

## The intensity of empathy in adolescents treated in a day unit – preliminary reports

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### Summary

**Aim.** The aim of the pilot study was to compare the level of empathy among adolescents treated in a psychiatric day unit in groups with varied age, gender and type of disorder (conduct and emotional disorders and depressive-anxiety disorders).

**Method.** The study was carried out in a group of 117 adolescents (69 girls and 48 boys) aged 13–20, treated in the Clinical Day Unit of the Department of Adult, Child and Adolescent Psychiatry of the University Hospital in Kraków between 2016–2021. The Davis *Empathy Scale* and the Cohen *Empathy Scale* were used for the study.

**Results.** Girls scored significantly higher compared to boys on the Cohen and Davis *Empathy scales* and on the Davis subscale: *Personal Distress*. Statistically significant interactions were observed for the factors of gender and age, as well as age and disorder type. Older boys had statistically significantly higher scores on the Davis *Empathy Scale* compared to younger boys, while the reverse pattern was observed for girls (non-significant). Older patients with conduct disorders had significantly lower Cohen's *Empathy Scale* scores compared to younger patients; the opposite pattern was observed in the group of patients with anxiety-depressive disorders (non-significant).

**Conclusions.** Girls exhibit higher levels of affective and cognitive empathy than boys. The intensity of empathy increases with age in the group of boys, while for girls the obtained differences are not statistically significant. The intensity of empathy is significantly lower in the group of older adolescents (versus younger) with conduct and emotional disorders. Among depressive-anxiety disorders, the opposite pattern was noted (non-significant). The unique results obtained indicate a different trajectory of empathy development in the group of patients with conduct disorders and with depressive-anxiety disorders.

**Key words:** adolescence, empathy, conduct and emotional disorders, depressive-anxiety disorders

## Introduction

One of the most popular definitions of empathy proposed by Davis [1] is to describe it as a cognitive and affective/emotional response to other people's behaviour. Viewed this way, cognitive empathy includes the ability to take other people's perspective (in other words, a tendency to mentally adopt other people's point of view) or to create fantasies about their situation, whereas emotional empathy consists of emotional concern or a sense of personal distress. Empathetic care/concern refers to other-oriented feelings of sympathy and concern for people experiencing unfortunate events [1]. Gonzalez-Liencre et al. [2] describe affective empathy as the ability to feel what others are feeling. In their view, cognitive empathy, in turn, describes the ability to understand what others think, intend, desire in the context of their feelings. Some researchers believe that the two dimensions of empathy are interconnected – the ability to share other people's emotional states requires the ability to understand other people's emotions [2]. Other authors, however, are of the opinion that empathy and understanding other people's emotional states are distinctive constructs, i.e. the presence of one is not a predictor for the presence of the other, and an individual's empathic response to other people will include one or both components, depending on the social and developmental context [3].

The second position is supported by the observation that there is a temporal difference in the occurrence of both types of empathy – affective empathy already develops in the first months of life, whereas cognitive empathy develops much later. Findings which describe changes in empathy with age indicate that cognitive aspects of empathy decrease from early to late adulthood. Data on affective empathy are inconclusive [4-6]. In contrast, the ability to empathise and infer emotional states develops significantly in adolescence compared to childhood, and higher levels of empathy are associated with better interpersonal competence, pro-social behaviour and a lower risk of aggressive behaviour and conflict [7]. Importantly, the lower the level of empathy during childhood and early adolescence, the higher the likelihood of antisocial behaviour in late adolescence and early adulthood [8].

