

# Characteristic and Identification of Autism Spectra Disorders in the Conditions of Primary Health Care in Children of Early Age

<sup>1</sup>Yaquthon Madzhidova, <sup>2</sup>Vasila Abdullaeva, <sup>3</sup>Nargiza Ergasheva,  
<sup>4</sup>Tatyana Gavrilova, <sup>5</sup>Nodira Khusenova, <sup>6</sup>Gavhar Kendzhaeva,  
<sup>7</sup>Sitora Inoyatova, <sup>8</sup>Durdona Mukhammadzhonova,  
<sup>9</sup>Zhanna Rustamova

**Abstract--***The article presents the questionnaire data of parents of 30 children aged 16 to 30 months (1.3 - 2.5 years) using the M-CHAT-R screening method, supplemented by the M-CHAT interview, a modified questionnaire on autism in young children. The study showed the effectiveness of the screening method for early diagnosis and dynamic monitoring of the condition of children. Among children with suspected ASD, a low risk of developing this pathology was identified in 30%, an average risk in 46.7%, and a high risk of developing ASD in 23.3%. As a result of follow-up observations for 6 months in children with medium and high risk in all cases, autism spectrum disorders were diagnosed.*

**Keywords--***children, autism spectrum disorder, M-CHAT screening method, questionnaire.*

---

## I. INTRODUCTION

The term "autism spectrum disorder" (ASD) is used to describe a group of conditions associated with impaired neurodevelopment and characterized by qualitative deviations in reciprocal social interaction, verbal and nonverbal communication, as well as limited stereotypical or repetitive forms of behavior, interests and movements. Symptoms of ASD appear before the age of 3 years, more often in 12-18 months, but in some mental areas signs of pervasive development are not diagnosed for at least a few more years [3,7].

According to modern researchers, various forms of childhood autism are found in 4 - 26 cases out of 10,000, which is 0.04 - 0.26% of the total child population. At the same time, there is a tendency to increase the

---

<sup>1</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>2</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>3</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>4</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>5</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>6</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>7</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>8</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

<sup>9</sup>Tashkent Pediatric Medical Institute, Tashkent State Dental Institute, Tashkent Medical Academy, Andijan State Medical Institute, Samara Reacenter.

frequency of this developmental disorder. In this regard, the question of the possibilities of socializing preschoolers with childhood autism is quite acute [2, 5].

According to the World Health Organization, the number of children with autism in recent years around the world has been increasing annually by 1.3%. Over 10 years, it has grown more than 10 times. According to US studies, in the United States, for every 88 children, one child is born with autism. This proportion is most likely characteristic of the rest of the world [4, 6].

An increase in the incidence rate, a high level of disability, the severity of financial expenses for special therapy and social support for the special needs of patients, the emotional impact of the disorder on families make ASD a serious challenge for social security and public health systems of even the most economically developed countries.

Recently, there has been a steady interest of researchers, medical practitioners and the public in the problem of ASD. This can be explained both by the severity of the disorders observed during autism, the uncertainty in the etiology of the disorder, correction methods, and in the gaps in the diagnosis. Diagnostic standards for ASD in different countries and regions, depending on the culture and approaches to raising children, but to some extent establish the need for early diagnosis and the creation of a developed system of qualified observation. Development control should be ensured for all children with ASD with the participation of their family members, teachers, primary care physicians, and child psychiatrists. This observation should include a special screening of those children who have a suspicion of ASD and subsequent monitoring of their development. Given the prevalence and heterogeneity of ASD throughout the world, at the present stage of the study of this pathology, it is important to turn to an interdisciplinary approach that will allow for more effective medical, psychological, and pedagogical support of the child. This, in turn, requires the development of differentiated diagnostic methods for ASD [9,11].

The success of the treatment and rehabilitation of patients with ASD largely depends on the early diagnosis of this disease, which is an urgent problem in pediatric neurology and psychiatry.

Objective to evaluate the effectiveness of the M-CHAT-R screening method for the early diagnosis of autism spectrum disorder (ASD) in primary health care settings.

## **II. MATERIALS AND METHODS OF THE STUDY**

3 family clinics of the city of Tashkent took part in the study, 30 children aged 16 to 30 months (1.3 - 2.5 years) were surveyed in 2017-2018. Among the examined, boys prevailed over girls; their ratio was 1: 2 (10 girls, 20 boys).

