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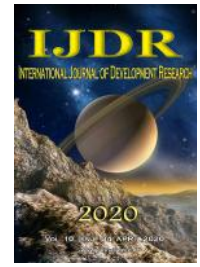
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RESEARCH ARTICLE

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## AUTISTIC SPECTRUM DISORDER: LIMITATIONS AND DIFFICULTIES OF STUDENTS

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### ABSTRACT

Autistic Spectrum Disorder is characterized mainly by persistent deficits in communication and social interaction in different contexts, in addition to restrictive patterns and repetitive behaviors, which arise from the early stages of neuropsychomotor development. Students with Autism need specialized educational support to contribute to their learning and school development. A literature review was carried out on the learning difficulties and limitations of students with Autism through the search for scientific articles in the databases and Pubmed and Virtual Health Library, using the terms Autistic Spectrum Disorder, learning difficulties, physical limitations, with the boolean operator and. Inclusion criteria: complete articles published in the last 5 years and with free access. 44 articles were found, 22 from Pubmed and 20 from Virtual Health Library, six articles were included. The percentage of year of publication of the articles included were 2016 (50%), 2018 (16.66%), 2019 (16.66%), 2020 (16.66%). However, none of the articles addressed both learning difficulties and physical limitations in students with Autism. The studies found showed that for the social inclusion of students with Autism to occur effectively, it is necessary to engage the multiprofessional team and that the school must be active in this process.

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### INTRODUCTION

Autistic Spectrum Disorder (ASD) is a neurodevelopmental disorder, characterized by persistent deficits in receptive and expressive language and in social interaction, with the presence of restrictive and repetitive behaviors of activities and interests, which manifests itself during the phase of child development. In national public policies, the government instituted the National Policy for the Protection of the Rights of People with Autism Spectrum Disorders, in which people with ASD are considered to be people with disabilities for legal purposes and are guaranteed specialized assistance (CAMPOS *et al* , 2018; BRASIL, 2012). Although it is related to ASD, Asperger's Syndrome differs from this having its own specification, as children may not have significant delay in the development of speech or cognition, on the contrary, they generally have high cognitive abilities, normal to high intelligence quotient, and normal language functions when compared to other disorders.

However, people with Asperger's syndrome have difficulty in perceiving the emotions of others, a common characteristic in ASD, and therefore, it may seem that they do not know what affection is, and may feel irritated or hurt when called to attention (RAMOS & HERNANDEZ, 2018). Special education in mainstream schools aims to create conditions to promote autonomy, independence and academic learning for students, the target audience of special education (with emphasis on TEA), without any discrimination. First, it is necessary to guarantee the special education teacher (mediator), working in the collaborative model, together with the regular classroom teacher, in addition to operationalizing and systematizing reading and writing activities to be applied both by the classroom teacher. regular class, with all students, as well as with the special education teacher (BENITEZ & DOMENICONI, 2016). The SUS psychosocial care network advocates the use of a method with scientific evidence in cases of ASD, Applied Behavior Analysis (ABA), which has been widely used for planning interventions and, in the area of

communication . The Behavior Analysis Applied in TEA aims at teaching deficient behaviors and reducing behavioral excesses, identifying repertoires that need to be established or expanded, so that they acquire a more adaptive function, are generalizable to other environments and remain for a long period (MASCOTTI *et al*, 2019; CAMARGO & RISPOLI, 2013). When thinking about children with ASD, it is known that one of the means found to work with autistic children, is playful activities. In play, the child has the possibility to show his autonomy, wills, creativity and criticism, which will help in his daily life. The toy, in this sense, is a way for the child to express real experiences, fantasies and desires. In the child's development, playing is a fundamental way for socializing and communicating with others and with oneself, stimulating their imagination and self-esteem (SILVA; FRIGHETTO; SANTOS, 2013). The student with ASD needs to be seen as a whole, as he is not the disease but a unique person who has his specificities and also qualities. Disability in itself is not highlighted as the center of the problem. The resources that need to be developed in order for the disability to be overcome are more relevant. In this sense, the school acquires an active role in helping the development of resources to the development of the psychic functions and cultural insertion of the subject (MARTINS & MONTEIRO, 2018). From this context, the objective of this study was to conduct a literature review on the learning difficulties and physical limitations of students with ASD, to correlate these aspects and identify the current scientific production on this topic.

