

AUTISTIC DISORDERS AND CARE PROMOTION STRATEGIES: INTEGRATIVE REVIEW

TRANSTORNOS AUTÍSTICOS E ESTRATÉGIAS PROMOTORAS DE CUIDADOS: REVISÃO INTEGRATIVA

TRASTORNOS AUTÍSTICOS Y ESTRATÉGIAS PROMOTORAS DE CUIDADOS: REVISIÓN INTEGRADORA

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Objective: to analyze the recent Brazilian scientific production about Autism Spectrum Disorders, identifying the investigated care strategies. **Method:** integrative literature review in the database LILACS and in the virtual library SciELO. Articles published between 2011 and 2017 were selected, using the descriptors Autistic Disorder, Asperger Syndrome and Rett Syndrome. **Results:** twenty four articles were characterized and analyzed descriptively, and their levels of evidence were presented. Twelve studies (50%) represented descriptive research, level of evidence VI. Eleven studies (45.8%) had non-experimental designs, level of evidence IV. The most studied strategy was the diagnosis and evaluation for clinical practice, by applying validated tools, followed by the assessment of therapeutic outcomes. **Conclusion:** current Brazilian scientific production about Autism Spectrum Disorder was focused on diagnosis in speech therapy and psychology.

Descriptors: Autistic Disorder. Asperger Syndrome. Rett Syndrome.

Objetivo: analisar a produção científica brasileira recente sobre Transtornos do Espectro Autista, identificando as estratégias de cuidados investigadas. Método: revisão integrativa de literatura na base de dados LILACS e na biblioteca virtual SciELO. Foram selecionados artigos publicados entre 2011 e 2017, utilizando os descritores Transtorno Autístico, Síndrome de Asperger e Síndrome de Rett. Resultados: vinte e quatro artigos foram caracterizados e analisados descritivamente, com exposição dos seus níveis de evidência. Doze estudos (50%) representavam pesquisas descritivas, nível de evidência VI. Onze estudos (45,8%) equivaliam a delineamento não experimental, nível de evidência IV. A estratégia mais estudada foi de diagnóstico e avaliação para a prática clínica, com aplicação de instrumentos já validados, seguida de avaliação de resultados terapêuticos. Conclusão: a produção científica brasileira atual sobre Transtorno do Espectro Autista mostrou-se direcionada para o enfoque diagnóstico nas áreas de fonoaudiologia e psicologia.

Descritores: Transtorno Autístico. Síndrome de Asperger. Síndrome de Rett.

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Objetivo: analizar la producción científica brasileña reciente sobre Trastornos del Espectro Autista, identificando las estrategias de cuidados investigadas. Método: revisión integradora de literatura en la base de datos LILACS y en la biblioteca virtual SciELO. Fueron seleccionados artículos publicados entre 2011 y 2017, utilizando los descriptores Trastorno Autístico, Síndrome de Asperger y Síndrome de Rett. Resultados: veinte y cuatro artículos fueron caracterizados y analizados descriptivamente, con exposición de sus niveles de evidencia. Doce estudios (50%) representaban investigaciones descriptivas, nivel de evidencia VI. Once estudios (45,8%) correspondían a diseño no experimental, nivel de evidencia IV. La estrategia más estudiada fue de diagnóstico y evaluación para la práctica clínica, con aplicación de instrumentos ya validados, seguida de evaluación de resultados terapéuticos. Conclusión: la producción científica brasileña actual sobre Trastorno del Espectro Autista se mostró orientada al enfoque diagnóstico en las áreas de fonoaudiología y psicología.

Descriptores: Trastorno Autístico. Síndrome de Asperger. Síndrome de Rett.

Introduction

The term autism was first used in 1906 by a psychiatrist who studied the thinking process of schizophrenic patients. The word comes from the junction of the Greek words *autus* and *ism* and means “self-directed”⁽¹⁾.

In 1943, Kanner published the article considered to be the first scientific description of cases of autism. The author developed the study with 11 children who presented what he called “autistic affective contact disorders”. The word autism started to designate a new disease⁽²⁾.

Research conducted in the 1970s determined a worldwide average of two to five autistic individuals for every 10,000 live births. Since then, dozens of epidemiological studies have been reported, thousands of children have been surveyed around the world. According to data from this century, collected by the American Center for Disease Control and Prevention (CDC), there is now one case of autism for every 110 people. Thus, it is projected that Brazil, which has more than 214 million inhabitants, has about 1.9 million autistic individuals. There are more than 300 thousand cases in the state of São Paulo alone. Although numerous, the millions of autistic Brazilians still suffer to find proper treatment⁽³⁾.

