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Selected aspects of bilingualism in people with autism spectrum disorder – a review of research

Wybrane aspekty dwujęzyczności u osób z zaburzeniami ze spektrum autyzmu – przegląd badań

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Abstract

Introduction. The process of developing language skills in a child is an important topic. Speech is crucial as a means of communication, the main purpose of which is to influence the intellectual development and fulfilment of the child's psychological needs. An undisturbed process of shaping communication largely indicates the proper development of the child in terms of both physical and mental health and proper social relations. The characteristics of language and the specificity of communication of people with autism spectrum disorders may differ, which will depend on the age of the child and the severity of the disorder. Research indicates that about one in four children with autism spectrum disorders (ASD) are raised in a bilingual environment.
Aim. This work refers to the broad issue of communication disorders in the context of bilingualism in children, with particular emphasis on research on autism spectrum disorders. The first part of the work discusses the specificity of speech disorders occurring in people with autism spectrum disorders, while the second part of the article focuses on the phenomenon of bilingualism, presenting the latest research in this area.
Methods and materials. The article presents a theoretical approach based on the analysis of source materials from Polish and foreign publications.
Results. This study suggests that all children, including those with ASD, can become bilingual, and that bilingualism in itself does not impede language development. Moreover, according to current data, bilingualism has a very positive effect on creativity, expanding access to information, alternative ways of thinking about the world, and the development of creative thinking in children. It is, therefore, worth continuing research on the impact of bilingualism on people with autism spectrum disorder. Research in this area can contribute to a better understanding and support of people with ASD.

Keywords: autism spectrum disorder, language development, communication, speech disorders, bilingualism.

Abstrakt

Wprowadzenie. Proces rozwijania się zdolności językowych u dziecka jest ważnym tematem. Mowa ma kluczowe znaczenie jako środek komunikacji, którego głównym celem jest rozwój intelektualny i realizacja potrzeb psychicznych dziecka. Niezaburzony proces kształtowania się komunikacji w dużej mierze świadczy o prawidłowym rozwoju dziecka zarówno pod względem zdrowia fizycznego, jak i psychicznego oraz o właściwych relacjach społecznych. Charakterystyka języka i specyfika komunikacji osób z zaburzeniami ze spektrum autyzmu mogą się różnić, a zależy to od wieku dziecka oraz głębokości zaburzenia. Badania wskazują, że około jedno na czworo dzieci z zaburzeniami ze spektrum autyzmu (ASD) wychowuje się

w środowisku dwujęzycznym.

Cel. Niniejsza praca odnosi się do szerokiego zagadnienia zaburzeń komunikacji w kontekście dwujęzyczności u dzieci, ze szczególnym uwzględnieniem badań nad zaburzeniami ze spektrum autyzmu. W pierwszej części pracy omówiono specyfikę zaburzeń mowy występujących u osób ze spektrum autyzmu, natomiast w drugiej części artykułu skupiono się na zjawisku dwujęzyczności i zaprezentowano najnowsze badania w tym obszarze.

Metody i materiały. Artykuł przedstawia podejście teoretyczne oparte na analizie materiałów źródłowych z polskich i zagranicznych publikacji.

Wyniki. Opracowanie to sugeruje, że wszystkie dzieci, w tym dzieci z ASD, mogą stać się dwujęzyczne, i że dwujęzyczność sama w sobie nie utrudnia rozwoju języka. Co więcej, według aktualnych danych, dwujęzyczność bardzo pozytywnie wpływa na kreatywność, poszerzanie dostępu do informacji, alternatywne sposoby myślenia oraz postrzegania świata, a także rozwój twórczego myślenia u dziecka. Warto zatem kontynuować badania nad wpływem dwujęzyczności na osoby ze spektrum autyzmu. Mogą one przyczynić się do lepszego rozumienia i wspierania osób z ASD.

Słowa kluczowe: zaburzenia ze spektrum autyzmu, rozwój mowy, komunikacja, zaburzenia mowy, dwujęzyczność.