Available studies of people in the developmental period describe deficits in the ability to empathise with other people's emotional states in adolescent patients with psychotic disorders, oppositional defiant disorder, conduct disorder [9], or in young people displaying antisocial behaviour and traits [10]. There are still few reports focusing on the study and comparison of empathy in adolescents treated for internalising disorders (anxiety disorders) and externalising disorders (conduct and emotional disorders). The results of studies conducted in a population of adult patients with mood disorders indicate relationships between empathising and the intensity of depressive symptoms. Schreier et al. [11] conducted a systematic review which found that higher levels of empathic distress are associated with higher levels of depressive symptoms. In contrast, an inverse relationship was observed for cognitive empathy. In patients

with a diagnosis of depression or the presence of depressive symptoms, the ability to recognise and understand other people's emotional states is impaired.

Studies in the adolescent population suggest that high levels of empathy among adolescents may make them more susceptible to internalising disorders [12], including mood disorders [13]. In their review of research looking at the relationship between empathy and mental disorders, Tone and Tully [14] indicate that under certain conditions greater empathic skills are associated with a greater risk of internalising disorders. In a study by Gambin and Sharp [15] published in 2018 conducted on a group of adolescents ( $N = 403$ ) aged 12-17 years, a statistically significant correlation was observed between affective empathy and the severity of anxiety symptoms (i.e. separation anxiety, fear of rejection, panic anxiety and humiliation anxiety). In turn, the intensity of cognitive empathy was adversely correlated with social and panic anxiety.

Research suggests that both the deficits in empathising skills and the higher-than-average intensity of empathy correlate with the occurrence of depressive symptoms in adolescents and adults. Researchers who study empathy among adolescents have observed that girls have a higher intensity of empathy than boys and are more likely to develop internalising disorders [16]. A better understanding of the interrelationship between the ability to empathise and understand the emotional states of others and internalising disorders (depression and anxiety) may improve the treatment and psychotherapy of young patients.

### **Aim of the study**

The aim of this article was to describe and compare adolescent psychiatric patients treated for conduct and emotional disorders and anxiety-depressive disorders in terms of their level of empathy. The research question posed was related to potential differences in the intensity of empathy between adolescents with conduct and emotional disorders and anxiety-depressive disorders. Differences in the level of empathy depending on gender and developmental period (early vs. middle adolescence) were also assessed.

### **Material and method**

The study included 117 adolescents treated in the Clinical Day Unit of the Department of Adult, Child and Adolescent Psychiatry of the University Hospital in Kraków between 2016 and 2021 with a diagnosis of conduct disorders (69 subjects) and a diagnosis of depressive-anxiety disorders (48 subjects). As one of the inclusion criteria for the study, the initial diagnosis was assessed by a specialist in child and adolescent psychiatry, who qualified the patient referred for treatment in the unit. The diagnosis was verified during the following weeks of treatment, during psychiatric consultations.

The exclusion criteria for treatment in the day unit structure, as well as for inclusion in the study, were as follows: severe conduct disorder, psychoactive substance dependence, psychotic episode, eating disorder with a BMI below 16, intellectual disability. The subjects were divided into two age groups: younger (up to 16 years) and older (17 years and older), based on the concept of developmental phases in adolescence

coined by Peter Blos (early and middle adolescence) [17]. The study included 75 girls and 42 boys aged 13-20 (mean 16.5; SD = 1.44). The subjects were students of high schools in Kraków.

All patients completed Cohen's empathy questionnaire. Some of the subjects also scored on Davis' empathy scale. Each patient and their families were given information about the purpose, method and duration of the study. Written consent for the questionnaire study was obtained from each adult patient as well as from the parents of all minors.

### Scale descriptions

#### Davis' *Empathy Scale*

Davis' *Empathy Scale*, or the Mark H. Davis *Interpersonal Reactivity Index* (IRI), was developed to examine empathy defined in terms of a multidimensional construct [18]. The questionnaire includes four scales: *Fantasy* (FS), *Perspective Taking* (PT), *Empathic Concern* (EC), and *Personal Distress* (PD), each consisting of seven items (28 items in total). Scales PD and EC measure the affective aspect of empathy, PT is considered a complex cognitive process, while the placement of the FS scale on the 'affective-cognitive' dimension is not clear. It aims to measure the tendency to imagine oneself as characters in films and books. Importantly, the *Empathic Concern* subscale is supposed to relate to emotions that are other-oriented, such as sympathy or concern for the fate of the other; the *Personal Distress* subscale on the other hand relates to the self-oriented self: fear, anxiety, discomfort that arise in an interpersonal context. Their experience can, and often does, push the individual to take action to help, but the main driver of these actions is likely to be a desire to minimise one's own suffering or distress [1].