Autism is four times more common in males, with functional disorders in several areas. Before age three, autistic children may display altered development, reacting only to sound. Subsequently, they present repetitive and stereotyped actions, echolalia and pronominal inversion. They face difficulties when changing

their environment and show interest in inanimate objects⁽⁴⁾. Characteristics such as hyperactivity, lack of concentration, aggressiveness and difficulties in learning by conventional methods can occur, due to influence from the family or the context they are inserted in. The literacy process is possible and school is necessary for the socialization and stimulation of the child⁽⁵⁾.

Autism may have a neurological basis, a factor that makes early diagnosis and treatment aimed at the prevention of complications desirable as, over time, social interaction can worsen the behavioral change⁽⁶⁻⁷⁾.

In the 1980's, the creation of the concept of Autism Spectrum Disorder (ASD) and the evolution of the diagnostic criteria modified the epidemiological profile related to this disorder⁽⁸⁾. Encompassing the prototypical disorder and Asperger's and Rett's Disorders, it includes patients more broadly, varying from the mildest to the most severe cases⁽⁸⁾.

Asperger's syndrome is characterized by the same qualitative reciprocal social interaction abnormalities that characterize autism. In addition, the child has restricted, stereotyped and repetitive interests and activities, but does not present any general, language or cognitive development delay^(2,7).

The Rett Syndrome presents particularities that easily distinguish it from Autism and Asperger's. Caused by a mutation linked to the X-chromosome and the production of the Methyl-CpG2 protein, it is almost exclusive to girls⁽⁹⁾. They usually show normal growth and

development until approximately six months of age. From the age of seven months, a decrease in the head circumference is observed. Partial or complete loss of expression and acquired skills, such as intentional hand movement and locomotion, are the sequential changes. The condition worsens, evolving until the age of four with a diagnosis of microcephaly and mental retardation. Often, observation shows ataxia of the trunk, apraxia, stereotyped hand movement evolving to choreoatetoid movements - slow involuntary, twisting, affecting the fingers and, more rarely, speech and breathing. In these cases, hyperventilation may occur^(7,10).

The diseases grouped in the ASD concept are congenital, which makes them difficult to identify. Until the age of three, the symptoms can be very subtle, making a rapid diagnosis difficult⁽¹¹⁾. Individuals with ASD can present deficiencies in emotional processing, facial recognition, control of their field of vision, imitation ability, use of gestures, use of pragmatic language (metaphor, irony) and recognition of their own and other people's thoughts and feelings. Severe impairments in social interactions are common⁽¹²⁾.

With treatment, which should consider specificities, most children with ASD present improvement in social behaviors, communication and self-care skills when they grow up. The alliance of professionals with the mothers of autistic children is indispensable for successful treatment. Drug treatment can lead to behavioral improvements^(3,6).

In 2007, the Brazilian Health Department established a work group for autistic care in the SUS network, showing the importance of the topic. One of the aspects discussed in this group was the need to produce evidence-based knowledge for the referral of ASD care proposals⁽¹³⁻¹⁴⁾.

In 2012, the National Policy for the Protection of the Rights of Persons with Autism Spectrum Disorder was established. Comprehensive care for the health needs of ASD patients and the encouragement of scientific research, prioritizing studies that show the magnitude and the characteristics of the ASD problem in the country, are two of its guidelines⁽¹⁵⁾.

Based on the above, the authors chose to carry out this integrative review to analyze and disseminate the Brazilian scientific production on ASD.

The motivation for the study was the need of the authors, participants in two research groups, to acquire a theoretical framework that would serve as a guideline for the choice of fieldwork to be developed in undergraduate and postgraduate extension programs in nursing.

Due to the still limited discussion and development of this theme at the academic level, especially in nursing, we sought strategies from scientific studies, which, when implemented, would bring these professionals closer to those clients lacking specific demands, both the immediate client, the child, and the caregivers/relatives.

The guiding question of the study was: What are the care promotion strategies in the interaction between health professionals and children diagnosed with autism spectrum disorder evidenced in quantitative studies?

The focus of this study was the current Brazilian scientific production on autistic spectrum disorders, aiming to: analyze the recent Brazilian scientific production on Autism Spectrum Disorders, identifying the care strategies investigated.

Method

An integrative literature review is described, resulting from the search for ASD studies in the LILACS database and in the SciELO virtual library. The focus considered the studies conducted by health researchers, published in Portuguese, from 2011 to 2017.