## MATERIALS AND METHODS

Literature review by searching for scientific articles in the Pubmed and Virtual Health Library (VHL) databases, using the terms Autism Spectrum Disorder, Disabled Persons, Mainstreaming Education, with the Boolean operator AND (step 1). The search was carried out in December 2020. Inclusion criteria: complete articles published in the last 5 years (2016 to 2020) and with free access. After reading the titles to verify the overlap of the studies between the surveys in the two databases and to exclude the articles prior to 2014 (step 2). Then, the abstracts were read to verify if the studies fell within the scope of the analysis (step 3). The exclusion criteria were: papers that were not in the form of an article, course completion papers, dissertations and theses. Finally, the selected articles were read in full for further categorization (step 4).

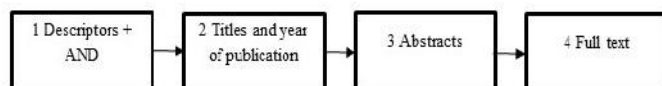


Figure 1. Search methodology

## RESULTS

Forty-four articles were found, 22 from Pubmed and 20 from VHL. Six articles were included in the study that met the inclusion criteria, 3 from Pubmed and 3 from VHL. The percentage of year of publication of the articles included were 2016 (50%), 2018 (16.66%), 2019 (16.66%), 2020 (16.66%), data presented in figure 3. However, none of the articles simultaneously addressed learning difficulties and physical limitations in students with ASD.

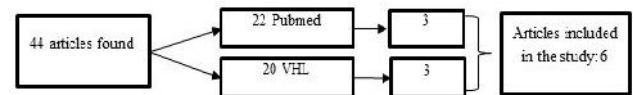


Figure 2. Data collection

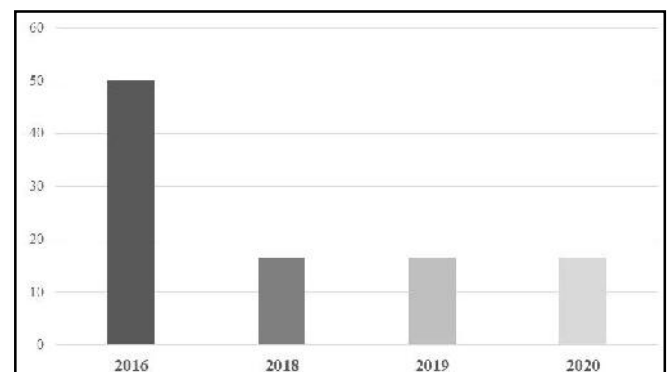


Figure 3. Percentage distribution of articles by year of publication

## DISCUSSION

In the study by Lemos *et al* (2016) the teachers' speeches demonstrated the rupture between the initial concepts they had about autism - most of them perceived children as isolated, resistant to touch, apathetic - and the concepts they have after the experience with these children in the school routine. It is considered that this data corroborates the statement by Camargo and Torezan (2004), that the conceptions about a certain phenomenon can be transformed from the direct interaction with the other. The parents' reports revealed the discrepancies between their perception of their children and the autistic children described in the diagnostic manuals. Reports of the presence of eye contact, manifestations of deliberate caring behaviors or reactions towards parents by the autistic children, who oppose the indifference generally associated with autism, prevailed. These discrepancies occur due to the generalization of symptoms and the non-comprehensive consideration of behaviors in terms of how, why and how often they occur and, mainly, in which contexts and with whom they occur (LEMOS *et al*, 2016). It is known that social interaction is a remarkable characteristic in TEA, so it is a theme widely used in research.