#### Cohen's *Empathy Scale*

Cohen's *Empathy Scale*, or the *Cambridge Behaviour Scale*, is a questionnaire for measuring the *Empathy Quotient* (EQ) by Simon Baron-Cohen and Sally Wheelwright translated into Polish by Agnieszka Wainaina-Woźna (downloaded from the Autism Research Centre website) [19]. Like the IRI, it measures the emotional and cognitive dimensions of empathy. The subject's task is to respond to 40 statements by determining how true each statement is for them. The EQ is a scale developed with clinical implications in mind, unlike many tools that came before it. It is used to detect underdevelopment or lack of empathy as a feature of psychopathology.

### Statistical analysis

The distribution of variables (scores of individual scales) was described by the mean value and standard deviation (SD). The groups were compared by the Student's *t*-test; the interaction term (gender and age) was tested using a two-way analysis of

variance (ANOVA) model. Post-hoc tests with Bonferroni correction were used to assess statistical significance within subgroups. The statistical analysis was performed using the SPSS ver. 26 package (IMAGO PRO 6, Predictive Solutions Sp. z o.o.). The statistical significance level was set at  $p < 0.05$ .

## Results

### Empathy and gender

The analysis showed that girls scored higher on empathy scales – both measured using Cohen's *Empathy Scale* and Davis' *Empathy Scale*. When using Cohen's *Empathy Scale* in the girl group, the mean score was 39.7 (11.3) compared to 32.9 (9.8) in the boy group ( $p = 0.001$ ). Girls also scored higher on Davis' *Empathy Scale* (70.7 vs. 64.0;  $p = 0.028$ ); in particular significantly higher scores were observed for the *Personal Distress* scale (18.0 vs. 14.2;  $p < 0.001$ ). For the other subscales of Davis' scale, no statistically significant differences were observed between girls and boys (Table 1).

Table 1. Empathy scale results among girls and boys

Scale	Gender						p-value
	Girls			Boys			
	n	Mean	SD	n	Mean	SD	
Cohen's Empathy Scale	75	39.7	11.3	42	32.9	9.8	0.001
Davis' Empathy Scale	51	70.7	13.0	23	64.0	9.4	0.028
Fantasy subscale	53	18.9	6.1	23	15.9	6.5	0.052
Empathic Concern subscale	55	16.9	5.3	24	17.0	3.9	0.937
Perspective Taking subscale	53	17.5	5.3	24	17.3	4.5	0.901
Personal Distress subscale	53	18.0	3.9	24	14.2	3.7	<0.001

### Empathy and type of disorder

The mean score on Cohen's *Empathy Scale* in the group diagnosed with conduct and emotional disorders was 35.9 (11.4), which is slightly lower than in the group diagnosed with depressive-anxiety disorders (39.2 (10.9)). On Davis' *Empathy Scale*, adolescents diagnosed with behavioural disorders achieved a mean score of 68.4 (12.4), and subjects diagnosed with anxiety-depressive disorders had comparable scores (69.0 (12.5)). A comparison of scale results in groups defined based on disorder type found no statistically significant differences in the results for either Cohen's *Empathy Scale*, Davis' *Empathy Scale* or the Davis *Empathy Scale* subscales across the entire study group (Table 2).