Introduction

Since the first attribution of the name "autism" to the disorder by Leo Kanner and Hans Asperger in the 1940s, much has changed in the understanding of autism itself, its diagnosis or potential causes. We have ceased to speak of a specific, individual disorder, and have moved towards defining the entire autism spectrum disorder (ASD), which is reflected in successive versions of the classification of diseases, including ICD-10 and ICD-11. According to current knowledge, autism spectrum disorders are characterised by a neurodevelopmental basis, by which it is understood that abnormalities in the structure and functioning of the brain lie at their core (Szmania, 2015). The aforementioned disease classification systems, as well as the DSM-5, are based on a medical model that views the autism spectrum as a condition that is predominantly genetically determined. At the same time, the importance of the interaction of genes with environmental factors is not questioned. The approach mentioned is overwhelmingly accepted, while a shift towards a biopsychosocial model is noted (Greaves-Lord, Skuse, & Mandy, 2022). This takes into account the social factors that have a bearing

on the existence and psychological well-being of people with ASD. According to this perspective, the difficulties of people diagnosed with autism spectrum disorders are interpreted not so much as a manifestation of individual deficits, but of a misalignment between the characteristics of the individual and the demands of the environment (Mandy, 2022). In view of such developments, the need to disseminate knowledge of neurodiversity, i.e., neurological pluralism, arises (Błeszyński, 2023).

According to the World Health Organisation (WHO), the international prevalence of ASD is estimated at 0.76%, representing 16% of the global child population (Baxter et al., 2015). In the United States, ASD is diagnosed in 1 in 54 children (Sauer, Stanton, Hans, & Grabrucker, 2021). A study was also conducted to estimate the prevalence of ASD in children aged 7–9 years in 2015. It covered 14 countries, including Poland. The results varied significantly between countries. The prevalence of ASD in south-eastern France was 4.76/1000 children and in Iceland 31.3/1000 (Sauer, Stanton, Hans, & Grabrucker, 2021). In Poland, data were obtained from the West Pomeranian and Pomeranian Voivodeships, where the prevalence of ASD among children and adolescents in the age range 0–16 years was estimated between 2010 and 2014. The highest incidence was in the age range of 4–7 years, where the overall estimate (based on data from both provinces) was 5.29/1000 children (Chiarotti, Venerosi, 2020). A gender difference in the prevalence of autism spectrum disorders is perceived. Boys were found to be four times more likely to have them than girls. However, this is not a conclusive finding, as research suggests that this is to some extent due to the underdiagnosis of women with ASD (Sauer, Stanton, Hans, & Grabrucker, 2021).

With regard to the changes formulated in the latest International Classification of Diseases ICD-11, it is worth first referring to the division used there. It differs from the one contained in the ICD-10. The previous division into infantile autism, atypical autism, or Asperger's syndrome has been abandoned. It was replaced by a division into autism spectrum disorders with or without the presence of intellectual developmental disorders and functional language. As before, the diagnosis of ASD is mainly based on the presence of symptoms from the so-called "autistic triad," encompassing the areas of reciprocal social interactions, communication and repetitive activities and interests (Frith, 2023). The ICD-11 classification also mentions atypical sensory processing, which was not considered a diagnostic feature (Greaves-Lord, Skuse, & Mandy, 2022). Atypical interests, as well as hypersensitivity, can be associated with sensory stimuli, i.e., sounds, texture, smell, taste, and light. Concerning sounds in particular, hypersensitivity to so-called "white noise" produced by everyday appliances, e.g., a hairdryer or washing machine, is quite often present. In terms of communication and social

interaction, one of the key problems is that people with ASD manifest difficulties in spontaneously understanding other people's verbal and non-verbal communication, with a consequent tendency to respond uncharacteristically to emerging messages (Greaves-Lord, Skuse, & Mandy, 2022). It is worth noting that reduced engagement in social relationships is not necessarily due to lower social motivation. It may be determined by fatigue associated with trying to recreate a non-autistic way of functioning (Cook, Hull, Crane, & Mandy, 2021). Lack of interest in social relationships is sometimes misdiagnosed, and the real cause of reduced activity may be peer non-acceptance, which sets the stage for the development of psychological disorders (Greaves-Lord, Skuse, & Mandy, 2022).

