy compared to the control group<sup>18</sup>. The differences between studies may differ according to the study

population or clinical sample, age group, and the effects of different dimensions of empathy.

When we evaluated the relationship of SDQ subscales, internalizing and externalizing scores with empathy, separately by gender, we found that the relationships determined in the analyzes performed by including the whole sample went on strengthening in the sample consisting only of boys; however, all relationships disappeared in girls. Although this result should be considered with caution due to the relatively low sample size of girls (n=39), this segregation detected in the clinical sample was considered to be significant in terms of shedding light on future studies. In addition, there is no difference between girls and boys in terms of problem severity, as explained above regarding the scores obtained from the SDQ. In the literature, there are very few studies evaluating the interaction of empathy levels in girls and boys with psychopathology by gender. The only clinical sample study available was the study conducted by Gambin and Sharp<sup>14</sup> (2016) with 507 inpatient adolescents aged 12-17 years. This study evaluated empathy by its emotional and cognitive dimensions and some differences were found between girls and boys. For example, emotional and cognitive empathy was found to be negatively associated with behavioral problems only in girls, while internalizing problems and ADHD symptoms were positively associated with emotional empathy in both boys and girls. While evaluating the positive relationship between internalizing symptoms and empathy in parallel with previous studies, the authors stated that it was surprising to find a same way relationship in ADHD symptoms, and they explained this result with the high emotional reactivity common to both disorders. In particular, they noted that the fact that behavioral problems were associated with empathy, only in girls was different from literature knowledge; and they explained that this finding might be associated with high severity and narrow variability of boys' symptoms in their samples. They emphasized that new research is needed on this issue<sup>14</sup>. Our study findings differ from this study completely. The results of our present study suggest that low empathy skills in the clinical sample show a moderate relationship with mental and behavioral difficulties in boys, whereas there is no such relationship in girls. It is stated that empathy development has evolutionary and developmental origins, hereditary and environmental interactions have different effects on brain and behavior in girls and boys; and these are shaped by social and cultural influences<sup>22</sup>. One study has shown that the effect of culture on empathy differs according to gender<sup>58</sup>. In our society, lack of empathy may be one of the reasons that predispose to the development of psychopathology in boys.

In our study, a positive relationship was found between empathy level and school achievement, homework habits and peer relationships, while no relationship was found with

sibling relationships. Similarly, in a study conducted in our country, it was determined that students with high academic achievement had high levels of empathy<sup>59</sup>. Studies abroad have also shown that empathy level plays an important role in academic achievement<sup>8,9</sup>. These findings are considered to explain the good homework habits of those with high empathy. In addition, since our study was conducted in a clinical sample, as discussed above the relationship between emotional and behavioral problems and empathy also should be taken into consideration. Because it is known that behavioral problems and internalizing problems negatively affect academic achievement<sup>59-62</sup>. In the meta-analysis of studies evaluating the level of empathy and friendship relations, a mild-moderate positive relationship was found between the empathy level and friendship relations, supporting the relationship we found in our study<sup>7</sup>.

Relationships with siblings are known to be associated with development of empathy<sup>63</sup>. However, in our study, no significant relationship was found between parent-evaluated sibling relationships and empathy. The reason for this difference may be the fact that our study was conducted with a clinical sample of children and adolescents with various mental health problems that might affect the sibling relationships. When the functionality parameters assessed by the parents were evaluated separately for girls and boys, we found that the association between empathy and peer relationships disappeared in girls and the association between empathy and homework habits was lost in boys; on the other hand, association of empathy with sibling relationships reached a statistically significant level in boys, even if it was weak. As discussed above, empathy develops differently in male and female gender and appears to have different effects.

### Study Limitations

The following limitations should be taken into account when interpreting the results of our study, which is the first in our country, by examining children and adolescents' empathy levels in regard to internalizing and externalizing symptoms in child and adolescent psychiatry outpatients: Our study is a cross-sectional study. Considering the follow-up studies that provide a neurodevelopmental explanation for empathy and examine the interaction of various familial factors with empathy, prospective follow-up studies are needed to effectively evaluate the relationship between empathy and psychiatric symptoms/disorders<sup>64-66</sup>. One of the limitations of our study is that empathy level was determined from children and adolescents in the form of self-report. It is thought that it is important to evaluate the empathy level from different and plural sources such as family and teacher.

The level of functionality was also evaluated with the questions asked in the socio-demographic data form and based solely on the parental report, and an assessment tool was not used for this, and no information was obtained from another source such as a teacher. Finally, since the main purpose of the study was to evaluate the relationship between internalizing and externalizing problems and empathy levels, no grouping and comparison was made in the study design according to the clinical diagnoses of the cases. However, evaluations to be made according to clinical diagnoses and including disease severity will provide useful information in understanding the relationship between empathy and psychopathology.

### CONCLUSION

In our study, a negative correlation was found between empathy levels and internalizing problems and externalizing problems in children and adolescents aged 8-14 years in a clinical sample. When this relationship was evaluated according to gender, it disappeared in girls and got stronger in boys. Consistent with the literature, behavior problems are more strongly associated with low empathy. In addition, as empathy skills increase, academic achievement and positive friendship relationships, which are important for the psychological development of children and adolescents, increase. However, in order to better understand the relationship between empathy levels and internalizing and externalizing problems, there is need for cross-sectional studies and follow-up studies that are planned to address the effects of age, gender and cultural differences in clinical and community samples. Considering the results of our study, it can be argued that improving empathy skills may have a healing effect in the treatment of mental difficulties of children and adolescents, and will contribute positively to the academic achievement and functionality of children and adolescents in their social relations. In addition, attempts to observe and develop children's empathy skills starting from the preschool period have the potential to make significant contributions to preventive mental health.

### Ethics

**Ethics Committee Approval:** The Ethics Committee approval was obtained from the Pamukkale University Non-Invasive Research Ethics Committee with the number 60116787-020/34252, dated 18.05.2018.

**Informed Consent:** Participants and their parents signed a study consent form before the study.

**Peer-review:** Externally peer-reviewed.

## Authorship Contributions

Medical Practices: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Concept: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Design: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Data Collection or Processing: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Analysis or Interpretation: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Literature Search: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B., Writing: Ö.B., S.N.E., U.E.İ., M.Ö., M.O.S., B.K.B.

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