Table 2. Empathy scale results in relation to diagnosed disorder

Scale	Type of disorder						p-value
	Conduct disorders (F92)			Depressive-anxiety disorders (F41/F42/F43)			
	N	Mean	SD	N	Mean	SD	
Cohen's Empathy Scale	69	35.9	11.4	48	39.2	10.9	0.125
Davis' Empathy Scale	43	68.4	12.4	31	69.0	12.5	0.840
Fantasy subscale	45	17.7	6.3	31	18.5	6.5	0.570
Empathic Concern subscale	47	17.4	5.3	32	16.4	4.2	0.378
Perspective Taking subscale	45	17.1	5.2	32	17.9	5.0	0.473
Personal Distress subscale	45	17.3	3.9	32	16.1	4.5	0.227

### Empathy and age

The mean score on the Cohen *Empathy Scale* in the early adolescence group (up to 17 years of age) was 37.8 (11.9), slightly higher than in the older adolescents (36.7 (10.6)). On the Davis *Empathy Scale*, younger adolescents averaged 69.6 (13.7) and older subjects had comparable scores (67.7 (11.0)). There were no significant correlations between the intensity of empathy, as measured by the Davis/Cohen Scales and the Davis Scale subscales, and the age of the subjects in the study.

Table 3. Empathy scale results in relation to age of respondents

Scale	Age group						p-value
	< 17 years			≥17 years			
	N	Mean	SD	N	Mean	SD	
Cohen's Empathy Scale	60	37.8	11.9	57	36.7	10.6	0.583
Davis' Empathy Scale	37	69.6	13.7	37	67.7	11.0	0.514
Fantasy subscale	38	18.1	6.7	38	17.9	6.1	0.929
Empathic Concern subscale	40	17.6	5.3	39	16.3	4.5	0.235
Perspective Taking subscale	38	17.4	5.5	39	17.4	4.6	0.992
Personal Distress subscale	39	17.1	4.4	38	16.4	4.0	0.461

### Empathy versus age and gender

In the two-way ANOVA analysis, a statistically significant interaction was observed between gender and age in relation to Davis' *Empathy Scale* scores ( $p$  for interaction = 0.013; Fig. 1). In the older girls' group, empathy levels measured by the Davis scale were slightly lower than in the younger girls (67.8 (12.3) vs. 73.0 (13.4);  $p = 0.120$ ), while in the older boys' group, empathy levels were higher compared to the younger boys group (67.5 (9.1) vs. 57.3 (5.7);  $p = 0.048$ ). There were no significant interactions between gender and age of the subjects with regard to the Davis scale subscales or the Cohen *Empathy Scale*.

### Empathy – disorder type and gender

The two-way analysis showed no significant interaction for the factor of gender and disorder type for all analysed scales measuring the level of empathy.

### Empathy – disorder type and age

However, when analysing the interaction between the age of the subjects and the disorder type, the only statistically significant interaction was observed for the level of empathy measured by the Cohen scale ( $p$  for interaction = 0.042; Fig. 2). In the