An integrative review is a type of study that uses the research material as a data source for a given topic. There are authors who consider it the broadest review method, as it permits the inclusion of experimental and non-experimental studies, aiming for a complete understanding of the phenomenon analyzed. It also combines data from theoretical and empirical studies. Using explicit and systematized search methods, a broad sample is obtained which, after a critical assessment of the production collected, allows

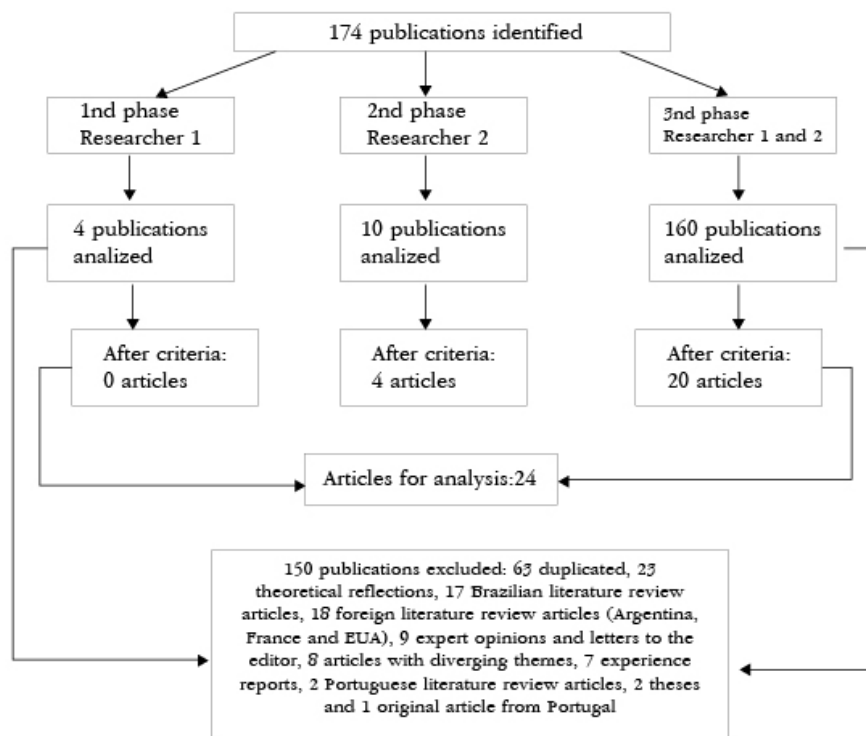
us to arrive at a summary of the evidences the research presents, demonstrating and valuing the results achieved⁽¹⁶⁾.

For the valuation of the results achieved, we chose to use a classification of evidences published for the first time in 2005 in the United States. This method ranks, from levels I to VII, the quality of evidence from scientific studies or other sources of information, namely: I – evidence from systematic review or meta-analysis of controlled randomized clinical trials or clinical guidelines based on systematic reviews of controlled randomized clinical trials; II – evidence from at

least one well-designed controlled randomized clinical trial; III – evidence from well-designed clinical trials without randomization; IV – evidence from well-designed cohort and case-control studies; V – evidence from systematic review of descriptive and qualitative studies; VI – evidence from a single descriptive or qualitative study; and VII – evidence from opinions and/or expert committee reports⁽¹⁷⁾.

The research was carried out by two researchers in three different phases (Flowchart 1), in order to guarantee the reliability of the research.

Flowchart 1 – Article research for integrative review



Source: Created by the authors.

The first phase took place in November 2017 and was carried out by one researcher. The following descriptors were used: *Autismo/enfermagem*; *Síndrome de Rett/enfermagem*; *Síndrome de Asperger/enfermagem*, combined using the Boolean operator AND. These searches were not successful. Then, the researcher used the descriptors *Síndrome de Rett* and *Síndrome de Asperger*. The search yielded results, which were refined by applying the filters: Available from full text, published in the period 2011-2017 and in

any language. Four publications were found in LILACS: an original article developed in Portugal, a review article in Brazil, a review by Portuguese authors and a duplicate. All were excluded after reading, as they did not meet the inclusion criteria - original, quantitative articles published by Brazilians and developed in Brazil, and which answered the guiding question of the study.

Simultaneously and independently, the second researcher carried out a search, applying the same method as described earlier. Ten publications

were identified in LILACS and SciELO (Flowchart 1). After reading the titles and abstracts, six articles were excluded: two Brazilian literature review articles, one Portuguese literature review article, one thesis and two duplicated articles. Four articles were refined for analysis. The two researchers autonomously read these articles to confirm the potential studies for inclusion.

A third phase became necessary (December 2017) when the two researchers simultaneously verified the descriptor autism. This search was necessary in order to create equality with the search performed using the descriptors *Síndrome de Rett* and *Síndrome de Asperger*. This search for the descriptor in the Virtual Health Library (VHL) initially found 20,922 publications. When the filters used in the two previous phases were applied, the number of results dropped to 160 publications, whose titles and abstracts were read (Flowchart 1). A Word® file was prepared to facilitate this reading, allowing for the exclusion of duplicates and the evaluation of abstracts, aiming to refine articles that met the inclusion criteria. In this way, the third phase resulted in the identification of 20 articles for full reading and analysis and the exclusion of 139 papers.

