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**BEHAVIORAL PROBLEMS AND MOTHER-CHILD INTERACTION IN CHILDREN WITH AUTISM SPECTRUM DISORDER**

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*Abstract*

The results of a study of behavioral features of children with autism spectrum disorder (ASD) in connection to the characteristics of psychological interaction of children and their mothers are presented. According to the concepts of a child development in the system of their relations with caregivers, behavioral features of children that also include behavioral disorders, are associated with relationship specifics between a child and their mother. The study participants represented 29 children with ASD (average age:  $52.9 \pm 8.7$  months) who were diagnosed by a psychiatrist when examining in the Stavropol Clinical Psychiatric Hospital №1. The study of interactions in children with ASD was performed by using the PCERA method, which included a video recording of a mother and her child. Behavioral features of children were investigated by using the CBCL/1½-5 questionnaire. The results showed that with a high level of positive involvement of a mother in the interaction, a lack of intrusiveness and criticism, children demonstrate less aggressive behavior and withdrawn, less difficulties in concentrating and opposition-provoking behavior. Children who in interaction with their mothers demonstrate a high level of positive involvement and cognitive activity, are less likely to exhibit behavioral disorders such as aggressive and defiant behavior, attention disorder, and a lower level of emotional reactivity. Children with ASD have more problems with attention, aggressive and defiant behavior, emotional reactivity, anxiety and withdrawn, if the dyad interaction has an increased level of anxiety, irritation, and reciprocity and joint attention are rare.

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**Keywords:** Autism, "CBCL/1½-5", mother-child interaction.



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## **1. Introduction**

According to the concepts of a child development in the system of their relations with the caregivers (Belsky, 2005), the behavioral features of children, including behavioral disorders, are associated with the specifics of mother-child interaction. Previous studies have shown that emotional and cognitive development, as well as the specific behavior of children with ASD, are related to the characteristics of mother interaction and the quality of child attachment (Baptista et al., 2018; Kahane & El-Tahir, 2015; Levy, Oppenheim, et al., 2019; Teague et al., 2017; Yorke et al., 2018). To assess behavioral disorders in children with ASD, and also as a screening, the CBCL/1½-5 method is used. It was found that the Pervasive Developmental Problems DSM scale and the Withdrawn syndromes scale are the most informative regarding the early detection of ASD in preschool children (Levy, Rescorla, et al., 2019; Rescorla et al., 2015; Rescorla et al., 2019a; Rescorla et al., 2019b).

## **2. Problem Statement**

In previous studies on the Russian sample, the behavioral characteristics of typically developing preschoolers were studied by CBCL/1½-5 in connection with the peculiarities of their socio-psychological adaptation (Vasilyeva & Kravchenko, 2010), temperament characteristics (Gartstein et al., 2013) and mental health dynamics (Kozlova & Slobodskaya, 2016). Version CBCL/6-18 was used to study behavioral features in institutionalized children (Muhamedrahimov et al., 2014). We have not found any studies performed on a Russian sample of children in which behavioral features were studied using the CBCL/1½-5 method in children with ASD due to the quality of their interaction with their mothers.

## **3. Research Questions**

On the base of the present literature, it appears important to consider how features of mother-child interaction relate to children with ASD behavioral problems on a Russian sample.

## **4. Purpose of the Study**

The aim of the study was to describe behavioral problems in preschool children with autism spectrum disorder in connection with characteristics of the mother-child interaction.

## **5. Research Methods**

### **5.1. Subjects and procedure**

The study involved 29 children (20 boys and 9 girls) with ASD, who were diagnosed by examining in the Stavropol Clinical Psychiatric Hospital №1. The average age of the children was  $52.4 \pm 8.9$  months. 24 children (82.8 %) were brought up in full families, 5 children (17.9 %) were brought up in single-parent families. The age of the mothers was  $30.5 \pm 4.2$  years. 23 mothers (79.3 %) had higher education, 6 mothers (20.7 %) had secondary specialized education.

Families were invited to participate in the study, those who consulted the Stavropol Clinical Psychiatric Hospital №1 and the psychological center of the town of Mikhailovsk in the Stavropol Region. Video recording of mother-child interaction was carried out on the basis of a hospital and a psychological center. After the video recording, mothers were asked to fill out a checklist CBCL/1½-5 and a socio-demographic questionnaire. Moreover, informed consent to participate in the study, approved by the Ethics Committee of St. Petersburg State University (IRB), was also provided.