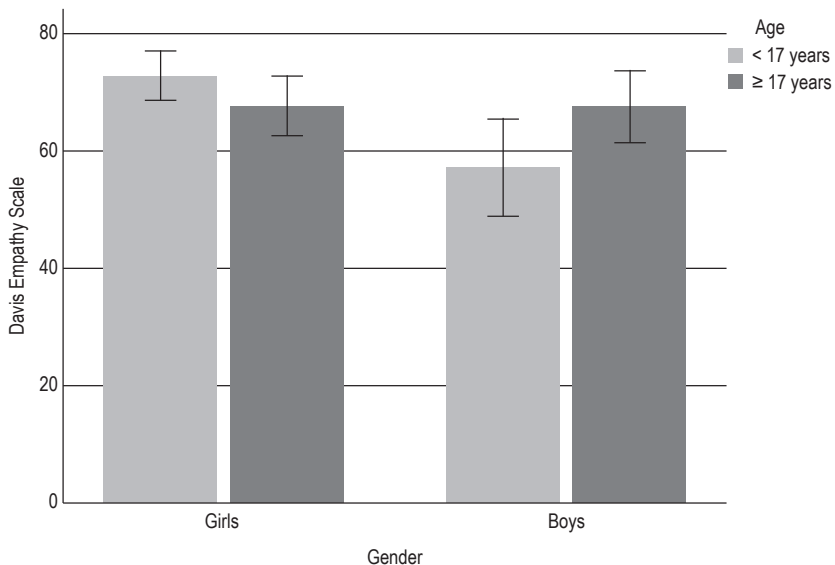


Figure 1. Level of empathy on the Davis scale according to gender and age of the subjects

group of adolescents with conduct disorders, older subjects had a lower Cohen empathy level (32.9 (9.7) vs. 38.2 (12.1);  $p = 0.053$ ) while in the group of adolescents with depressive-anxiety disorders, older subjects had a slightly higher Cohen empathy level compared to their younger counterparts (40.6 (10.3) vs. 37.2 (11.6);  $p = 0.294$ ).

### Discussion

The study compared differences in empathy intensity, as measured by Davis' *Empathy Scale* and Cohen's *Empathy Scale*, depending on the type of disorder, biological sex and age (adolescence – early versus middle adolescence). The factor of significant difference between the results of the questionnaires used was biological sex. No statistical significance was noted for the other main factors. However, a significant interaction was observed between gender and age of the respondents. It was shown that the level of empathy changes differently with age in boys than in girls, regardless of the diagnosis; it increases in boys. A significant interaction was also observed for the factor of age and type of disorder in Cohen's *Empathy Scale* scores – a lower level was noted in older adolescents with a diagnosis of conduct and emotional disorders.

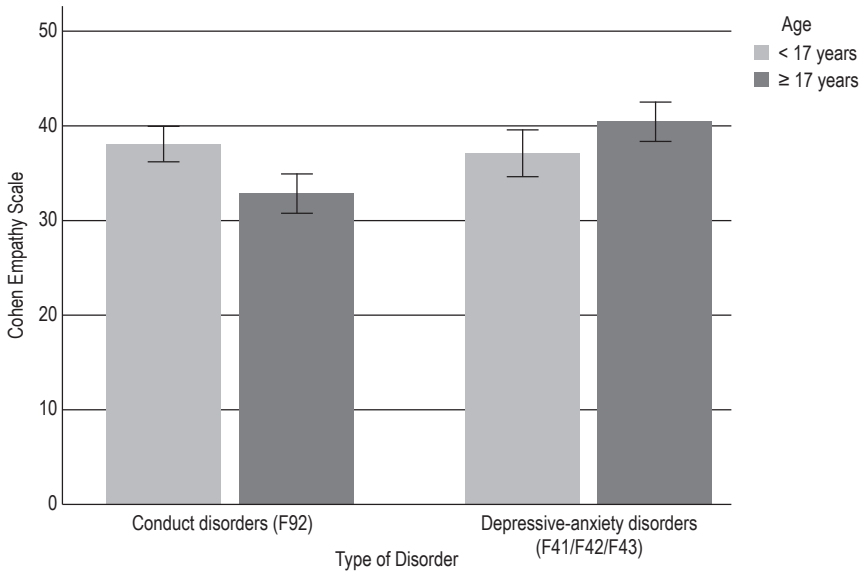


Figure 2. Level of empathy on the Cohen scale – interaction between disorder type and age of subjects