Autism spectrum disorders are considered highly heritable, as evidenced by studies on, among others, monozygotic and dizygotic twins (Sauer, Stanton, Hans, & Grabrucker, 2021). To date, no specific gene or genes directly responsible for the onset of ASD have been identified. However, a set of genes has been identified, divided into four categories in terms of strength of association with the risk of the disorder. Out of approximately 1,000 genes, 126 genes with a significant risk of ASD (category S) and 207 genes (category 1) with a high degree of certainty of their role in the development of the disorder have been identified. It is widely accepted that the aetiology of autism spectrum disorders is complex and multifactorial, with a significant role for environmental factors such as the age of the parents, the nutritional status and metabolism of the mother (micronutrient excess/deficiency is significant), infections during pregnancy and the associated immune response of the mother's body, the intake of medication during pregnancy, especially for the treatment of epilepsy or depression (Sauer et al., 2021).

Speech and communication disorders in people on the autism spectrum

The ability to communicate with other people is a skill that is important for every human being, a value needed to build relationships and create bonds. However, not everyone has the full communicative competence to freely build successful personal relationships. Certain difficulties may prevent the fruitful and satisfying sending and receiving of messages. Speech disorders, the causes of which may be related to the purely speech therapy aspect, but may also have a psychological and pedagogical basis, constitute or condition difficulties and lack of success in the development of communication.

According to Stanisław Grabias (2003), a speech disorder, of whatever kind, always impairs a person's ability to communicate and thus makes it difficult

for them to exist in a social group and, in an extreme situation, condemns them to live exclusively in their isolated world (Grabias, 2003).

Abnormalities in speech development and communication among people with autism are thought to be associated with structural and functional changes within the brain. Corresponding with this finding are the results of a study that showed significantly reduced left lateralisation concerning connections corresponding to language function (Nielsen et al., 2014). Special attention is currently being focused on reports that in autism there are genetic abnormalities related to the sequence of formation of specific types of nerve cells in the brain (Paulsen et al., 2022). Consequently, this situation impinges on the formation of neuronal connections, which may be associated with the acquisition of a language system (Korendo, 2023b).

Speech development is divided into three stages, the first of which is attributed to the period between two and nine months of age, when the child acquires the ability to repeat linguistic sounds. In the second of these – including the progression of the common field of attention – the ability to understand spoken words manifests itself. Whereas after eleven months of age (third stage), the child should be able to formulate them independently (Korendo, 2023b). Developmental abnormalities at any of the above-mentioned stages predict that gradually these deficits will worsen (Grzesiak-Witek, 2021).

Communication disorders in autism are most often associated with certain characteristic phenomena present in the speech of people with the disorder. These include echolalia, linguistic stereotypes, difficulties with the use of linguistic pronouns, compulsive questioning and idiosyncratic language (Bobkowicz-Lewartowska, 2005; Sadowska, 2020).

Much about communication developmental difficulties in children with autism is written by Ewa Pisula (2012), who states that the earliest signs of autism spectrum disorders include among others: poor eye contact, lack of interest in people and short attention span, lack of ability to alternately participate in interactions and limited ability to initiate and sustain interactions, lack of response to messages, lack of adaptation of facial expression to the situation, lack of pointing gesture, lack of following a person or object with the eye, lack of complex social behaviour combining gaze, facial expression, tone of voice and gesticulation, and lack of understanding of socially meaningful gestures (Pisula, 2012).

Asperger's syndrome may co-occur with aphasia, resulting from damage to the brain structures responsible for language acquisition (Korendo, 2023b). Infantile aphasia requires a much more prolonged development of language skills. Its infantile form does not only concern speech but also affects the sphere of written language (Korendo, 2023a). Problems may arise in the child's ability

to read, including learning letters, and, in terms of verbal communication, assigning phonological value to letters and syllables. The abnormalities resulting from this disorder, combined with the deficits associated with Asperger's syndrome, place a significant burden on the child and impede the child's daily functioning.