Many questionnaires have been developed that can be used as methods for assessing the development of children, as well as for screening for ASD, and various algorithms for its implementation have been proposed. However, the most optimal is the M-CHAT-R screening method, supplemented by the M-CHAT interview. M-CHAT - Modified Checklist for Autism in Toddlers, a modified questionnaire on autism in young children (Robins, Fein, Barton & Green, 2001). A questionnaire of 20 points for parents or caregivers; age - 16-30 months., takes up to 20 minutes.

Counting Algorithm. For all items except 2, 5 and 12, the answer “NO” indicates the risk of ASD; for clauses 2, 5 and 12, the answer “Yes” indicates the risk of ASD. The following algorithm maximizes the psychometric properties of M-CHAT-R:

Low risk: The total score is 0-2; if the baby is under 24 months old, check it again after the second year of birth. If there is no risk of ASD, no further action is required.

Medium risk level: The total score is 3-7; follow-up questions are assigned (second stage M-CHAT-R / F) for more information on the degree of risk. The following actions are required: to conduct a diagnostic assessment of the child and the acceptability of early intervention. If the subsequent count shows 0-1, the result of the inspection is considered negative. No further action is required if the risk of ASD is identified, but during subsequent visits the child should be re-checked.

High risk: The total score is 8-20; it is permissible to skip the following questions and immediately proceed to the diagnostic assessment and the appropriateness of early intervention.

### **III. RESULTS OF THE STUDY**

Parents of the examined children complained of a lack of response to their own name, eye contact, in some children hypersensitivity to sounds, some did not respond to sound, despite the absence of hearing impairment. In 30% of cases, parents complained of a delay in understanding the speech addressed, a selective reaction to speech. In 46.7% of cases, parents noticed that their child is not trying to share their impressions, emotions with others, there is no lively facial expressions, he ignores the presence of people next to him, uses primitive manipulations with non-game items or the use of toys for other purposes. Parents of children drew attention to the distortion and impaired speech development to varying degrees: mutism; single words weakly correlated with the subject; echolalia; fanciful, often chanted pronunciation, peculiar intonation, characteristic phonetic disorders and voice disorders with a predominance of a special high tonality at the end of a phrase or word, a long term self-identification in the second or third person; words-stamps, phrase-stamps; remembers and reproduces rhythmically organized fragments of texts. There is no appeal in speech; children practically did not use speech to communicate with loved ones.

In 23.3% of children of this age category, parents noted underdevelopment and / or violation of the communicative function of gestures, facial expressions, and other non-verbal means of communication.

In some cases, there is a need to clarify the qualitative characteristics of some symptoms that indicate the possibility of developing mental development disorders in the early stages of ontogenesis, which makes these or other types of in-depth examination and development of early care tools relevant. Data from diagnostic studies should not be considered in isolation, but in combination. If in a particular area a delay, distortion or other variant of violation is detected, then in such cases further diagnostic measures are required.

Thus, a comprehensive assessment of the developmental features of a child with ASD in comparison with the norm during the first year of life allows us to highlight a number of signs indicating the possibility of the formation of autism spectrum disorders:

1. avoidance of eye contact, often in combination with pathological fixation of the gaze on vitally indifferent stimuli;
2. lack of a readiness posture when picked up with hypomyemia;
3. lack of reaction or negative reaction to attempts at communication from relatives;
4. features of sensory reactions (hyperesthesia, paradoxical perception, hyposthesia);
5. the presence of stereotypical forms of behavior (primarily motor stereotypes);
6. increased interest in household and non-game items;
7. greater success in spontaneous activity in comparison with the performance of tasks of similar complexity;
8. symbiotic attachment to the caregiver;
9. late formation of social skills, self-service skills;
10. a tendency to rhyme, "play" with complex words, word creation.

As a result of the data obtained, we found that 60% of the examined children (18/30) showed signs of ASD.

At a further stage, we conducted a survey of parents. The percentage of "Yes" and "No" ratings for the M-CHAT-R screening test are shown in Table 1.