In the present study, girls were found to have higher levels of empathy than boys. The results obtained are consistent with other authors' reports. A literature review by Christov-Moore et al. [20] collected data confirming gender differences in empathy levels and indicating their phylo – and ontogenetic background. Additional studies conducted in adolescent populations support these observations. A longitudinal study by Mestre et al. [21] in a group of 505 adolescents aged 13 to 16 showed that girls achieve significantly higher results on the empathy questionnaire (Davis scale) than boys. In addition, the observed differences deepened with age [21]. In a study conducted in a population of 313 adolescents aged 10-14 years, Garaigordobil [22] observed higher levels of empathy, pro-social behaviour and assertiveness towards negative thoughts in the girl group compared to boys. Additionally, a significant positive correlation was found between empathy and pro-social behaviour measured at each time point (for ages 10-14) [22]. Arango-Tobón et al. [23] compared girls (N = 18) and boys (N = 28) aged 16-17 years with a diagnosis of conduct disorders in terms of (cognitive, affective) empathy, theory of mind and severity of psychopathological symptoms. They observed that girls displayed significantly higher levels of affective and cognitive empathy as measured by the Davis *Empathy Scale*, including their components, i.e. empathic concern, personal distress, and ability to take another person's perspective. However, no differences were noted on the *Fantasy* subscale [23].

### Empathy and age

Studies assessing changes in empathy with age point to changes in the ability to empathise and take another person's perspective from childhood through adolescence to early adulthood [4]. Hawk et al. [24] showed that older adolescents (mean age 18 years) scored significantly higher on the *Perspective Taking* scale than younger respondents (mean age 13 years). However, in the study cited above, no statistically significant difference was observed between the groups in terms of the *Empathic Concern* scale value [24]. Kim et al. [25] compared empathy intensity in adolescents aged 13-15 years and young adults (19-29 years) and functional magnetic resonance imaging (fMRI) brain activity during tasks which measured affective and cognitive empathy intensity. The study found that both dimensions of empathy were significantly lower in adolescents compared to the adult group. In addition, in younger subjects, fMRI showed significantly higher activity in the right transverse temporal gyrus (BA 41), the right insula (BA 13), the right superior parietal lobule (BA 7), the right precentral gyrus (BA 4) and the right thalamus compared to older participants. Furthermore, in the adolescent group, the *Fantasy* scale score, which describes cognitive empathy, showed a significantly negative correlation with activity in the right superior parietal lobule. The authors of the study conclude that when compared to adults, adolescents display compensatory hyperactivity of brain areas associated with empathy, which in turn correlates with lower cognitive empathy [25]. On the other hand, in studies assessing changes in empathy levels with age in adolescents undergoing psychiatric treatment with a diagnosis of conduct disorder, no statistically significant correlation was observed between the age of the subjects and empathy intensity [26].

The presented study showed no significant difference in the intensity of empathy in adolescents of either of the sexes depending on the diagnosis. However, a significant interaction between age and gender was observed, which describes a different pattern of change in empathy intensity between early and middle adolescence. Older boys (17-20 years) were found to have significantly higher scores on Davis' *Empathy Scale* than younger boys (13-17 years) as predicted. In girls, the opposite effect was observed: older girls (17-20 years) showed lower emotional and cognitive empathy intensity compared to younger girls (the results obtained were not statistically significant). In the cited study by Mestre et al. [21], a significant interaction was observed for age and gender of the subjects. It was observed that for both girls and boys the intensity of empathy increased with age for both empathy components, with the effect size for the increase in affective empathy being higher than the effect size for cognitive empathy [21]. On the other hand, research by Van der Graaff et al. [7] which measured changes in the development of empathic concern in adolescents of both sexes aged 13-18 showed that the intensity of empathic concern in girls was stable over the years; in boys it decreased between early and middle adolescence.

