Psychiatr. Pol. 2022; 56(3): 535–549
PL ISSN 0033-2674 (PRINT), ISSN 2391-5854 (ONLINE)
www.psychiatriapolska.pl
DOI: https://doi.org/10.12740/PP/OnlineFirst/130366

Attachment in adolescents with attention deficit hyperactivity disorder and oppositional defiant disorder

Anna Kaźmierczak-Mytkowska, Agnieszka Butwicka, Kamil Dante Lucci, Tomasz Wolańczyk, Anita Bryńska

Department of Child Psychiatry, Medical University of Warsaw

Summary

Objectives. To assess attachment styles among adolescents (13–16 years) with ADHD or ADHD and oppositional defiant disorders (ODD).

Material and methods. The Parents and Peers Attachment (IPPA) and the Parent Bonding Questionnaire (PBI) were used in three groups of teenagers raised in biological families: (1) ADHD/ODD group ($n = 40$), (2) ADHD group ($n = 40$) and (3) K (control) group of teenagers ($n = 40$) who have not benefited from psychological or psychiatric care in the past or at present.

Results. Parental attachment styles in the area of "Trust", "Communication" and "Alienation" (IPPA), and "Care" and "Control" (PBI) in the ADHD/ODD group differ significantly compared to the control group. Teens from the ADHD/ODD group report to have experienced significantly less "Trust" and "Communication" (IPPA), and "Care" (PBI) in relationships with parents and more "Alienation" (IPPA) and "Control" (PBI) than adolescents in the ADHD group. Attachment patterns with peers in both clinical and control groups differ significantly. The ADHD/ODD group is dominated by the anxious-avoidant style of attachment to the mother and father, in the ADHD group, a secure style in relation to the mother and anxious-avoidant in relation to the father. In relations with peers in the ADHD/ODD group and the ADHD group, the anxious-avoidant style dominates.

Conclusions. The attachment style is significantly different in adolescents diagnosed with ADHD and ODD than in adolescents with only ADHD. In the ADHD/ODD group and the ADHD group, unlike in the group of adolescents without a psychiatric diagnosis, insecure attachment styles for parents and peers dominate (mainly anxious-avoidant style).

Key words: ADHD, oppositional defiant disorders, attachment

Introduction

Attention deficit hyperactivity disorder (ADHD) and oppositional defiant disorder [1] belong to the group of externalizing disorders, the symptoms of which are the expression of difficulties in controlling one's behavior. The coexistence of ADHD and

conduct disorders significantly worsens the child's functioning within the family, in the family, social and educational context, which is associated with a greater risk of further serious complications [2, 3]. Bowlby's theory of attachment is a psychological model that facilitates the understanding of the child's development but also psychopathological symptoms and the mechanism of developing complications [4]. This model complements the description of biological susceptibility (genetic, structural, temperamental), expressed in the case of a child with ADHD, to a certain behavior resulting from weaker impulse control. Abnormal patterns of experiencing intimacy and related ways of regulating emotions are an element of an insecure relationship. Those, in combination with cognitive, emotional and social deficits characteristic of ADHD constitute a risk factor for the development of conduct disorders [5].

This view was formulated, among others, based on studies of Çuhadaroğlu-Çetin et al. [6] who did not find differences in attachment styles among adolescents with ADHD compared to the group without psychiatric disorder, in contrast to the group of adolescent with ADHD with other coexisting mental disorders who more often presented the so-called anxious–preoccupied style. Moreover, the observations point to a more frequent occurrence of insecure attachment patterns in children with ADHD in whom the symptoms of excessive impulsivity and hyperactivity predominate, in comparison with those with mainly deficits in attention [7]. In addition, researchers note that in order to form a proper attachment style, parenting has to fit child's temperament and functioning. Parental styles promoting excessive autonomy in the case of children with ADHD characterized by high levels of emotionality, promote the formation of an anxious attachment style; while limiting autonomy facilitates the development of an avoidant style [7, 8]. Moreover, a greater severity of ADHD symptoms in adolescents is associated with the presence of a disorganized attachment style – this influence is independent of the deficits of executive functions and problems in the area of behavior [5, 8, 9]. Attachment is also influenced by the quality of communication between an adult and child with ADHD [10].

On the other hand, there is no consensus on the extent of the influence of attachment developed in relationships, on the severity of ADHD symptoms. Some researchers emphasize the importance of attachment patterns and related internalized patterns of functioning for the development of coexisting disorders, including conduct disorders. Certainly, children with ADHD more often experience parental practices such as inconsistent discipline, poor supervision, less tenderness in relationships that contribute to insecure attachment as well as promote the development of complications in the form of other externalizing disorders [11]. This determines the development of a vicious circle – on the one hand, ADHD symptoms affect parents' attitudes and behavior (e.g., the use of excessively authoritarian methods of education), and on the other, maladjusted practices affect the expression of ADHD symptoms and development of complications [12, 13].