Alalia is defined as a disorder of speech development primarily determined by a limited performance of cognitive functions that are responsible for acquiring the ability to use speech. The ability of auditory perception (excluding hearing impairment) or language processing are only selected examples of components of the whole set (Korendo, 2023a). Alalia in children with Asperger syndrome manifests itself in the absence of early independent speech, difficulties in understanding longer messages, and the use of other means of communication such as gestures or body language.

Based on the developed speech, it is also possible to find diagnostic indications that are useful for the diagnosis of Asperger syndrome in children. These include a literal understanding of language, which translates significantly into relations with other people (Korendo, 2023b). Language schemas, meanwhile, usually take the form of quotations, and repetition of issues heard e.g., on television or in a computer game. The child generally uses them appropriately to the situation but does not understand the linear structure of the phrase. Language stacks are quite often a distinct component of the Asperger syndrome diagnosis, where certain proportions in the filling in of semantic fields are disturbed. The fields relating to interests and areas on which the child manifests a fixation are solidly filled and often exceed the linguistic competence of the adult. Other areas, however, are overlooked and not as large a vocabulary is implied. It is worth mentioning the monothematic nature of the utterances, which are centred around interests. Besides the elements mentioned, there are also narratives using the mechanism of association and a preference for analytical perception.

The language and communication characteristics of people with autism spectrum disorders may vary, depending on the age of the child and the depth of the disorder. In addition to the differences due to the specificity and nature of Asperger's syndrome, gender must also be taken into account. The picture of autism spectrum disorders in girls, and subsequently in women, is different from what is usually observed in the population of boys and men.

Jill Boucher (2003) in her publication draws attention to the characteristics of communication impairment among people on the autism spectrum. Although language may be present, its use is predominantly instrumentally rather than socially oriented. Deficits are not only related to spoken communication. The ability to learn sign language is usually comparatively limited. However, due to the oral

dyspraxia and hearing loss present, the acquisition of a sign communication system may become more accessible to a person with ASD.

In their review of research, Morton Gernsbacher, Emily Morson, and Elizabeth Grace (2016) focus on communicative phenomena that are considered characteristic of the autism spectrum. The authors mentioned pronoun reversals (inadequate use of the pronoun "you" and "I"), echolalia (copying the speech of others) and delays between production and ability to understand speech. The assumptions about the diagnostic value of the first of the communication phenomena are countered by publications reporting its emergence among children at the stage of early, normative development (Schiff-Myers, 1983).

Janet Bang and Aparna Nadig (2015) investigated the impact of mothers in the language domain on vocabulary acquisition in children with autism. They compared language stimuli among both the previously mentioned group and women raising neurotypical offspring. The average length of the mothers' speech was significant for vocabulary development in both groups of children. This is an indication that richer language resources directed towards autistic children are desirable and valuable for them. This publication points to an opportunity for children with ASD to have a comparable opportunity to use the language environment effectively as non-autistic children.

Potheini Vaiouli and Georgia Andreou (2017) reviewed the literature about therapeutic interventions using music as an avenue to support the development of language abilities in children with ASD. First and foremost, music has to do with engaging the child and enhancing the child's communicative episodes within their potential. Early vocalisations, such as babbling or melodic utterances, have points in common with the aforementioned area – sound, tempo, rhythm, and dynamics are crucial stages in language mastery. Interestingly, engaging in activities using sonic means generated opportunities to exchange intention and attention. The authors recognise that music holds promise for language development, but also opportunities for training and triggering engagement in children on the autism spectrum.