When comparing the results of the presented study with those by Mestre et al. [21], what is puzzling is that in older girls no significant differences were observed in empathy-measuring scales compared to younger girls, while in boys these changes are consistent with developmental patterns. There are several possible explanations for the differences obtained. Firstly, differences in the selection of the study group may be of importance. The studies are conducted on a group of adolescents receiving psychiatric treatment, mainly with conduct and emotional disorders and depressive-anxiety disorders, whereas the reports by Mestre et al. [21] come from a population of psychiatrically untreated patients [26]. Secondly, the previously cited study by Van der Graaff et al. [7] indicates that the level of empathic concern in girls does not change significantly during adolescence. Thirdly, the severity of depressive symptoms and their progress in the course of development change differently in boys and girls. Research shows that up to the age of 13, the frequency and intensity of depressive symptoms is comparable between the representatives of both genders [27]. In the later phase of adolescence, these differences increase, and additionally girls exhibit greater reactivity to negative experiences and higher nervous system reactivity to stressful stimuli in the middle and late phase of adolescence [28]. Rubin et al. [29] emphasise the cultural influences which predispose girls to being more sensitive and responsive to other people's feelings and the greater importance of closeness in girls' peer relationships. In the light of research by Colarossi and Eccles [30], girls receive less support and empathy from their fathers than boys do, which increases the severity of depressive symptoms.

In a study by Klimecki et al. [31], it was shown that higher levels of empathic concern may act as a protective factor against the development of mood disorders. In the present study, older girls have lower scores on the *Empathic Concern* scale than younger girls and lower scores than older boys. In a study by Tully et al. [32], it was observed that both very low and very high levels of cognitive empathy were associated with higher levels of depression symptoms in adolescents (mean age 19 years) regardless of the level of emotional regulation. In contrast, in a study by Calandri et al. [12],

it was observed that in early adolescence, higher scores on the cognitive empathy scale are significantly correlated with greater severity of internalising disorder symptoms (depressive symptoms) when low emotional support from fathers is a factor. Another study among boys and girls in early adolescence found that high empathy intensity and low emotional self-efficacy were associated with increased feelings of loneliness and depressive symptoms [13]. In conclusion, it can be hypothesised that older girls under psychiatric treatment in particular are more likely to develop internalising disorders compared to boys, which, according to some studies, corresponds to being less able to take the perspective of others or to share emotional states.

### Empathy and type of disorder

The study found no differences in empathy intensity between adolescents with conduct disorder symptoms and depressive-anxiety symptoms. A study by Gambin et al. [33] evaluated the correlation between affective empathy and conduct disorders in a population of 505 adolescents. It showed that affective empathy had positive correlations of statistical significance with internalising disorders; no such connection was observed for externalising disorders. Furthermore, a strong positive correlation was observed between both types of empathy and anxiety disorders [33]. Conduct disorders belong to externalising disorders, whereas anxiety-depressive disorders belong to internalising disorders. In the present study, no significant differences were found in empathy levels between adolescents with conduct and emotional disorders and adolescents with depressive-anxiety disorders. However, a significant interaction was noted for the factor of age and type of disorder, indicating a different pattern in empathy intensity in the group of adolescents with conduct and emotional disorders and anxiety-depressive disorders depending on age. In adolescents with conduct disorders in middle adolescence, empathy intensity was significantly lower than in the younger group.

### Study limitations

The present study is a pilot for further in-depth research. In a subsequent study, it would be worthwhile to include empathy measurements in a group of adolescents with normal development, perform an intra-group analysis in a prospective study, and consider past treatment history, which may modify symptom severity and the ability to take the perspective of others.

### Conclusions

As expected, a difference in the level of empathy between the genders was observed. The expected increase in empathy with age was demonstrated in the boys' group only. No statistically significant changes in empathy with age were observed in the girls' group, which may be due to the frequent occurrence of internalisation disorders in girls admitted to the Day Care Unit, which, according to some studies, correlates with

weaker skills in taking others' perspectives. However, a significant interaction was observed for the factor of type of disorder and age, which may suggest age-dependent distinctive changes in the development of empathy among adolescents with behavioural and emotional disorders and anxiety-depressive disorders. The results obtained suggest that the development of empathy in adolescents treated psychiatrically with conduct and emotional disorders and depressive-anxiety disorders may be different than in adolescents with normal development, as well as indicate a need to assess and a need to influence the empathic skills among this group.

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