After completing the data collection phase, 150 articles were excluded: 63 duplicates, 23 theoretical reflections, 17 Brazilian literature review articles, 18 productions of foreign origin (Argentina, France and USA), nine publications regarding expert opinions and letters to the editor, eight articles with diverging themes, seven experience reports, two Portuguese literature reviews, two theses and one article of Portuguese origin. For the sake of analysis and valuation of evidence, 24 quantitative research articles were separated. The final version of the qualified studies was shared among four researchers for consensus analysis.

Results

The corpus of the analysis consisted of 24 articles, 12 (50%) from SciELO and 12 (50%) from LILACS. Regarding the year of publication, 2011 was the most predominant, with eight articles (33.3%) published that year. Five articles (20.8%)

were published in 2013, and four (16.6%) in 2014. Three articles were from 2012 and three from 2015 (12.5% each). Only one article (4.2%) from 2016 was part of the analysis. The *Revista da Sociedade Brasileira de Fonoaudiologia* and the *CoDAS* Journal each published seven articles (29.1% each) in the sample.

The arrangement of the studies according to the scenarios in which they were developed showed that the Southeast stood out with 21 studies (87.5%), 19 of which were developed in São Paulo and two in Minas Gerais. The participation of research groups linked to university centers of excellence was evidenced, such as the Federal University of São Paulo (UNIFESP) and the University of São Paulo (USP), which have laboratories and research departments focused on these clientele^(18-32,35-37). Ten publications (41.6%) in the sample were developed by research groups of the Faculty of Medicine of the University of São Paulo (FMUSP), linked to a single primary researcher, an associate professor^(18,21,23,25-26,29-32,36).

In total, 65 authors participated in the elaboration of the articles, including 36 speech and language therapists (55.4%), 13 psychologists (20%), 11 physicians (16.9%), two pharmacists (3%), one biochemist, one nurse and one dietician (1.5% each). A relative dissimilarity was evidenced in the formation of groups for publication in this area.

The articles were classified according to their level of evidences. One study (4.2%) has an experimental design, level of evidence II. Eleven studies (45.8%) adopted a non-experimental, observational design, five (20.8%) of which were longitudinal, level of evidence IV. Twelve studies (50%) represented descriptive searches, level of evidence VI. These studies provide support to professionals regarding new therapeutic strategies for ASD, but the professionals need to analyze each research in order to assess its applicability, especially regarding the elaboration of care protocols⁽¹⁷⁾.

Data analysis emphasized the use, in eight studies, of instruments for clinical evaluation and efficacy of therapeutic interventions used for children and adolescents with ASD^(18,22,24-26,31,33-34). Two of these were aimed at adapting instruments

already validated in another language^(18,33). One compared two instruments in order to determine the level of agreement obtained in diagnostic evaluation⁽²⁶⁾. Another study adapted a professional assessment instrument for a questionnaire applicable to parents of individuals with ASD⁽³⁴⁾. Finally, four studies used diagnostic evaluation tools, two of which were behavioral and two were speech-language assessment^(22,24-25,31). In these publications, the clinical findings were evidenced, but the care plan outlined for the clientele after the diagnosis was not described.

The use of medical diagnostic systems to identify this childhood psychiatric disorder was emphasized. In the population and sample definition phase of thirteen studies, the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the International

Statistical Classification of Diseases and Related Health Problems (ICD-10) were the diagnostic confirmation systems applied to eligible children and adolescents^(18-19,21-22,24-25,28-29,31-32,34,39,41).

The reading and analysis of the publications identified diagnostic and therapeutic intervention proposals, notably in the field of speech therapy and psychology, which clarify the universe of autistic disorders.

It should be noted that some studies have revealed limitations and particularities, demonstrating the need for new studies to corroborate their results⁽³⁷⁻³⁸⁾. Most researchers worked with small samples. One article presented the proposal of a data recording system to favor new research with large populations⁽³⁰⁾.

In Charts 1 and 2, the characteristics, objectives and results of the articles under analysis are displayed.

Chart 1 – Characteristics of articles analyzed

(continued)