To identify the relationships, Spearman nonparametric correlation analysis was used; statistical processing was performed using SPSS-22.0 software.

## 5.2. Measures

To assess mother-child interaction, the following method was used – the Parent-Child Early Relational Assessment (PCERA), developed by Clark (2015). The method is used for both research and clinical purposes. Analysis of the video recording of a 5-minute game interaction allows to evaluate the characteristics of psychological interaction by 65 scales. Parent characteristics include voice tone, affect, mood, emotional and behavioral attitudes towards the child. The characteristics of a child describe their mood, affect, characteristics of the emotional state, behavior and their play. The specifics of the dyad interaction as a whole are estimated by such factors as: joint regulation of affect and attention, emotional tone in the dyad, reciprocity. The assessment was carried out on a five-point system. Maximum scores correspond to the absence (5 points) or a weak degree of severity of negative manifestations (4 points) and relate to the area of strengths of the observed interaction. A score of 3 points marks the area of difficulties existing in the interaction, 1-2 points mark the area of expressed problems. The video material was analyzed by specially trained professionals (St. Petersburg-USA Orphanage Research Team, 2008, pp. 77-78).

To achieve the study goals, the characteristics of mother-child interaction were grouped into the following subscales according to the previous research where these subscales were described in a factor analysis that examined the validity of the PCERA method (Clark, 1999):

Parental Positive Affective Involvement and Verbalization includes the following scales of the method: emotional voice tone, lack of depressive mood, pleasure in relation to a child, eye contact amount, number and quality of verbalizations and social initiatives, interaction structure, emotional state reflection and creativity. In previous studies, these features were identified as contributing to the successful social, emotional and cognitive development of children.

Parental Negative Affect and Behavior consists of such method scales as: irritated voice tone, amount of negative emotions, irritated mood, critical attitude, negative reactions to a child's behavior. Theoretical and empirical studies show that these characteristics contribute to the emergence of difficulties in parent-child relationships.

Parental Intrusiveness, Insensitivity, and Inconsistency includes the following scales: anxiety, amount of negative physical contact, lack of verbalization, insensitivity to child's signals, rigidity, interference and unpredictability in interaction with a child. It was found that such behavior of a parent increases the risks of developmental problems in a child.

Child Positive Affect, Social, and Communicative Competence consists of the following scales: positive affect of a child, cheerfulness, calmness, social initiatives, visual contact with a parent, communicative competence and clarity of the signals displayed. These characteristics indicate successful social and emotional development of a child.

Child Quality of Play, Interest, and Attentional Skills includes such scales as: absence of depressive manifestations, interest, motor and cognitive activity, attention, low exhaustion and perseverance. These scales reflect child's abilities of active research and high self-regulation.

Child Dysregulation and Irritability includes manifestation of a child's negative affect, irritability, impulsiveness and emotional lability. Also, this subscale includes such factors as: aggressive behavior and weak self-regulation.

Dyadic Mutual Enjoyment and Reciprocity consists of such indicators as: content of interaction in the dyad, joint pleasure and similarity of the emotional state.

Dyadic Tension and Disorganization includes the following scales: irritation, anxiety in the dyad, lack of joint attention, reciprocity, and organization of the interaction process.

To study the behavior of children, the Child Behavior Checklist CBCL/1½-5, (Achenbach & Rescorla, 2000), which includes 99 statements describing various deviations in the behavior and emotional state of children, was used. The parent of a child marks each statement as incorrect (0), sometimes or partially (1), very or often true (2). The questionnaire allows assessing the severity of violations according to seven empirically substantiated syndromes (scales): Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems and Aggressive Behavior. The scale Other problems was not attributed by the authors to any specific syndrome or disorder. It is also possible to evaluate deviations on 5 scales oriented to the American Psychiatric Association's Diagnostic and Statistical Manual (DSM): Affective Problems, Anxiety Problems, Pervasive Developmental Problems, Attention Deficit/Hyperactivity Problems, and Oppositional Defiant Problems. DSM-oriented scales provide additional information on the severity of a particular problem.

The demographic questionnaire included information on age, marital status, education of mothers, age and health of their children.

## **6. Findings**

Tables 1-3 show the results of an analysis of the relationships between indicators of children's behavior and characteristics of interaction in the pair “mother-child with ASD”.

