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Interactional characteristics of play in children with suspected Autistic Spectrum Disorder

Características interacionais do brincar em crianças com suspeita do Transtorno do Espectro Autista

Características interaccionales del juego en niños con sospecha de trastorno del espectro autista

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Abstract

Introduction: Autism Spectrum Disorder is a neurodevelopmental disorder characterized by communication difficulties due to language deficiency and the use of imagination to deal with symbolic games, difficulty in socialization and pattern of restrictive and repetitive behavior. **Objective:** To describe the interaction characteristics in relation to functional and symbolic play of three children with suspected ASD. **Method:** Three male patients aged between 3 years and 4 years and 6 months, from spontaneous demand for a speech therapy service of a pediatric hospital, were part of the study. The procedures consisted of an initial interview with parents/guardians and the analysis of interaction with the evaluator through semi-structured play proposed by the Behavioral Assessment Protocol for Children with Suspected Autism Spectrum Disorder – Revised (PROTEA-R). **Results:** The 2 children at risk of ASD presented impaired use of language for communication and lack of effectiveness in shared attention, while the one who did not present risk uses language to communicate and demonstrate adequate shared attention function. It was observed that characteristics of functional and symbolic play and shared attention, if present, are aspects that attenuate the risk for ASD. In addition, the absence of ecolalia is also a variable that aids the possible diagnosis. **Conclusion:** The observation of play was effective in the evaluation of

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Authors' contributions:
ACI: study design, data collection and analysis, and manuscript writing.
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the communication allocated functions of autistic children, assisting in the direction and optimization of the therapeutic process.

Keywords: Autistic Disorder; Child Language; Early Intervention; Child Development.

Resumo

Introdução: O Transtorno do Espectro Autista é um transtorno neurodesenvolvimental caracterizado pelas dificuldades de comunicação por deficiência da linguagem e do uso da imaginação para lidar com jogos simbólicos, dificuldade de socialização e padrão de comportamento restritivo e repetitivo. **Objetivo:** Descrever as características da interação em relação à brincadeira funcional e simbólica de três crianças com suspeita de TEA. **Método:** Fizeram parte do estudo três pacientes do sexo masculino na faixa etária entre 3 anos a 4 anos e 6 meses, provenientes de demanda espontânea de serviço fonoaudiológico de um hospital pediátrico. Os procedimentos constituíram-se de entrevista inicial com os pais/responsáveis e a análise da interação com o avaliador através da brincadeira semiestruturada proposta pelo Protocolo de Avaliação Comportamental para Crianças com Suspeita de Transtorno do Espectro Autista – Revisado (PROTEA-R). **Resultados:** As 2 crianças com risco de TEA apresentaram prejuízo do uso da linguagem para comunicação e falta de efetividade em atenção compartilhada, enquanto a que não apresentou risco utiliza a linguagem para se comunicar e demonstra adequada função de atenção compartilhada. Observou-se que características da brincadeira funcional e simbólica e a atenção compartilhada, se presentes, são aspectos que atenuam o risco para TEA. Além disso, a ausência de ecolalia também é uma variável que auxilia o possível diagnóstico. **Conclusão:** A observação da brincadeira se mostrou efetiva na avaliação das funções comunicacionais e interacionais de crianças autistas, auxiliando no direcionamento e na otimização do processo terapêutico.

Palavras-chave: Transtorno Autístico; Linguagem Infantil; Intervenção Precoce; Desenvolvimento Infantil.

Resumen

Introducción: El Trastorno del Espectro Autista es un trastorno del neurodesarrollo caracterizado por dificultades de comunicación debido a la deficiencia del lenguaje y el uso de la imaginación para tratar los juegos simbólicos, la dificultad en la socialización y el patrón de comportamiento restrictivo y repetitivo. **Objetivo:** Describir las características de la interacción en relación con el juego funcional y simbólico de tres niños con sospecha de TEA. **Método:** Tres pacientes varones de entre 3 años y 4 años y 6 meses, por la demanda espontánea de un servicio de logoterapia de un hospital pediátrico, formaron parte del estudio. Los procedimientos consistieron en una entrevista inicial con los padres/tutores y el análisis de la interacción con el evaluador a través del juego semiestructurado propuesto por el Protocolo de Evaluación del Comportamiento para Niños con Sospecha de Trastorno del Espectro Autista – Revisado (PROTEA-R). **Resultados:** Los 2 niños en riesgo de TEA presentaban un uso deficiente del lenguaje para la comunicación y la falta de eficacia en la atención compartida, mientras que aquellos que no presentaban un lenguaje de uso de riesgo para comunicar y demostrar una función de atención compartida adecuada. Se observó que las características del juego funcional y simbólico y la atención compartida, si están presentes, son aspectos que atenúan el riesgo para el TEA. Además, la ausencia de ecolalia es también una variable que ayuda a un posible diagnóstico. **Conclusión:** La observación del juego fue eficaz en la evaluación de las funciones asignadas de comunicación de los niños autistas, ayudando en la dirección y optimización del proceso terapéutico.