The results indicated that higher Intelligence Quotient (IQ) and larger classes were predictors of greater social network connectivity at the beginning of the study. Although IQ and age are important predictors of baseline social connectivity, children's gender and classroom size were the most important factors in determining social network connectivity 8 to 12 weeks later. It can be inferred that children with ASD experience decreased connectivity with classmates throughout the school year. Although this study used new analytical methods to predict the fragmentation of children's social network connectivity over time, there were several limitations, such as the absence of consent for the participation of some children (ANDERSON *et al*, 2016). Anderson *et al* (2020) studied the connectivity (social interaction) of students with ASD and stated that focusing on quality versus quantity of relationships can be important for support and continuous connectivity between peers.

Table 1. Summary table about the selected articles

Author	Object	Outcome
Lemos et al 2016	Analyze the conceptions of parents and teachers about the autistic child	Parents showed expectations towards socialization and academic learning, while teachers mentioned in their strategies the adoption of practices more focused on socialization.
Anderson et al 2016	Identify as predictors of fragmentation and connectivity in classrooms that may have important implications for classroom-based interventions	This study suggests that children with ASD experience decreased connectivity with classmates throughout the school year. Boys with ASD were more socially connected to classmates than girls in the early years of elementary school, but this effect dissipates with age.
Mandy et al 2016	Offer the first empirical account of the transition from elementary school to regular high school for children with ASD	Doctors and educators who work with children with ASD during the school transition should be aware that even children labeled as having high functioning ASD are likely to have significant support needs and that these go far beyond their main autistic difficulties, they may include impairment in adaptive functions.
Rodrigues & Angelucci 2018	Map the Brazilian scientific production on the schooling of children diagnosed with autism spectrum disorder	The content analysis reveals the maintenance of the Special Education relationship with a perspective of rehabilitation in Health, making the teacher suppose that he needs to undergo biomedical knowledge in order to teach his student.
Couto et al 2019	Understand how the experience with autism can impact the identification of autistic traits in students by Early Childhood Education teachers	The fundamental autistic traits were correctly pointed out by the participants, regardless of experience with the theme, indicating that teachers are important support agents for early diagnosis.
Lei et al 2020	Evaluate a pilot university transition program (Autism Summer School) for autistic students (16–19 years old) who wished to enroll/attend university	They recommended that higher education institutions should seek to offer personalized support to autistic students at all stages of university life, that is, pre-transition to university and while at university, on campus, and also include efforts to prepare students for life after graduation.

Children who had more connections at the baseline had more fragmentation in their social networks, as opposed to children who had less connections; in essence, these children had more to lose. Building strong, quality relationships with some peers can be an important intervention goal to ensure continued social success and connectivity with peers. The participants had substantial support of needs, however, it is known that these needs are little recognized and are often not met, and when the monitoring of therapies, mainly with speech therapist, psychologist and occupational therapist, the prognosis of child development is carried out. of the child with ASD is much better. Only 40% of children received additional state aid / funding to meet their special educational needs in mainstream education. There was an under-diagnosis of intellectual disability as a TEA comorbidity (MANDY *et al*, 2016). Rodrigues and Angelucci (2018) argued that the establishment of biomedical diagnosis as truth about the subject is not operative for education. This is because the label that reduces subjective, social and political issues to a nosological diagnosis discourages the teacher from his work. Maintaining the relationship of Special Education with a perspective of rehabilitation makes the teacher suppose that he needs to undergo biomedical knowledge in order to teach his student. Thus, what is understood as the schooling of children diagnosed with ASD continues to remain very close to the normalization clinic. It was observed in the study by Couto *et al* (2019) that the coexistence of teachers with autistic students enriched the understanding about more subtle aspects of social behavior, such as, for example, the observation about how to play in everyday life. The observation of playing is relevant in the early recognition of ASD, because there is usually a loss of symbolic play, of make-believe. In general, the teachers managed to point out the main signs of TEA, even with gaps in technical knowledge. The experience allowed the observation of differences in manifestations, contributing to the practical understanding of the spectrum variability. According to Couto *et al* (2019) and a multidisciplinary team allows the child to perform functional actions and understand requests, sometimes through alternative communication models, involving