The occurrence and greater severity of externalizing symptoms in adolescents is associated with the presence of avoidant or disorganized attachment [14]. A meta-analysis conducted by Faraone et al. [15] proves that the consequences of this type of attachment are moderated by the cumulative risk of family and environmental

context, gender (male) and age, which means the growth of behavioral problems over time. In turn, Iniewicz et al. [16] associate the development of conduct disorders with specific attachment style dimensions, mainly with increased maternal control, which is promoted by a higher level of aggression and inattention, and increased control in the relationship with the father, which involves a higher level of problems in social relationships. Studies conducted among Polish girls with conduct disorders showed the impact of attachment on the occurrence of self-destructive behaviorrs [17].

The above observations justify the continuation of research on the assessment of attachment among children and adolescents with ADHD with co-occurring oppositional defiant disorders.

Aim

Assessment of attachment patterns in a group of adolescents diagnosed with ADHD, ADHD and ODD, and a control group without any psychiatric diagnosis.

Material

The study involved patients diagnosed with attention deficit hyperactivity disorder (ADHD) according to DSM-IV-TR [18], with or without co-occurring oppositional defiant disorder (ODD), according to DSM-IV-TR [18], hospitalized in a psychiatric ward for children and adolescents or remaining in outpatient psychiatric care. Two experimental groups were created: (1) ADHD/ODD group – individuals with a dual diagnosis of ADHD and ODD (n = 33 boys, 82.5% and n = 7 girls, 17.5%; mean age 14.9 ± 1.2 years), and (2) ADHD group – individuals with an ADHD diagnosis without oppositional defiant disorders (n = 34 boys, 85.0% and n = 6 girls, 15.0%; mean age 13.9 ± 1.1 years). The inclusion criterion for both groups, in addition to giving consent to participate in the study by the patient and his/her parents, was being raised in a biological family. The exclusion criterion were as follows: being raised in an adoptive or foster family, the presence of other psychiatric diagnoses (including: pervasive developmental disorders, psychotic disorders, bipolar disorder, intellectual disability, serious conduct disorders) or previous participation in family therapy. The control group (Control) consisted of middle school (Warsaw and sub-Warsaw) students. Selection was based on age and gender (n = 33 boys, 82.5% and n = 7 girls, 17.5%; mean age 14.5 ± 1.3 years). The inclusion criterion in the control group, in addition to consenting to participate in the study, was being raised in a biological family and no history of benefiting from psychological, psychiatric or psychotherapeutic care. The exclusion criterion was being raised in an adoptive or foster family. A group of patients' parents who refused to participate in the study did not exceed 20% of the invitees. Most of them were irregularly receiving health care.

Method

Participants were assessed using the following research tools:

– *The Inventory of Parent and Peer Attachment* (IPPA) [19]. It assesses the cognitive and emotional aspects of adolescent attachment with parents and peers based on a model of internal operational models. It consists of three scales of 25 statements each, relating respectively to the relationship with the mother, relationship with the father and relationships with peers. The examined person (teenager) determines the frequency of other people's behavior on a 5-point Likert scale: "almost never or never true", "not very often true", "sometimes true", "often", "almost always or always true". The questionnaire allows a description of attachment in three dimensions: (1) "Trust" – perceived trust in the mother, father and peers, as well as a sense of being understood by them; (2) "Communication" – the ability to communicate important content, needs and emotions to important people; (3) "Alienation" – the level of isolation and perceived lack of understanding in relationships with relatives and related emotions. The Polish version of the questionnaire is characterized by a satisfactory reliability as well as construct and criterion validity [20]. The results obtained in the inventory are transposed on a sten scale; results in range 1–4 are considered low, 5–6 – medium and 7–10 – high.

– *Parental Bonding Instrument* (PBI) [21]. It is a retrospective tool designed to examine certain aspects of relationships perceived by a teenager in the dimensions: (1) "Care" – behavior of parents towards a child in terms of emotional involvement, from warmth and closeness to coldness, withdrawal and rejection (high results suggest emotional closeness, low – rejection and indifference from the carer); (2) "Control" – the behavior of parents in the range from encouraging autonomy to strict control and intrusiveness (high results indicate excessive interfering, promoting psychological dependence, low results – the caregiver's striving for independence and autonomy of a teenager). The questionnaire consists of 50 statements (25 referring to the perception of the attitudes and behaviors of the mother or father; 12 items refer to the experienced care and 13 items refer to controls). The examined person (teenager) assesses whether the statements are true on a 4-point Likert scale: "very like", "moderately like", "moderately unlike", "very unlike". The obtained results are described in 4 dimensions: "mother-care", "mother-control", "father-care", "father-control", based on which the parent-teenager relationship is evaluated in four possible categories: "Optimal Parenting", "Affectionate Constraint", "Affectionless Control", "Neglectful Parenting". The optimal bond for a teenager's development includes high level of emotional care and low psychological control [16]. The Polish adaption of the inventory has not been completed by a publication, however the Polish version is characterized by satisfactory reliability [22].