Authors	Title Study design	Year State	Journal/ Database	Evidence level*
Defense DA, Fernandes FDM ⁽¹⁸⁾	Social-communicative adaptation and Autism Behavior Checklist: associations in the evolution of institutionalized autistic adolescents. Longitudinal	2011 SP	Rev Soc Bras Fonoaudiol LILACS	IV
Rodrigues LCCB, Tamanaha AC, Perissinoto J ⁽¹⁹⁾	The attribution of mental states in the speech of children with autism spectrum disorder. Longitudinal, prospective	2011 SP	Rev Soc Bras fonoaudiol SciELO	IV
Tamanaha AC, Perissinoto J ⁽²⁰⁾	Comparison of the evolutionary process of children with autism spectrum disorders in different language speech-related therapeutic interventions. Observational, cross-sectional	2011 SP	J Soc Bras Fonoaudiol SciELO	II
Varanda CA, Fernandes FDM ⁽²¹⁾	Syntactic awareness: probable correlations with central coherence and non-verbal intelligence in autism Observational, cross-sectional	2011 SP	J Soc Bras Fonoaudiol SciELO	VI
Rodrigues IJ, Assumpção Junior FB ⁽²²⁾	Visual-perceptual and motor abilities in Asperger syndrome Exploratory, case-control	2011 SP	Temas psicol SciELO	IV
Fernandes FDM, Amato CAH, Balestro JI, Molini-Avejonas DR ⁽²³⁾	Orientation to mothers of children of the autism spectrum about language and communication Observational, longitudinal	2011 SP	J Soc Bras Fonoaudiol LILACS	IV
Marteleteo MRF, Schoen-Ferreira TH, Chiari BM, Perissinoto J ⁽²⁴⁾	Behavioral problems in children with autistic disorder Observational, case-control	2011 SP	Psic: Teor e Pesq LILACS	IV

Chart 1 – Characteristics of articles analyzed

(continued)

Authors	Title Study design	Year State	Journal/ Database	Evidence level*
Misquiatti ARN, Fernandes FDM ⁽²⁵⁾	Language therapy and autism spectrum: the therapeutic environment's interference Observational, longitudinal	2011 SP	Rev Soc Bras Fonoaudiol LILACS	IV
Santos THF, Barbosa MRP, Pimentel AGL, Lacerda CA, Balestro JI, Amato CAH, et al ⁽²⁶⁾	Comparing the use of the <i>Childhood Autism Rating Scale</i> and <i>Autism Behavior Checklist</i> protocols to identify and characterize autistic individuals Descriptive, quantitative	2012 SP	J Soc Bras Fonoaudiol SciELO	VI
Camargo SPH, Bosa CA ⁽²⁷⁾	Social competence, school inclusion and autism: a comparative case study Descriptive study of case studies	2012 RS	Psic: Teor e Pesq LILACS	VI
Amorim LCD, Assumpção Junior FB ⁽²⁸⁾	The concept of death and Asperger syndrome Case-control study	2012 SP	Estud Psicol SciELO	IV
Miilher LP, Fernandes FDM ⁽²⁹⁾	Considering responsivity: a proposal for pragmatic analysis in autism spectrum Descriptive study, case series, quantitative	2013 SP	CoDAS LILACS	VI
Neubauer MA, Fernandes FDM ⁽³¹⁾	Functional communication profile and speech-language diagnosis of children of the autism spectrum: checklist use Descriptive, quantitative	2013 SP	CoDAS SciELO	VI
Vieira CBM, Fernandes FDM ⁽³²⁾	Quality of life in siblings of children included in the autism spectrum Descriptive, quantitative	2013 SP	CoDAS LILACS	VI
Costa VBS, Harsánvi E, Martins-Reis VO, Kummer A ⁽³³⁾	Translation and cross-cultural adaptation into Brazilian Portuguese of the Children's Communication Checklist-2 Descriptive, quantitative	2013 MG	CoDAS SciELO	VI
Machado FP, Palladino RRR, Cunha MC ⁽³⁴⁾	Adaptation of the Child Development Clinical Risk Indicators instrument to retrospective parent report Descriptive, quantitative	2014 SP	CoDAS SciELO	VI
Semensato MR, Alves BC ⁽³⁵⁾	Attachment in couples with a child with autism Descriptive, exploratory, case study	2014 RS	Fractal Rev Psicol LILACS	VI
Porto BL, Befi-Lopes D, Couto MI, Matas CG, Fernandes FD, Hoshino AC, et al ⁽³⁶⁾	Hearing performance and atypical behavior in children using cochlear implant Observational, retrospective and prospective	2014 SP	Distúrbios Comun LILACS	IV
Klinger EF, Souza APR ⁽³⁷⁾	Clinical analysis of play skills in children with autistic spectrum disorders Descriptive, quantitative-qualitative	2014 RS	Distúrbios Comun LILACS	VI
Tabaquim MLM, Vieira RGS, Razera APR, Ciasca SM ⁽³⁸⁾ Souza ACRF, Mazzega LC, Armonia AC, Pinto FCA, Bevilacqua M, Nascimbeni RCD, et al ⁽³⁹⁾	Self-efficacy of caregivers to children with autistic spectrum disorder Descriptive Comparative study of the imitation ability in Specific Language Impairment and Autism Spectrum Impairment Observational, case-control	2015 SP 2015 SP	Rev psicopedag SciELO CoDAS SciELO	VI IV

Chart 1 – Characteristics of articles analyzed

(conclusion)

Authors	Title Study design	Year State	Journal/ Database	Evidence level*
Nunes DRP, Santos LB ⁽⁴⁰⁾	Merging practices in alternative communication: an autism case study Descriptive, case study	2015 RN	Psicol Esc Educ SciELO	VI
Kummer A, Barbosa IG, Rodrigues DH, Rocha NP, Rafael MS, Pfeilsticker L, et al ⁽⁴¹⁾	Frequency of overweight and obesity in children and adolescents with autism and attention deficit/hyperactivity disorder Observational, case-control	2016 MG	Rev Paul Pediatr LILACS	IV

Source: Created by the authors.