Palabras clave: Trastorno Autístico; Lenguaje Infantil; Intervención Precoz; Desarrollo Infantil.

Introduction

Autism Spectrum Disorder (ASD) is a global neurodevelopmental disorder, characterized by impairment in social interaction, verbal and non-verbal communication, and restricted, repetitive, and stereotyped behavior of the individual, according to the American Association of Mental Disorders Diagnostic and Statistical Manual of Psychiatry − DSM-5[1]. The signs usually develop gradually in the first years of life, with a delay or abnormal development in language and social interaction. The diagnosis can only be officially confirmed after 3 years of age, but it is not simple, given hat although there are common symptoms, there are significant differences in how the symptoms manifest individually[2]. Therefore, there is variability in the presentation of the disorder, which is why the expression "spectrum" is used in the nomenclature.

It is in childhood that the child's brain is in full development, showing changes in its cognitive functions and processes through lived experiences, enabling in a more dynamic and consistent way what is called cerebral neuroplasticity - the nervous system's ability to change, adapt and shape its structure and functionality throughout neuronal development. This unique feature makes circuits malleable in memory formation and learning, as well as adapting to injuries and traumatic events throughout life. Because of this, the importance of early tracking of suspected ASD and its correct identification allows the child to follow up on intervention programs at critical moments in their development and learning in the first years of life[3].

According to the World Health Organization (WHO), through the ICD 10 – 2014, it is estimated that there are 70 million people with autism worldwide, 2 million of which are in Brazil alone. It is also estimated that one in every 88 children has autism traits, with a prevalence five times higher in boys[4]. Furthermore, a significant increase in diagnoses of children with autism in recent years has been notable. Several studies emphasize the importance of an early assessment and diagnosis[3-6], followed by an appropriate intervention, which generates a better prognosis. However, the complexity and heterogeneity of ASD symptoms often make the diagnostic process difficult. Based on qualitative assessments, information from parents, caregivers, educators, and a thorough assessment of the child's behavior patterns in a multidisciplinary manner, together with various professionals in the field of child development and through the use of validated instruments, this entire process becomes more effective.

Many studies cite the absence of symbolic play (using toys and accessories with the purpose of "make-believe", evoking properties that they lack) in children diagnosed with autism[7]. In addition, there are serious impairments in functional play (i.e., exploring and handling toy animals, cars, kitchen, and construction accessories according to their function.), that is, they have some difficulty in using an object properly and in carrying out "make-believe" games. The DSM-5 [1] indicates that, in cases of autism, in general, imaginative games are absent or present accentuated losses, as well as there is a low presence or non-existence of spontaneous symbolic games. Furthermore, there is an absence in games or social imitation games, or they do it out of context and in a mechanical way[10]. The importance of studying these aspects for clinical practice in speech therapy is related to the child development of children with delays in this process. Such aspects provide important information for the understanding of social skills, communicative and cognitive abilities, based on the investigation of how these behaviors are presented in the autistic child's play.

Language alterations in children with ASD are usually characterized by significant delays or a complete lack of development of this function[10]. As ASD is a complex condition, there is a lot of distinction in the presentation of symptoms. Therefore, when the communication capacity of each child is observed, there may be a slight to severe variation, with linguistic or even non-verbal impairment. Among the changes, the main impairment is at the pragmatic level and in paralinguistic aspects, such as the absence of eye contact, verbal games, gestures, babble, and response to sounds since newborns[11]. Children with ASD may have difficulty: initiating and maintaining dialogues; interpreting words and phrases; understanding irony, sarcasm, the interlocutor's feeling of concern, and even intonation, as well as other explicit or implicit forms of language. Also, there may be a qualitative impairment in social interactions and communication, in addition to presenting repetitive and restricted patterns of behavior and lack of

interest or delay in normal operating in functional and symbolic games[12].