Statistical analyses

Nominal variables are presented as percentages, while means and standard deviations were used to describe continuous variables. The normality of the distribution was verified by the Shapiro-Wilk test with the $p < 0.05$ level indicating a significant deviation from normality. Variables with a non-normal distribution were logarithmically transformed. Assumption of uniform variance was checked by Levene's test. In Model 1, the analysis of variance (ANOVA) with the post-hoc test by Tukey was used to compare continuous variables. In the case of interfering variables, regression analysis with qualitative independent variables, covariance analysis or a model of different slopes (model 2) was used. The assumption about the parallelism of the regression lines was verified using the F-test. In case of significant violations of the assumptions, the type of slope direction and steepness was used in further analysis. The mean and 95% confidence interval (95% CI) were used to describe the adjusted variables. The analysis was carried out using the STATISTICA 10.0 PL software (License number AGA201C942911AR-T).

The test procedure was accepted by the Bioethics Committee of the Medical University of Warsaw (KB/256/2012).

Results

IPPA questionnaire: assessment of attachment to the mother

In the "Trust" dimension, the ADHD/ODD group obtained significantly lower scores compared to the control group ($p < 0.001$) and the ADHD group ($p < 0.001$). In the "Communication" variable, the subjects from the ADHD/ODD group achieved significantly lower scores both in relation to the control group ($p < 0.05$) and ADHD group ($p < 0.001$). In the dimension of "Alienation", the ADHD/ODD group participants obtained significantly higher scores compared to the control group ($p < 0.001$) and ADHD group ($p < 0.001$). No significant differences were found between the ADHD group and the control group in the above-mentioned dimensions. Numerical data are presented in Table 1.

Table 1. **Evaluation of attachment to the mother: IPPA dimensions of "Trust", "Communication" and "Alienation"**

	ADHD/ODD	ADHD	Control	ADHD/ODD vs. ADHD	ADHD/ODD vs. Control	ADHD vs. Control
IPPA	Corrected mean (95% CI)	Corrected mean (95% CI)*	Corrected mean (95% CI)*	p	p	p
Trust	31.6 (29.1–34.1)	41.6 (39.1–44.1)	45.4 (42.8–47.9)	0.00	0.00	0.09

table continued on the next page

Communication	26.1 (23.8–28.3)	33.4 (31.2–35.6)	35.3 (33.1–37.5)	0.00	0.00	0.44
Alienation	18.3 (16.9–19.7)	12.3 (10.9–13.6)	11.3 (9.9–12.7)	0.00	0.00	0.58

The obtained results were assigned the appropriate type of attachment style according to Ainsworth [23], and Armsden and Greenberg [19]. 5 people (12.5%) from the ADHD/ODD group, 19 people (47.5%) from the ADHD group and 35 people (87.5%) from the control group assessed their relationship with the mother in terms of secure attachment. 7 people (17.5%) from the ADHD/ODD group, 14 subjects (35.0%) from the ADHD group and 3 people (7.5%) from the control group described their relationship with the mother in terms of the anxious-ambivalent style. In addition, 28 people (70.0%) from the ADHD/ODD group, 7 subjects (17.5%) from the ADHD group and 2 people (5.0%) from the control group described their relationship with the mother in terms of the anxious-avoidant style (see Table 2).

Table 2. **Assessment of attachment to the mother: attachment styles based on IPPA results**

IPPA	ADHD/ODD n (%)	ADHD n (%)	Control n (%)
Secure attachment (SC)	5 (12.5%)	19 (47.5%)	35 (87.5%)
Anxious-ambivalent attachment (AB)	7 (17.5%)	14 (35.0%)	3 (7.5%)
Anxious-avoidant attachment (AV)	28 (70.0%)	7 (17.5%)	2 (5.0%)

IPPA questionnaire: assessment of attachment to the father

In the "Trust" dimension, the ADHD/ODD group obtained significantly lower scores compared to the control group ($p < 0.001$) and the ADHD group ($p < 0.001$), the ADHD group participants obtained significantly lower results than the control group ($p < 0.001$). In the dimension of "Communication", the subjects from the ADHD/ODD group obtained significantly lower results in comparison to the control group ($p < 0.001$) and ADHD group ($p < 0.05$), no significant differences between ADHD and control groups were found. In the "Alienation" dimension, the ADHD/ODD group subjects obtained significantly higher scores compared to the control group ($p < 0.001$) and the ADHD group ($p < 0.05$), no significant differences were found between the ADHD group and the control group. Numerical data are presented in Table 3.