* Evidence levels: I – evidence from systematic review or meta-analysis of controlled randomized clinical trials or clinical guidelines based on systematic reviews of controlled randomized clinical trials; II – evidence from at least one well-designed controlled randomized clinical trial; III – evidence from well-designed clinical trials without randomization; IV – evidence from well-designed cohort and case-control studies; V – evidence from systematic review of descriptive and qualitative studies; VI – evidence from a single descriptive or qualitative study; and VII – evidence from opinions and/or expert committee reports.

Chart 2 – Study objectives and results

(continued)

Reference Identification Number	Objective(s)	Results
18	Check for associations between the results of the Functional Communication Profile (FCP), the social-cognitive performance, the <i>Autistic Behavior Checklist</i> (ABC) and social-communicative adaptation over a six-month period.	The results of the ABC and FCP were associated with the social-cognitive performance. A higher score on ABC is associated with lower social-cognitive performance scores and fewer communicative acts. The results of the social-communicative adaptations were not associated with any of the variables.
19	Analyze the attribution of mental states in the speech of children with autistic spectrum disorders; verify the modification in the vocabulary and phrase length after speech-language therapy.	An increase was verified in the number of words and number of words per phrase between the evaluation period and one year after the therapy. No difference was found in the attribution of physical and mental-state verbs and mental-state substantives in both groups; the number of physical-state substantives dropped in the child autism group.
20	Analyze/compare the extension and speed of the evolutionary process of children with ASD assisted in direct and indirect speech-related therapeutic interventions, to the detriment of indirect intervention.	The tendency towards better performance of the children with ASD attending both interventions showed that the association of direct and indirect actions is fundamental in the speech-language therapeutic process.

Chart 2 – Study objectives and results

(continued)

Reference Identification Number	Objective(s)	Results
21	Evaluate in children with ASD: syntactic awareness, central coherence, non-verbal intelligence, social and communication development, behaviors and interests. Verify their probable correlations.	No relation was found between performance on syntactic awareness and results on central coherence, non-verbal intelligence, social interaction problems, communication difficulties and restricted interest patterns of autistic children. This may indicate that these children follow, in a delayed manner, the development pattern of syntactic awareness of typically developing children for that age.
22	Verify the existence of visual-perceptual and motor alterations in patients with Asperger syndrome (AS) when compared to subjects with normal development.	In comparison, these skills were impaired. Difficulties were related to: symbolization and complex concept perception, skills dependent on flexibility in devising, organizing and planning to execute an activity, in the spatial-temporal coordination or organization, in memory and attention. The lack of central coherence is an important characteristic of AS.
23	Verify the results obtained after ten sessions of instruction about language and communication to mothers of children on the autistic spectrum.	There was a positive impact of the systematic orientation procedures for communication and language aspects, conducted together with the children's therapy. Even systematized, the sessions permitted adjustments to the needs of each group. All subjects progressed in at least one of the areas investigated.
24	Identify behavioral problems in children with Autistic Disorder (AD), comparing the answers of the mothers of these children, children with language disorders and children without informed conditions. The mothers answered the Child Behavior Checklist.	Both groups with informed conditions had higher average scores than the group of children without informed conditions. The group with language disorders had higher average scores on aggressive behavior and externalizing behaviors. The children with AD had higher average scores on Thinking Problems and lower scores on Anxiety.
25	Analyze the functional communicative profile of participants with AS disorders in a common therapeutic environment and in a specific environment.	No significant difference was found between the subjects' pragmatic profile in both environments. The specific context studied did not seem to significantly influence the individual's functional communication profile.
26	Compare the <i>Childhood Autism Rating Scale</i> (CARC) and <i>Autism Behavior Checklist</i> (ABC) to identify and characterize individuals with Autism Spectrum Disorders (ASD)	The disagreements between the results obtained based on the tools support research data. CARC may not diagnose truly autistic children. ABC can include children with other disorders as autistic children. Therefore, the use of both tools is recommended.