Regarding the assessment of ASD, there are diagnostic scales, clinical assessments, varying the type of material chosen, and the license of professional practice for its application. The diagnosis is clinical and must be made according to the ICD 10 criteria. Examples of translated and validated screening scales are: Modified – Checklist for Autism in Toddlers (M-CHAT), Autism Behavior Checklist (ABC)[8]. Examples of the most used assessment instruments are: Autism Diagnostic Observation Schedule (ADOS)[13], Denver Scale, Assessment Protocol for Children with Suspected Autism Spectrum Disorders (nonverbal PROTEA-R)[9], among others.

PROTEA-R is interdisciplinary and has been used by different specialists (psychologists, speech therapists, occupational therapists) with the main objective of

tracking the presence of behaviors inherent to the symptoms of ASD, with the aim of systematizing the clinical observation of child development. It is divided into three axes - anamnesis interview, behavioral assessment protocol for children with suspected autism spectrum - revised version - non-verbal, and feedback interview. This protocol aims to assess pre-linguistic skills through semi-structured play situations[9]. Due to all these attributes, it was chosen as an instrument for the present investigation.

The items of the PROTEA-R[9] protocol include in their assessment the frequency, intensity, and peculiarity of symptoms, with qualitative records, based on studies carried out in the area. Items such as quality of play, symbolism and functionality, visual-motor coordination, imitation, shared attention, social engagement, the form of exploration, and repetitive or stereotyped movements of the hands and body are evaluated. The protocol aims to identify the risk for child development, enabling a referral for specialized assessment and early intervention, useful both in the clinical and institutional context, as well as in research[9].

All these data helped in the understanding of the studied situation, which, consequently, can help in directing and optimizing the therapeutic process and in a broader investigation about the play of autistic children. Therefore, this study aimed to describe the characteristics of the interaction in relation to functional and symbolic play in three children suspected of having ASD.

Methods

The study was approved by the Research Ethics Committee of a pediatric hospital in the city of Porto Alegre in the state of Rio Grande do Sul, Brazil (Nº. 3.766.738). All those responsible for the subjects signed the Informed Consent Form, authorizing the use of data for the study.

This is a cross-sectional observational analytical multiple-case study for the description of interactional characteristics of play in nonverbal children suspected of having ASD. This study seeks to observe the child's play with the evaluator through semi-structured play. In turn, this is used for the investigation and creation of an

interactional and communicational profile, according to speech therapy knowledge on the assessment findings from the Behavioral Assessment Protocol for Children with Suspicion of Autistic Spectrum Disorder – Revised (PROTEA-R revised version for non-verbal children)[9]. These profiles are the basis for the case report of three male patients aged from 3 years to 4 years and 6 months, coming from a spontaneous demand for the speech therapy service at the hospital.

This sample was collected for convenience, with no control group. The project's inclusion criteria were children aged 24 to 60 months, with suspected ASD indicated by the pediatrician, nonverbal, with normal hearing patterns, selected from the waiting list for evaluation by the speech therapy service of a pediatric hospital in the Brazilian municipality of Porto Alegre/RS.

An anamnesis interview, pre-established in PROTEA-R[9], was carried out with the children's parents/guardians. The observation of social interaction and the items for the application of the protocol was carried out in two meetings with the child, who was alone in the room, only with the researcher and the toys pre-established in the instrument's protocol. Both meetings were recorded in audio and video, with the consent of those responsible. At first, the toys were arranged on the floor in a context of free play and the objective of this stage was to evaluate initiatives and responses of shared attention, more complex imitation, social engagement, symbolic play, search, and response to physical contact. In a second moment, in which

the context was semi-structured play, the evaluator arranged the toys one by one for the child, allowing them to explore in all senses (visual, tactile, auditory). The objective of this step was to elicit the search for assistance and atypical behavior, as well as exploratory and functional play, among other aspects. After collecting research data, a feedback interview was conducted with parents/guardians explaining the results obtained in the protocol, and referral of patients to continue the therapeutic process of each child in the same speech therapy service at the hospital.

The PROTEA-R[9] protocol items assess the frequency, intensity and peculiarity of symptoms, with qualitative records. As pre-established in the protocol, the coding of results is performed based on two scales: Quality and Frequency.

Each item was coded to contemplate how a certain behavior manifests itself in relation to quality, which relates to: reciprocity, flexibility, amplitude, conventionality, consistency and intensity of behaviors, receiving a classification ranging from (A) to (E). Code A refers to behaviors present without signs of impairment, B to behaviors with a low level of impairment, C to behaviors present with an intermediate level of impairment and D refers to the absence of the investigated behavior, which suggests a high level of impairment. Code E, at all times it is presented in the protocol, represents when it was not possible to observe that behavior in the child due to contingencies of the context itself, and not due to the child's inability. The Frequency Scale during observation sessions (occurrence of behavior) receives a combined Likert-type coding, with intervals from 1 to 3, with 1 being "low", 2 "medium" and 3 "high". All these factors will be detailed in the description of the results below.