Table 3. **Assessment of attachment to the father: dimensions of "Trust", "Communication" and "Alienation" in the IPPA**

	ADHD/ODD	ADHD	Control	ADHD/ODD vs. ADHD	ADHD/ODD vs. Control	ADHD vs. Control
IPPA	Corrected mean (95% CI)	Corrected mean (95% CI)*	Corrected mean (95% CI)*	p	p	p

table continued on the next page

Trust	26.8 (24.3–29.3)	35.9 (33.7–38.3)	44.2 (41.7–46.6)	0.00	0.00	0.00
Communication	22.7 (20.5–25.0)	28.5 (26.2–30.7)	31.7 (29.5–33.9)	0.00	0.00	0.11
Alienation	19.7 (17.6–21.8)	15.4 (13.3–17.5)	13.1 (11.0–15.2)	0.01	0.00	0.28

The obtained results were assigned the appropriate type of attachment style according to Ainsworth [23] and Armsden and Greenberg [19]. 3 people (7.5%) from the ADHD/ODD group, 10 people (25.0%) from the ADHD group and 22 people (55.0%) from the control group assessed their relationship with the father in terms of secure attachment. 3 people (7.5%) from the ADHD/ODD group, 11 subjects (27.5%) from the ADHD group and 12 people (30.0%) from the control group described their relationship with the father in terms of the anxious-ambivalent style. In addition, 34 people (85.0%) from the ADHD/ODD group, 19 subjects (47.5%) from the ADHD group and 6 people (15.0%) from the control group described their relationship with the father in terms of the anxious-avoidant style (see Table 4).

Table 4. **Assessment of attachment to the father: attachment styles based on IPPA results**

IPPA	ADHD/ODD n (%)	ADHD n (%)	Control n (%)
Secure attachment (SC)	3 (7.5%)	10 (25.0%)	22 (55.0%)
Anxious-ambivalent attachment (AB)	3 (17.5%)	11 (27.5%)	12 (30.0%)
Anxious-avoidant attachment (AV)	34 (85.0%)	19 (47.5%)	6 (15.0%)

IPPA questionnaire: assessment of attachment to peers

In the "Trust" dimension, the ADHD/ODD group as well as the ADHD group obtained significantly lower scores compared to the control group ($p < 0.001$). In the "Communication" variable, both the ADHD/ODD group and the ADHD group obtained significantly lower results in comparison to the control group ($p < 0.05$). In the "Alienation" dimension, both the ADHD/ODD group and the ADHD group obtained significantly higher scores compared to the control group ($p < 0.001$ and $p < 0.05$). There were no significant differences between the ADHD/ODD group and the ADHD group results in the above-mentioned dimensions. Numerical data are represented in Table 5.

Table 5. **Assessment of peer attachment: dimensions of "Trust", "Communication" and "Alienation" in the IPPA**

	ADHD/ODD	ADHD	Control	ADHD/ ODD vs. ADHD	ADHD/ODD vs. Control	ADHD vs. Control
IPPA	Corrected mean (95% CI)	Corrected mean (95% CI)*	Corrected mean (95% CI)*	p	p	p

table continued on the next page

Trust	33.6 (31.2–36.1)	34.0 (31.6–36.4)	42.1 (39.7–44.6)	0.97	0.00	0.00
Communication	23.5 (21.5–25.4)	22.5 (20.5–24.5)	27.5 (25.5–29.5)	0.78	0.01	0.00
Alienation	19.6 (18.1–21.1)	17.9 (16.4–19.3)	15.3 (13.8–16.8)	0.22	0.00	0.04

The obtained results were assigned the appropriate type of attachment style according to Ainsworth [23] and Armsden and Greenberg [19]. 3 people (7.5%) from the ADHD/ODD group, 4 people (10.0%) from the ADHD group and 16 people (40.0%) from the control group rated their relationship with their peers in the categories of secure attachment. 4 people (10.0%) from the ADHD/ODD group, 7 subjects (17.5%) from the ADHD group and 14 people (35.0%) from the control group described their relationship with their peers in terms of the anxious-ambivalent style. In addition, 33 people (82.5%) from the ADHD/ODD group, 29 subjects (72.5%) from the ADHD group and 10 people (25.0%) from the control group described their relationship with their peers in terms of the anxious-avoidant style (see Table 6).

Table 6. **Assessment of attachment to peers: attachment styles based on IPPA results**

IPPA	ADHD/ODD n (%)	ADHD n (%)	Control n (%)
Secure attachment (SC)	3 (7.5%)	4 (10.0%)	16 (40.0%)
Anxious-ambivalent attachment (AB)	4 (10.0%)	7 (17.5%)	14 (35.0%)
Anxious-avoidant attachment (AV)	33 (82.5%)	29 (72.5%)	10 (25.0%)

PBI questionnaire: assessment of attachment and relationship with the mother

In the ADHD/ODD group, significantly lower scores in the "Care" dimension were obtained compared to the ADHD group and the control group ($p < 0.001$); there were no statistically significant differences between the ADHD group and the control group. In addition, significantly higher results were obtained in the "Control" dimension in the ADHD/ODD group compared to the ADHD group and the control group ($p < 0.001$); participants with ADHD obtained slightly higher results in comparison to the control group but these differences did not reach the level of statistical significance. Numerical data are represented in Table 7.