professionals in Speech Therapy, Psychology, Occupational Therapy, Psychopedagogy, among other areas. The multidisciplinary team can act as a mediator between health and education in the setting of care networks, helping to identify the suspicious signs of ASD, thus corroborating with Mandy *et al* (2016), Campos *et al* (2018) and Ferreira *et al* (2018). Lei *et al* (2020) in their study assessed a wide range of transition concerns associated with going to university, and seven factors or domains of concerns emerged from factor analysis. The identified factors or domains of concern largely correspond to the general themes of transition challenges faced by young autistic children reported in the literature. First, four factors related to changes in the social environment and seeking support, as students move outside the home; the need to make new friends, to adapt to various social climates at the university during daily life, also for academic purposes and to be able to seek suitable sources of support are consistent with the findings of qualitative studies. Zalaquett *et al* (2015) argued that early intervention can serve to modify the course of ASD, at the brain level, towards a more adaptive development path. While Benitez & Domeniconi (2016) in their study demonstrated that students with ASD learned to read and write after 14 teaching sessions, one per day, with an average duration of 20 minutes, in which one word per session was taught.

Silva & Nascimento (2017) realized that when the practice of physical education is carried out in an oriented and regular way it can contribute to the global development of children with ASD, as well as to health and quality of life. Physical exercises help the release of endorphins, molecules that act in the promotion of well-being and also in the balance of the physiological functions of the body, that is, it improves concentration, cognition and quality of sleep. It is common for children with ASD to be more agitated and dispersed, so any intervention that aims to increase / improve the focus of attention of these children is always beneficial. According to Dantas (2018), written language must be acquired by children with ASD, because in addition to being a didactic tool in the social interaction process, it constitutes a form of

communication between peers. Especially in today's society where social media and educational applications use the graphic code and also in the social aspect, for example, shopping at the supermarket, pharmacy, bakery or going to a restaurant. Ferreira *et al* (2018) correlated human rights with ASD and neuroeducation and reported on the responsibility that the educator has to intervene in human experiences and provide contemplation and reasoning about the attitudes to be taken. They defended the inclusion efficiently from the multiprofessional work. Martins & Monteiro (2018) argued that the interaction of students with ASD in the regular school allows the possibility of educational action centered on relationships, privileging the shared elaboration of meaning in communication and learning between students with ASD and their peers, thus emphasizing, the semantic-pragmatic components of language.

For Ramos and Hernandez (2018), children with High Abilities and Asperger's have an effective characteristic of great sensitivity, as they accumulate information and capture emotions, but have difficulty absorbing and processing them. Aspects related to social interaction, pragmatic language, mental inflexibility and asynchronism must be worked with them. Usually children with high skills learn to read alone on average at 4 years of age, well before the age standard for literacy (6 to 7 years); in addition to being less tolerant of frustrations. According to Campos *et al* (2018) health professionals believe that students with ASD are able to learn, but in a different way and pace. The success of social inclusion depends on interdisciplinary work, corroborating with Ferreira *et al* (2018) who advocates efficient inclusion based on multiprofessional work. The family - multiprofessional health team - school triad is essential for the successful development of children with ASD. In the systematic review that investigated the applied behavior analysis (ABA) intervention in individuals with ASD, only 4 experimental articles were included and pointed out the linearity of the national scientific production, regarding verbal behavior, as an ABA intervention repertoire, as a theoretical reference, which are in accordance with the consolidated treatment models in terms of public policies (MASCOTTI *et al*, 2019). Playful activities are important and have great potential for stimulating cognitive functions and improving the characteristics of ASD, in addition to being a common strategy for therapeutic interventions performed by the multiprofessional team (NASS *et al*, 2019).

## Conclusion

The studies found showed that for the social inclusion of students with ASD to occur effectively, it is necessary to engage the multiprofessional team and that the school must be active in this process. It can be inferred about the importance of building social relationships with parents and in the school context in order to favor the maturation of students with ASD and prepare them to face the transitions in academic life. Further studies are needed to discuss this vast and important topic.

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