Some items of the PROTEA-R[9] protocol are considered critical for their theoretical-empirical and psychometric relevance for the risk assessment of children with suspected ASD. These items include the definitions of the DSM-51, items that represent the three main areas of the protocol, typical parameters of child social- communicative development and evidence drawn from the literature. These items, when converted into numerical scores, can designate a) presence of risk for ASD, ranging from 9 to 15 points; b) presence of risk for ASD, ranging from 1 to 8; c) absence of risk (sum of quality scores = 0).

Case History

Patient 1

Male patient aged 4 years and 2 months who was referred to the speech therapy service by a pediatrician because of suspected autism. Suspicions arose mainly because the child spoke his first word only when he was 2 years old, and until today he has a very restricted vocabulary.

He was born premature, aged 34 weeks, and was hospitalized for 11 days. Regarding the development information, this occurred within the normal range. The mother reported that the child often has earaches and infections and is easily startled by noises. The boy underwent the evoked otoacoustic emissions test at 2 years and 7 months, obtaining a normal result. According to the mother's report, the child does not have any disease or chronic disorder but uses Risperidone (0.25 mg in the morning and 0.50 mg at night) to "*be calmer*" [sic] and melatonin to aid sleep.

The mother in the anamnesis interview reports that he likes to stack toys and watch the same cartoons several times, has difficulty in interacting with other children, except for the 8-year-old aunt, with whom the child has been in contact since birth. The family tried to put him in kindergarten, but he didn't adapt and was removed by his parents; he currently spends the day at home with his mother.

When observing the interaction between the child and the evaluator, the boy most often chooses to play alone, in an unusual way, with toys that fit together and animals; he likes to put them in order or sort them by color or size. The child's speech is characterized by isolated words, onomatopoeias, and attempts to form sentences, but without major constructions; his listening skills and response to orders are good. The child is responsive, participative, and with good social interaction with the evaluator. However, there are characteristics of the autistic spectrum, such as stereotyped movements and poor eye contact.

Patient 2

A 3-year and 6-month-old boy sought speech therapy referred by the developmental pediatrician with suspected ASD. In gestational history, the delivery was normal and uneventful, from 38 weeks of pregnancy. The APGAR in the 1st minute was 09. As for neuropsychomotor development, the reported indicators are adequate. Information

regarding the production of the first meaningful words appeared at 11 months, but with a report of loss of previously acquired skills, such as words and social interest, before 2 years of age. The mother reports that the patient returned to perform some oral productions only around 3 years of age, with a delay in the development of comprehensive and, more seriously, expressive language. She also reported that she felt an evolution in the child's social behavior when entering kindergarten and having contact with other children in the same age group. The boy presents hyperactivity and takes Risperidone prescribed by the pediatrician. The mother notices the presence of stereotypies in the patient, such as repetitive hand movements, and when he hears noises, he covers his ears.

The boy has a good interaction with the evaluator, making use of all the toys available in the room, and inviting him to play together. When observing this context, it is possible to notice the construction of symbolism in the games performed by the child. The boy has communicative intent, but speech is often unintelligible. He demonstrates good listening skills as well as shared attention and attachment behavior and concern towards parents and family members.

Patient 3

A 4-year-old boy, referred by the pediatrician at the family's reference health center and subsequently by the hospital's development clinic for suspected ASD. Regarding language development, he started babbling at 5 months, and only in the second year of life did he demonstrate the use of the first simple words of everyday life, without producing sentences and presenting echolalia.

According to the child's gestational report, he was born at 35 weeks of gestation, of normal delivery, without major complications, remaining a few days in the NICU due to his gestational age, being discharged in good general health. The neuropsychomotor development data show an evolution within the normal range. He performed the Transient Evoked Otoacoustic Emissions and Brainstem Auditory Evoked Potential exams, with normal results and no reference to frequent earaches. Regarding his general health history, he has a respiratory disease, bronchitis, and history of bronchiolitis. The boy uses Aerolin and Prednisolone in case of crises of these respiratory diseases.

The child's social engagement is observed at the time of interaction with the evaluator. The boy tries to play together, but avoids eye contact, explores most of the toys, smiling and vocalizing moments of excitement. The child has good listening comprehension, but does not use many words to communicate, does not use pronouns and the use of sentences is simple and restricted, presenting an echolalic speech, as well as loose words and without context, and some half words.