The relationships between the generalized characteristics of the interaction of mothers and the presence of behavioral disorders in children with ASD were identified. All communications turned out to be negative. The data indicate that the manifestation by a mother of a positive involvement in the interaction with her child, sensitivity to their signals, less intrusiveness and high predictability, as well as a low level of irritation and criticism towards the child helps to reduce the number of behavioral disorders such as withdrawn in interaction, aggressive behavior and opposition-defiant behavior, impaired attention and persistent developmental problems in children.

**Table 1.** Values of correlation coefficients (r) and significance levels (p) of indicators of children's behavior and characteristics of mothers' interaction

<b>Mothers' Interactional Scales</b>	<b>Parental Positive Affective Involvement and Verbalization</b>	<b>Parental Negative Affect and Behavior</b>	<b>Parental Intrusiveness, Insensitivity, and Inconsistency</b>
<b>Children Behavioral Characteristics</b>			
Pervasive Developmental Problems (DSM)		- 0.431*	
Attention Deficit/Hyperactivity Problems (DSM)	- 0.376*		- 0.423*
Oppositional Defiant Problems (DSM)	- 0.426*		- 0.469*
Withdrawn			- 0.394*
Sleep Problems		- 0.420*	
Attention Problems			- 0.406*
Aggressive Behavior	- 0.453*		- 0.412*

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$

**Table 2.** The values of the correlation coefficients (r) and significance levels (p) of the behavior indicators of the interaction characteristics of children

<b>Children Interactional Scales</b>	<b>Child Positive Affect, Social and Communicative Competence</b>	<b>Child Quality of Play, Interest, and Attentional Skills</b>	<b>Child Dysregulation and Irritability</b>
<b>Children Behavioral Characteristics</b>			
Attention Deficit/Hyperactivity Problems (DSM)	- 0.383*		
Affective Problems (DSM)		- 0.390*	
Oppositional Defiant Problems (DSM)	- 0.502**	- 0.402*	
Emotionally Reactive			-0.409*
Aggressive Behavior	-0.528**		

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$

**Table 3.** Values of correlation coefficients (r) and significance levels (p) of indicators of children's behavior and characteristics of dyadic interaction

<b>Dyadic Interactional Scales</b>	<b>Dyadic Mutual Enjoyment and Reciprocity</b>	<b>Dyadic Tension and Disorganization</b>
<b>Children Behavioral Characteristics</b>		
Attention Deficit/Hyperactivity Problems (DSM)	- 0.393*	- 0.458*
Anxiety Problems		- 0.394*
Oppositional Defiant Problems (DSM)		- 0.444*
Emotional Reactivity		- 0.447*
Attention Problems		- 0.494**
Withdrawn		- 0.411*
Aggressive Behavior	- 0.426*	- 0.492**

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$

An analysis of the relationship between the interaction characteristics of children and the presence of problems in their behavior showed that with a greater manifestation of a child's cheerfulness, social initiatives and communicative competence, they demonstrate fewer disorders of attention and behavior, manifested in aggressive and provoking reactions. It was found that a high level of self-regulation of a child with ASD is associated with less pronounced emotional reactivity, and such interaction characteristics as perseverance and cognitive interest correspond to lower rates of affective problems and opposition-causing behavior.

The study of dyad characteristics found that such indicators of tension in the dyad as: irritation, anxiety, lack of joint attention, reciprocity and organization of the interaction process are associated with the following problems in behavior: deficit and impaired attention, hyperactivity, aggressive and opposition-causing behavior, withdrawn, emotional reactivity and anxiety.

## 7. Conclusion

The study found that with severe manifestations on the mother's side of anxiety, insensitivity to the child's signals, rigidity, intrusiveness and unpredictability in the interaction, the presence of negative physical contact with the child, as well as irritation, a low level of reciprocity and organization of the interaction process; a large number of different behavioral disorders are noted in a child. Interpreting these results from a systemic point of view, we can conclude that, when faced with the negative manifestations of the parent, the child's anxiety and / or fear intensifies (Belsky, 2005; Cibralic et al., 2018; McKenzie & Dallos, 2017; Rozga et al., 2018). These feelings reduce the quality of their attention, can enhance the desire to avoid, distance themselves from interaction, and also manifest themselves in defiant behavior, the function of which can be to respond to feelings of fear, anxiety or anger. Thus, promoting not only the cognitive, speech development of children with ASD, but also helping parents to be more sensitive to the needs of children with autism spectrum disorder, can help reduce the severity of behavioral disorders in children.

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