Hannah Sowden, Judy Clegg, and Michael Perkins (2013), in their study, leaned into the presence of gestures that complement the conversations taking place and function to enrich the message between interlocutors. Four children on the autism spectrum, ranging in age from 2.4 to 3.5 years, were observed. 20-minute video recordings were conducted every fortnight for eight months. It is worth noting the important point that individuals diagnosed with ASD show deficits in integrating audiovisual data, which may be associated with difficulty in using gestures, which in individuals with normative development support communication. All children participating in the study used gestures and speech or vocali-

sations. In contrast, gestures that would complement the information conveyed during conversation were absent or rare. In view of the results, it can be concluded that children on the autism spectrum do not support themselves with gestures in the same way in the exchange of information as their neurotypical peers.

Mustafizur Rahman, Siddika Ferdous, Syed Ahmed, and Anika Anwar (2011) investigated the use of interactive computer games alongside traditional therapy to improve speech among children with ASD. The researchers set out to get the participating children to interact, which was to play with technological solutions (visual displays, robots). They assumed that interaction with a material object (instead of a human) would improve the comfort of the aforementioned relationship of these children. The results indicate that the target group of interest is too diverse to create a specific, single game for them. It is necessary to take an individual look at each child separately.

Sandrine Le Sourn-Bissaoui, Marc Augert, Paulina Girard, Claire Chevreuil, and Virginie Laval (2013) decided to investigate what underlies the difficulty of understanding emotional speech in children and adolescents on the autism spectrum. They considered two options. The first was related to abnormalities in the processing of emotional prosody. The second, meanwhile, was related to the ability to make inferences, particularly when the aforementioned action had to be taken in ambiguous, complex circumstances. Individuals with ASD were able to cope with interpreting emotional prosody at an equally satisfactory level as neurotypical individuals when prosody was the only indication. Complications arose when there was a mismatch between the aforementioned aspect of the study and the situational context. Autistic children had more difficulty in making inferences than normatively functioning individuals from the control group. Consequently, the reasons for the limitations analysed are more likely to be found in the ability to make inferences when the information obtained is sometimes contradictory, the circumstances are too vague and therefore less clear.

Agnieszka Rynkiewicz and Izabela Lucka (2018) in their study obtained significant results on the issue of speech and communication development in girls on the autism spectrum. The results obtained using the ADOS and ADOS-2 tests showed that girls are characterised by lower intensity or even absence of autistic traits in the areas of gestures and verbal communication compared to boys. Higher values for autistic traits in girls were recorded in self-assessment questionnaires, as well as in the clinical interview.

An interesting observation was shared by Sarah Hendrickx (2018) in her book, in which she mentions that most of the women surveyed for this publication started speaking early and had a large vocabulary. A significant proportion of the girls developed their communication skills and verbal speech prematurely. Further-

more, this relates to normative speech development, where gender differences are apparent. In the second year of life, girls formulate longer utterances than boys (Kielar-Turska, Białecka-Pikul, 2014).

The phenomenon of bilingualism in autism spectrum disorders – a review of research

With advances in technology, scientific developments and cultural changes, the phenomena of bilingualism and multilingualism are becoming more common. It is estimated that approximately 25% of children on the autism spectrum grow up in a bilingual environment (Trelles, Castro, 2019). A distinction is made between simultaneous and sequential bilingualism. Simultaneous bilingualism refers to a situation where the child is oriented to exposure to both languages from birth. Sequential, conversely, involves the child acquiring a second language after the first three years of life (Paradis, Genesee, & Crago, 2021). It has been established that factors such as the age of second language acquisition, the degree of contact with the language and the social context of that contact are particularly important for second language development and mediated communication (Thordardottir, 2011). There is an assumption that the reach of bilingual experience extends beyond language processing (Romero, Uddin, 2021). Some indications having two languages may be associated with advantages in the cognitive sphere, actually in terms of executive functions (Gonzalez-Barrero, Nadig, 2019). The aforementioned functions involve intentional action, in which neurocognitive processes – cognitive flexibility, inhibitory control and working memory – prove to be important (Blair, 2016). According to the current state of knowledge, both languages remain activated, even though only one of them may need to be used at any given time (Van Assche, Duyck, Hartsuiker, & Diependaele, 2009; Kroll, Dussias, Bogulski, & Kroff, 2012). Research findings are inconclusive, so many questions remain (Romero, Uddin, 2021). Broad executive dysfunctions to an important extent can determine among others the occurrence of restricted and repetitive behaviours, stereotyped nature of movements, attachment to sameness, and narrow interests (Mostert-Kerckhoffs, Staal, Houben, & de Jonge, 2015).