Results

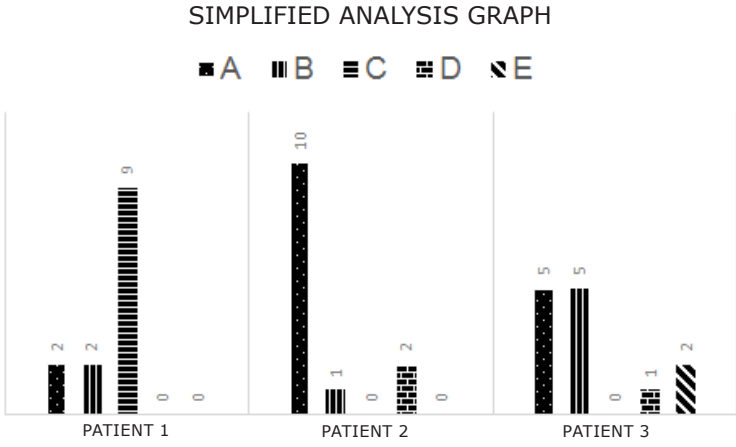
Table 1 summarizes the results observed in the three participants regarding the items of the PROTEA-R[9] protocol, including the Quality Scale and the Frequency Scale. In the Quality Scale, most of the protocol (behaviors 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13, 14) investigates typical behaviors of child development, receiving a classification that varies from (A) to (E), explained above. The exception is the area that investigates the repetitive and stereotyped behaviors of the hands and other parts of the body, in which the absence indicates a lower level of losses, as well as in the items that investigate protest/withdrawal to interaction (behaviors 8, 15, 16, 17), thus reversing the order of marking. According to the Frequency Scale, the coding takes place through a Likert-type scale, with intervals from 1 to 3, being: 1 "low" to behaviors that appear very few times during the assessment, even after the evaluator's insistence; 2 "average" when the behavior appears, but restricted to some contexts; and 3 "high" when the child presents a certain behavior most of the time or most of the times it was elicited by the evaluator.

Table 1. Analysis of semi-structured play through PROTEA-R

Behavior	Patient 1	Patient 2	Patient 3
1. Shared Attention Initiative	C (3)	A (3)	B (3)
2. Shared Attention Response	C (3)	A (3)	A (2)
3. Imitation	B (2)	A (3)	A (3)
4. Social Engagement	C (1)	A (3)	E
5. Smile	C (2)	A (3)	B (2)
6. Affective Physical Contact	A (1)	D	D
7. Seeking Help	C (1)	D	A (2)
8. Protest / Withdrawal	C (3)*	B (3)*	A*
9. Exploring the Toys	B (3)	A (3)	A (3)
10. Form of Exploration	C (3)	A (3)	B (2)
11. Visual-motor coordination	A (3)	A (3)	A (3)
12. Functional Play	C (2)	A (3)	B (3)
13. Symbolic Play	C (1)	A (3)	B (2)
14. Symbolic Play Sequence	C (1)	B (3)	E
15. Repetitive Hand Movement	A *	A *	A *
16. Repetitive Movement Other Parts of the Body	A *	A *	A *
17. Self-injurious Behaviors	A *	A *	A *

Note: A: Proper behavior, no impairment; B: Low-impairment behavior; C: Intermediate-level impairment behavior; D: Absence of the investigated behavior; E: Not applicable.
1: Little appearance of behavior; 2: Behavior arises in a restricted way; 3: Appearance of behavior is frequent during sessions.
*Marked otherwise, when the behavior is absent, the letter A is used.

In Figure 1, the data reported in Table 1 is described using a graph. Individually, we can analyze that patient 1 has a higher score in the intermediate level of impairment of functions, classified in the quality scale as code C. Patient 2 has a higher score in behaviors classified as code A, which indicate low or non-existent sign of impairment in most functions. Finally, patient 3 presents the same score of behaviors classified in codes A and B, ranging from a low level of compromised behavior to the presence without deficits, in some cases. The Quality Scale used to classify children concerns the reciprocity, flexibility, amplitude, conventionality, consistency, and intensity of behaviors, which are coded by the letters A, B, C, D, and E, according to their respective definitions, mentioned above.



Note: A: Appropriate behaviors, no impairment; B: Low-impairment behaviors; C: Intermediate level of impairment behaviors; D: Absence of investigated behaviors; E: Not applicable

Figure 1. Result of individualized PROTEA-R for each patient

Table 1 describes the behaviors evaluated qualitatively concerning the exploration of objects and the environment and the interactive patterns with the evaluator. The PROTEA-R[9] protocol divides the above items into three major areas: Socio-communicative Behaviors, Play Quality, and Repetitive and Stereotyped Body Movement. The video session recordings bring a broader view, facilitating the visualization and formulation of qualitative analysis concerning the moments of play.