Table 7. **Assessment of attachment to the mother: "Care" and "Control" dimensions of the PBI**

	ADHD/ODD	ADHD	Control	ADHD/ODD vs. ADHD	ADHD/ODD vs. Control	ADHD vs. Control
PBI	Corrected mean (95% CI)	Corrected mean (95% CI)*	Corrected mean (95% CI)*	p	p	p

table continued on the next page

Care/ Mother	19.0 (16.7–21.3)	29.2 (26.9–31.4)	30.5 (28.2–32.7)	0.00	0.00	0.07
Control/ Mother	22.3 (20.6–24.1)	15.0 (13.2–16.7)	12.1 (10.4–13.9)	0.00	0.00	0.06

The obtained results indicate that 12 people (30.0%) from the ADHD/ODD group, 28 people (70.0%) from the ADHD group and 36 people (90.0%) from the control group assess their relationship with the mother in terms of "Optimal Parenting". Only 8 people (20.0%) from the ADHD/ODD group describe their relationship with the mother as "Affectionate Constraint"; in the ADHD group this type of relation concerns 11 subjects (27.5%), while in the control group – 2 people (5.0%). In turn, 17 people (42.5%) from the ADHD/ODD group assess their relationship with the mother in terms of "Affectionless Control". Such description applies to 1 subject (2.5%) in the ADHD group and none in the control group. In addition, 3 people (7.5%) from the ADHD/ODD group, 1 person (2.5%) from the ADHD group and none from the control group describe their relationship with the mother in terms of "Neglectful Parenting" (see Table 8).

Table 8. **Assessment of attachment to the mother: "Optimal Parenting", "Affectionate Constraint", "Affectionless Control" and "Neglectful Parenting" in the PBI**

PBI		ADHD/ODD n (%)	ADHD n (%)	Control n (%)	ADHD/ODD vs. ADHD p	ADHD/ODD vs. Control p	ADHD vs. Control p
Optimal Parenting	Yes	12 (30.0)	28 (70.0)	36 (90.0)	0.00	0.00	0.00
	No	28 (70.0)	12 (30.0)	4 (10.0)			
Affectionate Constraint	Yes	8 (20.0)	11 (27.5)	2 (5.0)	0.02	0.01	0.05
	No	32 (80.0)	29 (72.5)	38 (95.0)			
Affectionless Control	Yes	17 (42.5)	1 (2.5)	0 (0.0)	0.00	0.00	0.00
	No	23 (57.7)	39 (97.5)	40 (100.0)			
Neglectful Parenting	Yes	3 (7.5)	0 (0.0)	2 (5.0)	0.11	0.25	0.23
	No	37 (92.5)	40 (100.0)	38 (95.0)			

PBI questionnaire: assessment of attachment and relationship with the father

In the ADHD/ODD group, significantly lower scores were observed in the "Care" dimension compared to the ADHD group and the control group ($p < 0.001$); the ADHD group obtained significantly lower scores compared to the control group ($p = 0.01$). In addition, significantly higher results were obtained in the "Control" dimension in the ADHD/ODD group compared to the ADHD group and the control group ($p < 0.001$); ADHD subjects obtained significantly higher scores in comparison to the control group ($p = 0.01$). Numerical data are represented in Table 9.

Table 9. **Assessment of attachment to the father: "Care" and "Control" dimensions of the PBI**

	ADHD/ODD	ADHD	Control	ADHD/ODD vs. ADHD	ADHD/ODD vs. Control	ADHD vs. Control
PBI	Corrected mean (95% CI)	Corrected mean (95% CI)*	Corrected mean (95% CI)*	p	p	p
Care/ Father	16.3 (13.8–18.7)	22.0 (19.5–24.5)	27.1 (24.7–29.5)	0.00	0.00	0.01
Control/ Father	21.4 (19.3–23.4)	13.9 (11.9– 16.0)	9.9 (7.9–11.9)	0.00	0.00	0.01

The obtained results indicate that 9 people (22.5%) from the ADHD/ODD group, 22 people (55.0%) from the ADHD group and 36 people (90.0%) from the control group assess their relationship with the father in terms of "Optimal Parenting". Only 6 people (15.0%) from the ADHD/ODD group describe their relationship with their father in terms of "Affectionate Constraint"; in the ADHD group, this type of relation applies to 5 subjects (12.5%), and in the control group – 1 persons (2.5%). In turn, 20 people (50.0%) from the ADHD/ODD group assess their relationship with their father in terms of "Affectionless Control"; such description applies to 5 subjects (12.0%) in the ADHD group and 2 persons (5.0%) in the control group. In addition, 5 people (12.5%) from the ADHD/ODD group, 8 people (20.0%) from the ADHD group and 1 person (2.5%) from the control group describe their relationship with the father in terms of "Neglectful Parenting" (see Table 10).