**Table 1.** Results of a screening method for the diagnosis of M-CHAT-R in children with suspected ASD

No	Questions	Yes		NO	
		abs.	%	abs.	%
1	If you point to an object in the room, is your child looking at it? (For example, if you point to a toy or animal, does your child look at the toy or animal?)	20	66,7	10	33,3
2	Has it ever crossed your mind that your child is deaf?	2	6,7	28	93,3
3	Does your child like to pretend? (For example, pretending to drink from an empty cup, talking on the phone, feeding a doll or a toy animal?)	18	60,0	12	40,0
4	Does your child like to climb objects? (For example, furniture, playground, stairs?)	29	96,7	1	3,3
5	Does your child make unusual movements with his fingers near his head and eyes? (Forexample, shakeshisfingersnearhiseyes?)	17	56,7	13	43,3
6	Does your child point a finger if he wants to ask for something or asks for help? (For example, indicates a snack or a toy that it cannot reach?)	18	60,0	12	40,0
7	Does the child point with one finger to something interesting that he wants to show you? (For example, a plane in the sky or a large truck on the road?)	18	60,0	12	40,0
8	Is your child interested in other children? (For example, does your child look at other children, laugh or approach them?)	11	36,7	19	63,3
9	Does your child bring things for you to look at, does he show them to you - not just to help him, but just to share? (For example, shows you a	15	50,0	15	50,0

	flower, a toy animal, a toy truck?)				
10	Does your child respond when you call him by name? (For example, does he look at you, speak or babble, stop his business when he hears his name?)	26	86,7	4	13,3
11	When you smile at your child, does he smile back?	30	100,0	0	0,0
12	Does your child feel frustrated by household sounds? (For example, does he scream or cry in response to the noise of a vacuum cleaner or loud music?)	14	46,7	16	53,3
13	Does your child walk?	30	100,0	0	0,0
14	Does your child look you in the eye when you talk to him, play or dress him?	23	76,7	7	23,3
15	Is your child trying to copy what you are doing? (For example, wave your hand, clap your hands, it's funny to make a noise after you)	24	80,0	6	20,0
16	If you turn your head to look at something, is your child looking around to see what you are looking at?	11	36,7	19	63,3
17	Does your child try to make you look at him? (For example, does your child look at you to hear praise, say "look" or "look at me"?)	26	86,7	4	13,3
18	Does your child understand when you tell him to do something? (For example, if you don't point to an object, can the child understand the words "put the book on a chair" or "bring me a blanket"?)	17	56,7	13	43,3
19	If something new happens, does your child look in your face to understand exactly what you feel about this (For example, if he hears a strange or funny noise, or sees a new toy, will he look you in the face?)	12	40,0	18	60,0
20	Does your child like outdoor activities? (For example, when he is thrown up or rocked on his knee)	30	100,0	0	0,0
	Total:	19	63,3	11	36,7

The results of the study showed that 30% (9/30) of children showed a low level of risk. Parents of children with a low risk of ASD responded "No" to questions 2, 5 and 12, and the remaining questions "Yes".

An average risk level was found in 46.7% (14/30) of children. Parents of children with an average risk level for ASD answered "Yes" to questions 1, 4, 6, 10, 11, 13, 15, 16, 17, 18, 19 and 20, to questions 2, 3, 5, 7, 8, 9, 12, and 14, the answer was "No."

A high level of risk was found in 23.3% of children (7/30). Parents of these children answered "Yes" to 3, 4, 5, 10, 11, 12, 13, 14, 15, 17 and 20 questions, "No" to 1, 2, 6, 7, 8, 9, 16, 18 and 19 questions.

According to the data obtained, ASD can be diagnosed earlier than in 3 years, as provided by the diagnostic criteria of ICD-10 and DSM-IV. In many children, the peak presentation of the symptoms of the disorder occurred

at 24 months of age. It is at this age that new signs usually appear of qualitative violations of social reciprocity, stereotypical forms of behavior that are crucial for the diagnosis of ASD.

A follow-up study of cases of pervasive development of children of medium and high risk, established by the screening method M-CHAT-R, supplemented by M-CHAT interviews, made it possible to further diagnose ASD. In the next 6 months, problems of social communication and verbal abilities appeared and increased in them, which disrupted daily functioning.

#### IV. CONCLUSIONS

The study showed the effectiveness of the screening method for early diagnosis and dynamic monitoring of the condition of children using M-CHAT-R, supplemented by M-CHAT interview.