Chart 1. Qualitative analysis of observed conduct from the three PROTEA-R areas

	Socio-Communicative Development	**Play Quality**	**Repetitive and Stereotyped Body Movements**
Patient 1	Directs the focus of attention to the adult but does not coordinate gestures with eye contact and affective expressions. The focus is on the toy, not the interaction. Approaches the evaluator objectively, only to pick up the toys, without looking for affective contact.	Turn change occurs mechanically. Demonstrates protest/withdrawal in exchanging toys. Explores a few toys from the boxes, in a brief and/or repetitive way, the focus is always focused on the same one (lizard). Does not show signs of symbolic play, being observed only at one point by the evaluator's request.	Does not exhibit the behavior during the session. He puts his hands over his ear when he hears a loud noise from machines outside the room. He gets very irritated when the evaluator changes the toy box and when the session ends.
Patient 2	Has a Shared Attention Initiative, takes a toy and offers the evaluator another one so they can play together. Responds with gestures to the adult's request, changes shifts, coordinates eye contact and affective expressions in various situations.	Spontaneously invites the adult to play. Smile directed spontaneously to the adult and appropriate to the context. Explore toys in a variety of ways, appropriate to the context. Presents functional play and a beginning of symbolism, creates properties for toys, such as "cooling tea that is hot inside the cup".	Does not show repetitive or stereotyped behaviors during the session. Does not show self-injurious behavior. Shows a certain resistance to sharing the toys, and at the time of ending the session.
Patient 3	It has a shared attention initiative, but only in limited moments of the session. Follows the same focus as the adult, picks up the toys offered, gets excited about the presentation of new toys, changes shifts. Repeats the evaluator's speech (imitation) produces echolalia throughout the session (this) Smile in response to the evaluator's smile, but without eye contact.	There is no social engagement or initiative to invite the adult to play together. Explore all toys, but briefly, losing interest quickly. Presents functional play in some moments of the session. Symbolic play only appears once over the 2 sessions. No symbolic play sequence was observed	Does not exhibit the behavior during the session.

The criteria used in the analysis of the quality and frequency scales of the items considered critical in the risk assessment are described in Table 2. In the area of socio- communicative behavior, the items that stand out are: Shared Attention Initiative (SAI), Shared Attention Response (SAR), and Imitation (IM). In the area of quality, the critical item concerns Symbolic Play (SP) and in the area of Repetitive and Stereotyped Movements of Hands and Other Parts of the Body, the item Repetitive and Stereotyped Movements of Other Parts of the Body (RMB) stands out. They are, therefore, items that require special attention with regard to the codification of each child's protocol. Thus, the sum of the Quality Scale scores of the five critical items (SAI, RAI, IM, SP, and RMB) can designate presence, relative risk, or absence of risk for ASD.

Table 2. Risk calculation for ASD

Critical Items	Patient 1		Patient 2		Patient 3	
	Quality Scale	Converted Score	Quality Scale	Converted Score	Quality Scale	Converte d Score
Shared Attention Initiative (SAI)	C	2	A	0	B	1
Shared Attention Response (SAR)	C	2	A	0	A	0
Imitation(IM)	B	1	A	0	A	0
Symbolic Play (SP)	C	2	A	0	A	0
Repetitive Movements from other Parts of the Body (RMB)	A	0	A	0	A	0
Total	7		0		1	
Conclusion:	Relative risk for ASD		Without risk for ASD		Relative risk for ASD	

Converted score: the quality scale code is converted to numerical scores (A=0; B=1; C=2; D=3)The quality scale is a sum relative to the compilation of the 2 sessions performed with each patient.

Considering the results of the analysis of the PROTEA-R[9] protocol through the items mentioned above, it is possible to observe that patient 1 has a higher score, with a relative risk for ASD. He is the one with the most evident characteristics of autism and maintains few interaction initiatives with the evaluator. Despite presenting a relative risk, it means that the suspicion of the diagnosis can be maintained, but that its conclusion must be based on additional information (interviews, cognitive assessment, assessment with other professionals, information from the school context, etc.) and reassessment in an interval of at least 6 months, as directed in the PROTEA-R[9] protocol.