Myriam Beauchamp, Stefano Rezzonico, and Andrea MacLeod (2020) showed that the bilingualism of children on the autism spectrum does not in itself negatively affect their development. French-English ASD children attending school and showing no coexisting language or intellectual disability had similar potential for language ability as their monolingual and neurotypical monolingual as well

as bilingual peers on the autism spectrum. An important point with these results is the absence of other linguistic as well as intellectual impairments.

Eleni Peristeri, Eleni Baldimtsi, Maria Andreou, and Ianthi Maria Tsimpli (2020) set out to verify the association of bilingualism among children with ASD with narrative storytelling ability and executive function performance. Bilinguals on the autism spectrum scored better on the microstructure and macrostructure of narratives compared to their monolingual neuroatypical peers. The results demonstrated the beneficial effects of bilingual use on narrative skills, as well as on visual attention, working memory, monitoring and updating competence. However, they signal the need for further research to verify the above reports.

Furthermore, E. Peristeri, E. Baldimtsi, Margreet Vogelzang, I. M. Tsimpli, and Stephanie Durrleman (2021) examined how the bilingualism of children on the autism spectrum relates to the theory of mind. As it turned out, bilingual children understood others' beliefs better than monolingual children (both groups with diagnosed ASD), which is a very good predictor for establishing interpersonal relationships.

The speech and language development of bilingual children with autism has also attracted the interest of researchers, who point to the increasingly clear strengths of multilingualism. Based on a comparative study of two children with autism, one monolingual and the other bilingual, the results of seven months of speech therapy were compared (Dosi, Sotiriadis, 2020). A significant advantage of the bilingual child over the monolingual child in a variety of linguistic areas was recognised. The analysis covered a wide spectrum of abilities, from gestures to the production of sentences composed of three words. Differences were demonstrated in the rate of acquisition of the phonological subsystem, active and passive speech, verbal and non-verbal pragmatic and cognitive skills. These findings are consistent with the results obtained by a team of other researchers reporting a positive impact of bilingualism on the communicative abilities of individuals on the autism spectrum (Baldimtsi, Peristeri, Tsimpli, & Nicolopoulou, 2016).

Many studies value multilingualism as a well-predictive asset for the development of individuals with ASD, such as Huong Hoang, Ana Maria Gonzalez-Barrero, and Aparnay Nadig's (2018) research on the lexical resource and morphological proficiency of bilingual children with autism. Research publications indicate a comparable or even higher vocabulary than monolinguals (Mlynski, Sadowska, 2023). Interestingly, the advantage among bilinguals was also associated with the amount of gestures used (Valicenti-McDermott et al., 2013). In addition, bilinguals manifested better visual attention, working memory, monitoring and updating skills (Peristeri Baldimtsi, Andreou, & Tsimpli, 2020). Consequently, it was con-

cluded that these individuals were more able to cope with linguistic or cognitive functioning. Ultimately, this is an important rationale for educational and clinical interventions aimed at inducing the maintenance of bilingualism among children with ASD.

Soyoung Park (2014) in her publication also focuses on the importance of bilingualism for the development of children on the autism spectrum and at the same time points to the relatively limited access to research on this issue. Despite insufficient scientific support for the beliefs about the alleged negative impact of the aforementioned phenomenon, they do influence the decisions of those responsible for the development of children with ASD and, consequently, their functioning. After reviewing the research, she does not see a rationale for limiting the developmental environment to one language, nor does she conclude that bilingualism contributed to developmental delays.