Table 10. **Assessment of attachment to the father: "Optimal Parenting", "Affectionate Constraint", "Affectionless Control" and" Neglectful Parenting" in the PBI**

PBI		ADHD/ODD n (%)	ADHD n (%)	Control n (%)	ADHD/ODD vs. ADHD P	ADHD/ODD vs. Control p	ADHD vs. Control p
Optimal Parenting	Yes	9 (22.5)	22 (55.0)	36 (90.0)	0.00	0.00	0.00
	No	31 (77.5)	18 (45.0)	4 (10.0)			
Affectionate Constraint	Yes	6 (15.0)	5 (12.5)	1 (2.5)	0.32	0.14	0.09
	No	34 (85.0)	35 (87.5)	39 (97.5)			
Affectionless Control	Yes	20 (50.0)	5 (12.5)	2 (5.0)	0.00	0.00	0.00
	No	20 (50.0)	35 (87.5)	38 (95.0)			
Neglectful Parenting	Yes	5 (12.5)	8 (20.0)	1 (2.5)	0.26	0.08	0.05
	No	35 (87.5)	32 (80.0)	39 (97.5)			

Discussion

The obtained results indicate the existence of differences in significant dimensions of attachment in the group of adolescents diagnosed with ADHD/ODD, only ADHD and adolescents with no mental health diagnosis. Attachment to parents in the area of "Trust", "Communication" and "Alienation" as well as "Care" and "Control" in the ADHD/ODD group differs significantly in relation to the control group. Moreover, adolescents with ADHD and ODD claim that they experience less "Trust", "Communication" and "Care" in relationships with their parents, and more "Alienation" and "Control" than adolescents with ADHD. Attachment to peers in both clinical and control groups is significantly different, but no differences were found between ADHD/ODD and ADHD groups. The ADHD/ODD group is dominated by anxious-avoidant attachment to the mother and father, while the ADHD group – by secure attachment to the mother and anxious-avoidant attachment to the father. The anxiety-avoidant style dominates in relations with peers in the ADHD/ODD group and the ADHD group.

The above results are to a large extent consistent with those obtained in attachment studies in groups of patients with externalizing disorders [24]. The available studies prove a less frequent occurrence of secure attachment in groups of children and adolescents with ADHD, while insecure attachment is described as a factor negatively affecting the behavioral, social and emotional adaptation of individuals with ADHD [9, 25]. Attachment styles that do not give a sense of security, through a negative impact on the process of emotional regulation and mentalization, become a risk factor for the development of psychopathological symptoms, including conduct disorders in patients with ADHD [26, 27]. About 80% of children with an oppositional defiant disorder diagnosis show an insecure attachment [17]. Similar results are presented in groups of patients with ADHD and conduct disorders, or adolescents with conduct disorders abusing substances [28]. However, it should be assumed that the attachment pattern is only one of the variables that determine the risk of complications, as well as other such as parenting styles or family functioning, which in many cases means the accumulation of negative factors [29, 30]. High level of control and low quality of care from both parents generate more aggressive behaviors [31], which was confirmed in the present study but only in relation to those adolescents who developed the symptoms of oppositional defiant disorder. The same applies to the care of the father, no less important for optimal functioning – a high level of control correlates with the severity of conflicts, low adaptation, increased anger and more oppositional behaviors [17], which combined with low level of care increases the risk of externalizing disorders.

The results obtained for the ADHD group confirm the observations indicating that the image of attachment to the father and mother is different, and the care, which usually is more guaranteed by the mother from the beginning, has a greater impact on the behavior [32]. Adolescents with ADHD more openly share emotions with their mothers than with their fathers and rely more on their support and have a similar need for closeness as people with secure attachment [33]. In the present study, the results obtained for the ADHD group differ significantly in relation to the control group only in part of the described dimensions and indicate a correct image of attachment to the

mother. Moreover, an interesting result is a smaller number of significant differences in the attachment between the ADHD/ODD group and the control group than between the ADHD group and the control group. Observations regarding the comparison of the ADHD group vs. the control group may suggest that the symptoms of ADHD alone do not significantly affect the attachment style and/or the current quality of care. Similarly, Garbarino and Thomson [34] reported a significantly higher incidence of secure attachment to the mother in adolescent patients with ADHD without coexisting conduct disorders.

In the present study, there were significant differences in the style of attachment to peers between clinical groups and the control group, which indicates a different functioning in such relationships. The obtained results are consistent with the observations available in literature, indicating the importance of lower social competences and lack of popularity in the peer group, being a consequence of insecure attachment [35]. These are factors that increase the probability of developing externalizing disorders. The image of attachment in the adolescent-peer relationship is shaped by other factors than in relationships with parents. Attachment to peers can be seen as a source of support in the period of developmental challenges and a source of security during conflicts with parents.