It is also important to analyze the difference in the final score between patients 1 and 3, both are classified according to the protocol as relative risk for ASD, however, a qualitative analysis clearly demonstrates a difference between the two patients. Patient 1 shows a greater deficit when it comes to the quality of play and socio- communicative behaviors, his behavior is characterized by few reciprocal and spontaneous interactions and his play lacks creativity and flexibility, in addition to presenting repetitive motor movements. This score reveals the profile of two children who, despite interacting with the evaluator and being interested in toys and games in a restricted and mechanical way, tend to make them qualitatively different.

Discussion

By analyzing the three children suspected of having ASD, and the evaluative results obtained in the diagnostic process and the communication and interaction functions, it is possible to establish a pattern of communicative intention for each patient, relating the findings of the PROTEA-R instrument in relation to the linguistic and extralinguistic characteristics. Due to the characteristic of the study, it is understood that there are limiting concerns about the sample size, but it indicates interest and demand for the search for further studies that broaden the understanding of play as a contribution to a complete diagnostic evaluation in speech therapy.

Autistic Spectrum Disorder is characterized by qualitative deviations in development, which makes its assessment a challenge. Thus, the clinical gaze should not be limited only to verifying the presence or absence of neurodevelopmental skills and/or functions, but also attentive to the way the behavior is expressed, as well as the existence of a delay in the skill expected for a certain age group assessed[9].

When analyzing the data in the tested protocol, there is an absence of stereotypies in the three individuals analyzed. The approach is limited to repetitive movements of the hands and other parts of the body and self-injurious behavior, not taking into account restricted and repetitive patterns of unusual sensory behavior, fixed interests in the same activities, excessive adherence to routine

and ritualized patterns in play with the evaluator. The term stereotype is characterized by behaviors with a rigid and stable pattern, intentional, repetitive, rhythmic, and devoid of purpose, according to the International Classification of Diseases, in its tenth edition (ICD-10). The impairment in the ability of behavioral variability is related to the diagnosis of autism.

When analyzing qualitatively, we noticed the presence of these behaviors in the three children, and mothers reported noticing stereotypies in their children, even though this fact was not classified in the protocol coding. Patient 1's mother reported a fixation on patterns during her son's playtime, in addition to the desire to always watch the same cartoon, not responding well to changes. In patient 2, the mother reports the presence of stereotypies related to sensory issues, especially hearing, the patient tends to bring his hands to his ears when hearing intense or repetitive noises. Patient 3 showed verbal stereotypies, such as speech echolalia as communicative intention. Stereotypies usually happen in situations where the child is bombarded with stimuli and needs to reorganize and process everything he is feeling[14].

The ability of shared attention appears in children from the second semester of life and several authors seek to understand the distinction of this ability in groups of children with autism from those with other developmental disorders. The reciprocity in the interaction makes this difference in the ability of shared attention evident. When an uncompromised child seeks this contact, affective expressions are usually visualized, which does not occur in autism. Therefore, the study of shared attention as one of the reliable early indicators of autism is justified[15]. When analyzing the shared attention initiative (Tables 1 and 2), there is a distinguishing variable between the three children analyzed. Patient 1 is classified by code C, which represents that the child directs the focus to the adult (spontaneously shows or gives toys to the evaluator), but rigidly, without coordinating gestures (pointing, for example) and, in most times without eye contact and affective movements. Patient 2, on the other hand, is an example of an effective shared attention initiative, in which the child directs the focus to the adult, coordinated with gestures, eye contact, and affective expressions, in various situations during the session. And finally, classified as code B in the quality criterion, patient 3, who has a variation among the others, for presenting a behavior consistent with age- appropriate, but restricted and repetitive, observing social engagement, but without the initiative to invite the adult playing together (Chart 1), with a high frequency scale, rated at 3, which means that this same behavior was performed at various times during the session.

The shared attention response of patients 2 and 3 showed appropriate behavior for their age, according to the protocol9. Children follow the adult's focus of attention, take the offered toys, look where the adult is pointing, respond with gestures to the adult's requests, get excited with the demonstration of new toys, and change turns during play. Patient 3 presents a mean value in the frequency scale (Table 1), representing that the behavior appears more restricted than in patient 2, but without presenting impairments. Patient 1, on the other hand, has a more stereotyped behavior, observing a response of shared initiative that is not so effective. The child always focuses on the toy and not on the interaction with the evaluator, which is a factor that encourages the investigation of this behavior considered atypical and characterizes a difficulty in socializing. This fact is a crucial point of autism, as it demonstrates difficulty in discriminating between other people's emotions, and often the inability to share these feelings. In addition, the patient demonstrates that there is an attachment in relation to the manipulation of a specific object during play and, despite exploring other toys, he only focused on this one, promoting a kind of ritual and order in the manipulation of other toys[16,17].