Chart 2 – Study objectives and results

(continued)

Reference Identification Number	Objective(s)	Results
27	Comparatively analyze the social competence profile (SCP) of a child with autism and a typically developing child. Investigate the influence of the classroom/ playground environment in the SC of both.	While the SCP of the typically developing child varied little between the contexts, the child with autism demonstrated more frequent cooperation and social assertion behaviors and lower frequency of aggression and disorganization of the <i>self</i> in the playground.
28	Verify if the concept of death in people with Asperger syndrome (AS) is similar to that observed in people with mild mental retardation and without psychopathology.	The results indicated impairments in the understanding of the concept of death by people with AS, possibly related to deficits in the theory of mind, executive function and weak central coherence.
29	Compare the pragmatic profile of communicative initiatives and the bi-dimensional profile involving the aspects of initiative and responsivity.	A difference was found in the comparison between the initiatives and total participations concerning the occupation of the communicative space and the total number of communicative acts. A difference was also found in the number of appropriate responses.
30	Present the initial results of the use of a registration system used in a specialized service.	The initial results of this system underline the importance of including information from the intervention processes in reliable and accessible systems, guaranteeing the association of information.
31	Verify the use of a checklist instead of the full protocol (of the Functional Communication Profile – FCP) to facilitate the clinical-therapeutic accompaniment process.	The checklist can be used to accompany therapeutic processes of children with Autism Spectrum Disorders but does not replace the full instrument (FCP).
32	Assess the quality of life (QoL) in siblings of children of the autism spectrum through their answers to the World Health Organization Quality of Life questionnaire.	The results indicated that the siblings who answered the questionnaire did not indicate a significantly impaired QoL. In conclusion, family individuality, coping strategies, social support and assistance received directly influence these subjects' QoL.
33	Translate the Children's Communication Checklist-2 into Brazilian Portuguese, develop its cross-cultural adaptation and assess its internal consistency.	The author of the original tool and the editor certified the adjusted version. The reliability of the tool is acceptable, with internal consistency coefficients of the subscales ranging between 0.75 and 0.90. It can be used in the evaluation of children with autism and developmental language disorder.
34	Adapt the Clinical Risk Indicators for Early Childhood Development to a retrospective questionnaire for parents of children between 3 and 7 years of age.	The questionnaire was easy to use, with an average completion time of 15 minutes, and low cost. The analysis of the questions revealed good internal consistency.

Chart 2 – Study objectives and results

(conclusion)

Reference Identification Number	Objective(s)	Results
35	Investigate the relations between individual and joint attachment in couples whose children have ASD, using the Attachment Script Assessment and a semistructured interview.	The main results revealed that, in couples in which one or both partners had access to the secure individual attachment script, the partner relationship, mainly in the parental aspect, was preserved, which was not the case when the partners did not present these indicators.
36	Analyze whether atypical behaviors associated with severe/profound hearing loss affect the development of hearing skills after cochlear implant (CI).	General atypical behaviors do not indicate that the child using CI will not develop auditory skills. Thus, the development of these skills can be expected as a result of the CI in children with general atypical behaviors associated with severe to profound bilateral deafness.
37	Compare free playing in children on the autistic spectrum by means of two tools: the analysis of transcriptions with a psychoanalytical focus; the analysis using the behavioral observation protocol from social cognition theory. Analyze the contributions of these tools to think about therapeutic intervention.	Results obtained using the protocol and the transcript revealed points of convergence and divergence, such as the functional analysis and the level of symbolism in the children's playing. Observational assessment provides a qualitative perspective to confirm or refute the data protocol. The protocol provides quantitative data to compare each subject to different populations, permitting objective data to confirm or reject the impressions deriving from the qualitative perspective.
38	Identify the relation between the independence pattern of the child with ASD and the self-efficacy level of his/her caregiver.	The study pointed to the lack of correlation between the dependency level of the child with ASD and the caregiver's perceived self-efficacy. The limitation and particularity of the sample was suggested.
39	Compare abilities of imitating generic and sequential motion gesture schemes in family routines among children with Autism Spectrum Disorder (ASD) and Specific Language Impairment (SLI); analyze the relation between imitation index and verbal production of children with ASD.	The ability to imitate gestures and sequential schemes could be compared, showing a more prominent impairment in children with a diagnosis compatible with AS. Among them, a direct and significant relation was found between the ability to imitate sequential gesture schemes in family routine and the verbal production of words and phrases.
40	Evaluate the effectiveness of adapting the Pecs protocol and the AMI strategies for the communicative development of an autistic child	The quasi-experimental design registered an increase in the frequency of the student's interaction initiatives using the pictograms and changes in the teacher's interaction style.
41	Assess the frequency of overweight and obesity in subjects with and without ASD/ADHD and their parents.	Children and adolescents with ASD and ADHD are at a higher risk of being overweight and obese than children without developmental problems.

Source: Created by the authors.