On the other hand, significant differences were not found in the style of attachment to peers between the ADHD/ODD group and the ADHD group. This may result from the specificity of symptoms of ADHD and their negative impact on peer relations. In the case of people with ADHD, the disruption of executive functions is the source of a large number of conflicts, also in the peer environment [3]. Lee and Hinshaw [36], in a study involving 140 adolescents with ADHD, indicate a significant relationship between symptoms of hyperactivity, impulsivity and inattention, and low status in the peer group. The greater the severity of ADHD symptoms, the greater the difficulty in relationships with peers. The relational system and symptomatology of ADHD in adolescents are intrinsically related – on the one hand, the symptoms increase the probability of unattractive attachment, and on the other – anxious-avoidant attachment causes difficulties in regulating emotions, especially anxiety and anger associated with perceived rejection. Lee and Hinshaw [36] also emphasize the important role of attention deficit symptoms in forming relationships with peers as the symptoms negatively affect the status of adolescents in the group.

Limitations

The possibility of inference from the obtained results is associated with certain restrictions. The first of these is the lack of accurate clinical analysis of the ADHD/ODD group and the ADHD group in terms of the severity of the presented symptoms (despite the analysis was not the goal of this study). Evaluation of the correlation of this variable with the examined variable would be a valuable complement to the research protocol. Similarly, the assessment of the occurrence of ADHD symptoms and their severity in parents of the examined adolescents would allow a more in-depth analysis of the described problem. Another limitation is the small size of the studied groups,

mainly due to restrictive research criteria, the subject of the study and related large number of refusals. Moreover, only patients who were hospitalized were recruited to clinical groups, which could potentially be associated with a higher severity of symptoms of the disorder and this could have influenced the final results.

Conclusions

In the present study, it can be concluded that the attachment style significantly differentiates adolescents with ADHD and conduct disorders from the group with ADHD only. Moreover, insecure (mainly anxiety-avoidant) patterns of attachment to parents and peers are dominant among adolescents with ADHD and conduct disorders as well as adolescents with ADHD, unlike the group without a psychiatric diagnosis.

References

1. *Kryteria diagnostyczne z DSM-5*. Wroclaw: Edna Urban & Partner; 2015.
2. Lin YJ, Lo KW, Yang LK, Gau SSF. *Validation of DSM-5 age-of-onset criterion of attention deficit/hyperactivity disorder (ADHD) in adults: Comparison of life quality, functional impairment, and family function*. Res. Dev. Disabil. 2015; 47: 48–60.
3. Sobanski E. *Psychiatric comorbidity in adults with attention/hyperactivity disorder (ADHD)*. Eur. Arch. Psychiatry Clin. Neurosci. 2006; 256(Suppl 1): 26–31.
4. Namysłowska I. *Zaburzenia przywiązania*. Psychiatria po Dyplomie. Medicine Tribune Polska. 2014: 4; 13–18.
5. Scholtens S, Rydell AM, Bohlin G, Thorell LB. *ADHD Symptoms and attachment representations: Considering the role of conduct problems, cognitive deficits and narrative responses in non-attachment-related story stems*. J. Abnorm. Child Psychol. 2014; 42(6): 1033–1042.
6. Çuhadaroğlu-Çetin F, Akdemir D, Tüzün Z, Çak T, Şenses-Dinç G, Taşğın-Çöp E et al. *Identity status and attachment in adolescents with attention deficit hyperactivity disorder*. Turk. J. Pediatr. 2013; 55(2): 190–197.
7. Finzi-Dottan R, Manor I, Tyano S. *ADHD, temperament, and parental style as predictors of the child's attachment patterns*. Child Psychiatry Hum. Dev. 2006; 37(2): 103–114.
8. Green J, Stanley C, Peters S. *Disorganized attachment representation and atypical parenting in young school age children with externalizing disorder*. Attach. Hum. Dev. 2007; 9(3): 207–222.
9. Thorell LB, Rydell AM, Bohlin G. *Parent-child attachment and executive functioning in relations to ADHD symptoms in middle childhood*. Attach. Hum. Dev. 2012; 14(5): 517–532.
10. Yahy F, Sochos A. *Adult attachment and constructive communication in parents of children with Attention Deficit Hyperactivity Disorder (ADHD)*. Procedia Soc. Behav. Sci. 2013; 97: 167–173.
11. MacDonald K, Berlow R, Thomas ML. *Attachment, affective temperament, and personality disorders: A study of their relationships in psychiatric outpatients*. J. Affect. Disord. 2013; 151(3): 932–941.
12. Carlson E. *A prospective longitudinal study of attachment disorganization/disorientation*. Child Dev. 1998; 69(4): 1107–1128.