In the item "imitation", in Table 1, the objective is to identify the presence of imitative behaviors in the child. It is essential, according to protocol[9], that the evaluator at the time of interaction can differentiate learning by imitation, (when the focus of the child's interest is in the interaction with the adult) from learning by emulation (when the focus of the child's interest is in the toy's properties). Regarding the classification of the quality of behaviors, there is a deficit in patient 1, as the turn change occurs mechanically, being noticeable in the tea game, in which the child imitates the evaluator, but does not continue the action. This characterizes low-impairment behavior.

In this item, patient 3 has adequate quality and no major impairments but produces echolalia in speech at various times, which is a disorder defined as the repetition of sounds, words, or phrases[14]. The

word "this" appears several times in the patient's speech, but is presented as appropriate to the context. In addition, there is variation in intonation and voice use, demonstrating happiness, irritation and even withdrawal at some moments of the session. It is important to consider the patient's echolalia as the target of a more targeted therapeutic intervention in the future. It should be noted that there are reports[18] of clinical experience in several cases that there is an emotional factor in the patient related to echolalia, which is why the effective search for therapy should not be restricted only to linguistic meanings.

Children's play has been the subject of study in several areas (Speech Therapy, Psychology, Anthropology, Sociology, Education, etc.). Due to its functionality, defining what playing is and how it can impact a future diagnosis has been an arduous task[17]. For this reason and to help identify the play, it is important to propose identifying criteria for it, compatible with the evolutionary view of development. Thus, there is a way to synthesize and facilitate the observation of play in autistic children, distinguishing them from other phenomena, which are often confused, especially in autistic children, as curiosity, stereotyped behavior, interest only in the object, without understanding its functionality, among others. The criteria for identifying play are: a) quantity of toys that the child manipulates according to its function, in an adequate way (functional play); b) the "make-believe" in the manipulation of an object during play (symbolic play); c) intentional imitation of the evaluator's reproduction; d) structured sequence with evolution of symbolic play; and, e) form of exploring toys.

Such criteria are useful in helping to distinguish between behavior that is functionally performed in play and behavior that is rigidly stereotyped.

Functional and symbolic play are important factors to be analyzed in the investigation of ASD, as they contribute to the conclusion of the assessment. When looking at Table 1, in relation to the quality of play (items 18, 19, 21, 22 and 23), there is a clear distinction between the three patients analyzed. When thinking about the number of toys that the child operates and the form of exploration adopted, it is noted that patient 1 has a more significant deficit, for exploring in a brief, restricted and repetitive way without showing great interest in most toys, stopping to explore always the same ones in the two sessions. Thus, for patient 1 with a score of 7 points, there is a relative risk for ASD. For patient 2, with a score of 0, there is no risk for ASD. Patient 3, on the other hand, has a relative risk for ASD, with a lower score of 1 point, as shown in Table 2. This is due to the observation that patients 1 and 3 operate toys more mechanically and partially, and do not present continuity in symbolic play, which in both cases was stimulated by the evaluator, but without the child's initiative. When analyzing patient 2, it is noticed that his constructions are moving towards a more complex symbolism, in which the functional representation of objects is important for the development of this symbolic capacity. Although, in the case of the patient, this is at an initial level. It is important to emphasize that several studies on children on the autistic spectrum state a deficit in this more symbolic play[19].

Conclusion

Since play is the main space in childhood for children to spontaneously explore social and intellectual development skills, the application of the PROTEA-R protocol enables this search for diagnosis in the clinical context. Not only for addressing symbolic and functional aspects of play but also for providing a speech therapy view focused on communication and interaction such as language, for example, when analyzing echolalia, imitation moments, attempts at body language, etc.

While the observational assessment provides a qualitative look, helping positively when analyzing the protocol data, this, in turn, provides quantitative data, which makes it possible to target this analysis, making it more reliable comparing the general population, with or without ASD. In addition, the data brought demonstrate that whether through an observational assessment or specific protocols, it is extremely important to compare the history of each child and observe their interactions with family members when we think about children's speech therapy clinics.

In addition to the pleasure that the "play universe" brings to the child, a series of skills are evidenced during play, such as language, praxis, logical reasoning, socialization, among others[19]. The objective of the study was achieved, as interactional characteristics were described during the playful activity that help in the speech therapy assessment. One of the main differences among

children observed is the ability and response of shared attention, which are fundamental during dialogic interaction. Aspects that also serve as a warning for the identification of suspected ASD are the ritualized patterns in play and the fixed interest in the activities.

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