A study by Elizabeth Kay-Raining Bird, Erin Lamond, and Jeanette Holden (2012) leads to conclusions consistent with the above. The existing knowledge on the subject is insufficient, which influences the different recommendations given by professionals, as well as the different behaviours of parents. In addition, it should be noted that the recommendations should also consider the individual needs and abilities of both children on the autism spectrum and their families. This probably also has a bearing on the differing positions among professionals.

Also, Heather Drysdale, Larah van der Meer, and Deborah Kagohara (2015) talk about discrepancies in terms of recommendations from professionals. They conducted eight studies on bilingualism in children on the autism spectrum. They studied 182 children and 62 parents. All studies do not confirm the detrimental effects of bilingualism on the development of these children. However, the three studies identified indicated that the overwhelming majority of parents were advised against providing their child with access to a bilingual environment. In addition, most of the studies took the view that individual characteristics and family history should be taken into account in this regard and that cultural sensitivity should be considered in the used approach.

Maria del Pilar Trelles and Karen Castro (2019) focused on messages from parents. While the literature describes instances of the strengths of bilingualism among children with ASD, they are not consistent with each other, so only the negative meaning of the aforementioned phenomenon is excluded. According to parents' accounts, bilingualism, including the possibility to communicate in the mother tongue, brings a greater sense of intimacy and competence. Furthermore, its elimination may exacerbate already existing deficits in the social sphere, as well as cultural heritage. The loss of the possibility to communicate with relatives

and to function fluently in the community of origin generates further barriers in the life of the individual.

Conclusion

Due to increasing globalisation and migratory movements, the structure of societies is changing strongly. One of the main research directions is the assessment of language proficiency and early intervention for children with special needs raised in a bilingual environment. The available literature does not find contraindications for dual language learning by individuals with developmental disorders (Młyński, Sadowska, 2023). This is discussed in their publication by researchers Rama Novogrodsky and Natalia Meir (2020). Also based on studies among children with Down syndrome, bilingualism was not found to be a threat to the developmental process (Burgoyne, Duff, Nielsen, Ulicheva, & Snowling, 2016; Kay-Raining Bird et al., 2016). The detriment of growth in a multilingual environment in children with auditory deficits has also been verified, which also did not confirm the emerging concerns (Młyński, Sadowska, 2023).

For bilingual families of children diagnosed with autism spectrum disorder (ASD), it can be challenging to know which language or languages they should use and which parents should encourage their children to use (Hambly, Fombonne, 2012; Ohashi et al., 2012; Paradis, 2007).

Impaired social communication is one of the main features of autism spectrum disorders, meaning that some children with ASD will not develop any spoken language, others will have a limited range of verbal communication skills, and still, others may experience subtle difficulties with spoken language (Yu, 2013; Prizant, Wetherby, 2005). The linguistic abilities of children with ASD vary, so we may observe cases of a high vocabulary along with preserved structural skills, which may be accompanied by an impairment in pragmatic abilities – quite typical in the clinical picture of autism spectrum disorders (Brown, Oram-Cardy, & Johnson, 2012; Luyster, Kadlec, Carter, & Tager-Flusberg, 2008). However, there are also individuals with little or almost no speech. Reviews of the literature have not indicated signs of a negative impact of bilingualism on development (Wang, Jegathesan, Young, Huber, & Minhas, 2018), and optimistic results have even been seen among bilingual children with ASD regarding cognitive function, pragmatic language and expressive vocabulary (Dahlgren, Almén, & Dahlgren Sandberg, 2017; Wang, Jegathesan, Young, Huber, & Minhas, 2018).

A child's psychological and emotional development progresses in stages, with certain leaps that are evident in the child's language skills. By developing

language skills, the child demonstrates how he or she has developed from birth to the present moment. By listening, observing and using language, it is possible to assess how much progress the child has made along his or her path of psychological development. Acquiring, learning and imitating the sound and pronunciation of the second language present at home helps the child to broaden his or her understanding and interpretation of the world. In doing so, the child develops the ability to create and name the space around him or her, which influences dual language thinking and evaluation of the surrounding reality. When parents treat both languages, as well as both cultures, traditions and customs as equal, bilingualism is neutral and emotionally close to the child.

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