13. Cheung K, Theule J. *Parental psychopathology in families of children with ADHD: A meta-analysis*. J. Child Fam. Stud. 2016; 25(12): 3451–3461.
14. Crittenden PM. *Internal representational models of attachment relationships*. Infant Ment. Health J. 1990; 11(3): 259–277.
15. Faraone SV, Biederman J, Mick E. *The age-dependent decline of attention deficit hyperactivity disorder: A meta-analysis of follow-up studies*. Psychol. Med. 2006; 36(2): 159–165.
16. Iniewicz G, Dziekan K, Wiśniewska D, Czuszkiewicz A. *Wzory przywiązania i lęku wśród młodzieży u adolescentów z diagnozą zaburzeń zachowania i emocji*. Psychiatr. Pol. 2011; 45(5): 693–702.
17. Wajda Z. *Percepcja relacji między rodzicami oraz wzory przywiązania a nasilenie objawów psychopatologicznych u dziewcząt w późnej adolescencji*. Psychiatr. Pol. 2013; 47(5): 853–864.
18. *Kryteria diagnostyczne według DSM-IV-TR*. Wroclaw: Edna Urban & Partner; 2008.
19. Armsden GC, Greenberg MT. *The Inventory of Parent and Peer Attachment: Individual differences and their relationship to psychological well-being in adolescence*. J. Youth Adolesc. 1987; 16(5): 427–454.
20. Czarnowicz-Srebrnicka K. *Przywiązanie do rodziców oraz rówieśników w ocenie młodzieży szkolnej*. Warsaw: Medical University of Warsaw; 2014.
21. Parker G, Tupling H, Brown LB. *A Parental Bonding Instrument*. Br. J. Med. Psychol. 1979; 52(1): 1–10.
22. Popiel A, Pragłowska E. *Terapia poznawczo-behawioralna schizofrenii*. Krakow: Library of Polish Psychiatry; 2006. P. 31–43.
23. Ainsworth MDS. *Object relations, dependency, and attachment: A theoretical review of the infant-mother relations, dependency, and attachment: A theoretical review of the infant-mother relationship*. Child Dev. 1969; 40(4): 969–1025.
24. Laible D, Carlo G, Roesch S. *Pathways to self-esteem in late adolescence: The role of parent and peer attachment, empathy, and social behavior*. J. Adolesc. 2004; 27(6): 703–717.
25. Al-Yagon M, Forte D, Avrahami L. *Executive functions and attachment relationships in children with ADHD: Links to externalizing/internalizing problems, social skills, and negative mood regulation*. J. Atten. Disord2020; 24(13): 1876–1890. Epub 2017 Sep 17.
26. Forslund T, Brocki KC, Bohli G, Granqvist P, Eninger L. *The heterogeneity of attention-deficit/hyperactivity disorder symptoms and conduct problems: Cognitive inhibition, emotion, regulation, emotionality, and disorganized attachment*. Br. J. Dev. Psychol. 2016; 34(3): 371–387.
27. Sochos A, Yahya F. *Attachment style and relationship difficulties in parents of children with ADHD*. J. Child Fam. Stud. 2015; 24(12): 3711–3722.
28. Rönnlund M, Karlsson E. *The relation between dimensions of attachment and internalizing or externalizing problems during adolescence*. J. Genet. Psychol. 2006; 167(1): 47–63.
29. Fearon RP, Bakermans-Kranenburg MJ, Ijzendoorn van MH, Lapsley AM, Roisman I. *The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study*. Child Dev. 2010; 81(2): 435–456.
30. Fearon RP, Belsky J. *Infant-mother attachment and the growth of externalizing problems across the primary-school years*. J. Child Psychol. Psychiatry. 2011; 52(7): 782–791.
31. Gau SSF. *Parental and family factors for attention-deficit hyperactivity disorder in Taiwanese children*. Aust. N Z J. Psychiatry. 2007; 41(8): 688–696.
32. Sharma A. *Relationship between parental bonding and factors of aggression among adolescents*. Indian Journal of Health and Wellbeing. 2016; 7(1): 129–132.

33. Laursen B, Collins WA. *Parent-child communication during adolescence*. In: Vangelistsi AL, editor. *Handbook of family communication*. Mahwah, NJ: Lawrence Erlbaum Associates; 2004. P. 333–348.

34. Garbarino J, Thompson B. *Child attachment and family environment differences of adolescent children with ADHD and/or conduct disorder*. Paper presented at the annual meeting of the Southwest Educational Research Association, Dallas; 2000.

35. Sroufe LA, Duggal S, Weinfield N, Carlson E. *Relations, development, and psychopathology*. In: Sameroff AJ, Lewis M, Miller SM, editors. *Hand of developmental psychopathology*. 2nd ed. New York: Kluwer Academic/Plenum Publishers; 2000.

36. Lee SS, Hinshaw SP. *Predictors of adolescent functioning in girls with Attention Deficit Hyperactivity Disorder (ADHD): The role of childhood ADHD, conduct problems, and peer status*. J. Clin. Child Adolesc. Psychol. 2006; 35(3): 356–368.

Address: Anna Kaźmierczak-Mytkowska
Medical University of Warsaw
02-091 Warszawa, Żwirki i Wigury Street 61
e-mail: anna.kazmierczak-mytkowska@wum.edu.pl