Among children with suspected ASD, a low risk of developing this pathology was identified in 30%, an average risk in 46.7%, and a high risk of developing ASD in 23.3%.

As a result of follow-up observations for 6 months in children with medium and high risk in all cases, autism spectrum disorders were diagnosed.

#### REFERENCES

1. Bashina V.M., Simashkova N.V., Krasnoperova M.G. Atypical autism in the light of ICD-10 // *Psychiatry and psychopharmacotherapy*. - 2005. - No. 5.
2. Vorsanova S.G., Yurov I.Y., Yurov Y.B. Genetic mechanisms of mental disorders: chromosomal and genomic diseases // *Elekt. journal "Psychological science and education" PSYEDU.ru*. 2010. - No. 5. - S. 277-285.
3. S.Velmurugan, C.Rajasekaran Member IEEE. "A Reconfigurable On-Chip Multichannel Data Acquisition and Processing (DAQP) System with Online Monitoring Using Network Control Module." *International Journal of Communication and Computer Technologies* 1.1 (2012), 21-27. Print. doi:10.31838/ijccts/01.01.03
4. Krasnoperova M.G. Clinical features of childhood autism with endogenous manifest psychoses and mental retardation // *Zh. Neurology and psychiatry*. 2004. - No. 2. - S. 5-10.
5. Pereverzeva D.S., Gorbachevskaya H.L. The relationship between age and anatomic brain disorders in early childhood autism // *Journal. Neurology and psychiatry*. 2008. - T. 108, No. 2. - S. 71-81.
6. Simashkova N.V. Psychotic forms of atypical autism in childhood // *Journal. Neurology and psychiatry*. 2006. - No. 10. - S. 17-26.
7. Hewageegana h. G. S. P, arawwawala I. D. A. M. , ariyawansa h. A. S, tissera m. H. A, dammaratana i. (2016) a review of skin diseases depicted in sanskrit original texts with special reference to ksudra kushtha. *Journal of Critical Reviews*, 3 (3), 68-73.
8. Filippova N.V., Barylnik Y.B. Epidemiology of autism: a modern view of the problem // *Social and Clinical Psychiatry*. 2014. V. 24, No. 3. P. 96–101.
9. Abdullaeva, V.K. (2019). The parental attitude to children with autistic disorders. *Central Asian Journal of Pediatrics*: Vol. 2: Iss. 1, p. 172-174. Available at: <https://uzjournals.edu.uz/pediatrics/vol2/iss1/42>
10. Caronna EB, Milunsky JM, Tager-Flusberg H. Autism spectrum disorders: clinical and research frontiers // *Arch. Dis. Child* - 2008. Vol. 93, N 6. - P. 518-523.
11. Mayada et al. Global prevalence of autism and other pervasive developmental disorders. *Autism Res*. 2012 Jun; 5 (3): 160–179.
12. Aditi Chaturvedi, Rangeel Singh Raina, Vijay Thawani, Harish Chaturvedi, Deepak Parihar. "Super TB: Another Manmade Disaster." *Systematic Reviews in Pharmacy* 3.1 (2012), 37-41. Print. doi:10.4103/0975-8453.107140
13. <https://cyberleninka.ru/article/n/neyromediatornyy-disbalans-kak-osnova-razvitiya-sindroma-defitsita-vnimaniya-s-giperaktivnostyu> <https://mchatscreen.com>

14. Tony Charman, Wendy Stone. Social and Communication Development in Autism Spectrum Disorders: Early Identification, Diagnosis, and Intervention. - Guilford Press, 2008. - ISBN 978-1-59385-713-4
15. RavindraBabu,B. (2018). Resource Provision for Software as a Service (SaaS) inCloud Computing Platform.. *Journal of Computational Information Systems*,14(5), 100 - 111.
16. Sowmyadevi,D. (2018). Secured and Freshness Ensured Provenance Sharing Scheme for the Heterogeneous Wireless Sensor Network. *Journal of Computational Information Systems*,14(6), 1 - 17.
17. Zhang, P., Cheng, L. A randomized controlled trial of a neurofeedback-based training for improvement in social phobia disorder (2017) *NeuroQuantology*, 15 (4), pp. 133-138.
18. Pandarakalam, J.P. A deeper understanding of consciousness through study of creativity (2017) *NeuroQuantology*, 15 (2), pp. 171-185.