Discussion

Speech-language therapy was presented as beneficial for the development of children with ASD. One achievement is verbal performance, with increased vocabulary and phrase length⁽¹⁹⁾. This therapy, when combined with direct and indirect intervention, produces better results than an isolated intervention⁽²⁰⁾. The responsiveness of children with ASD needs to be considered for the practitioner to understand their interactions and to plan the therapy more effectively⁽²⁹⁾. The participation of the mothers, being oriented in a systematic and individualized way, shows significant gain in the child's elemental communicative development⁽²³⁾.

The evaluation of socio-communicative skills is a procedure developed in the search for the identification of cases of ASD and for the establishment of therapy. The act of playing is something to consider, being typical for child development and representative of social interaction. The influence of the mothers in the act of playing can help in the therapy of the child, respecting the symbolic act of playing and the particularities of each case⁽³⁷⁾. Like playing, imitation also plays a prominent role in the child's motor, linguistic, and social development. In the case of the child with ASD, it is easier to imitate simple gestures than sequential actions, as they present short and long-term memory difficulties. This difficulty in imitation produces damages to social interaction⁽³⁹⁾.

One resource to aid in the communication of these children with impairments in expressive and receptive communication is the use of Alternative and Expanded Communication, which involves the use of manual gestures, facial and body expressions, graphic symbols. This is promising in the interaction of the child with ASD⁽⁴⁰⁾.

Some impairments can be identified in the child with ASD, as is the case with the hearing alteration. Because parents initially notice a speech impairment, they eventually believe in a hearing impairment of their children. In view of the confirmation of severe bilateral deep hearing loss, regardless of additional behavioral,

psychological and cognitive alterations, there is indication of cochlear implantation. The results may be favorable for auditory skills and improved behavior and communication skills⁽³⁶⁾.

Socialization is part of an individual's daily life, making them take part in a group. Individuals with ASD face restrictions in their interaction, but are capable of displaying social behaviors and social assertiveness like a typically developing child. The moments of isolation need to be considered though, in order to resume new stimuli and social demand, as is the case in the school environment, where efforts are made to include these children⁽²⁷⁾. The family is inserted in this collective context, which may suffer from social withdrawal due to the demands of the treatment and the daily life of the child. It should be pointed out that, although most of the studies show that there may be some feeling of burden, according to the coping and peculiarities of each family, a study showed that siblings do not always suffer from this joint life⁽³²⁾.

Mothers presented a good standard of efficacy for the care of children with ASD⁽³⁸⁾. Although the studies also appointed a good family performance in this task^(32,35), the care burden on the mother, a potential caregiver in the Brazilian culture, was present. The nurse, as a member of the family health strategy team, can establish a relationship of trust with all family members, identifying the bond established between the subjects involved in the care and the child, providing opportunities for expressing doubts, helping to find strengths in moments of anguish and giving advice for care.

The positive effect of the family's communion with the child with ASD can be based on mechanisms of coping with adversity. A family that has a secure base is able to provide a safe attachment for the child with ASD and the family members. Attachment is structured from an early age and may be considered safe or not, depending on how it was built⁽³⁵⁾.

In the universe of children with ASD, there are some peculiarities that differ from healthy children concerning negative experiences, such as the concept of death. For children

with Asperger's Syndrome, death may have a different, more subtle meaning, as they do not have a full social interaction and these and other concepts are established in the course of development⁽²⁸⁾. Another peculiarity is the deficit in the performance of syntactic awareness some children present, which may not necessarily be associated with the diagnosis of autism but, in autism, it exhibits certain differences when compared to typically developing children⁽²¹⁾. A frightening and growing reality in the child population, the prevalence of overweight and obesity, is also present in ASD. This finding was associated with the use of antipsychotic drugs, whose side effects include increased appetite and metabolic alterations. The need for further studies on this association was emphasized⁽⁴¹⁾.

Some authors highlighted that the earlier the treatment begins in children with autistic disorders, the better are the responses obtained⁽²⁹⁾. In the family health strategy, the nurse is one of those responsible for the evaluation of growth and development, a childcare action performed. This professional should therefore be able to recognize changes suggestive of autistic disorders, contributing to the early diagnosis and the establishment of intervention measures.

Conclusion

The current Brazilian scientific production on autism spectrum disorders has focused on the diagnostic approach, especially the speech-language therapy and psychological approach. This can generate benefits for this clientele, as it enables the targeting of the therapy to the actual needs of children and adolescents with ASD.

The search for the development of more effective forms of social communication in these individuals is carried out by professionals who are qualified and attentive to their demands as well as their relatives'. It is recommended that a multiprofessional team implement a targeted intervention program, aimed at meeting the needs of each individual, a crucial procedure for the effectiveness of early diagnosis and treatment. Physicians, nurses, physiotherapists,

occupational therapists, physical educators and psycho-pedagogues have a relevant role, possessing acknowledged skills and competence for the diagnosis, evaluation and follow-up of individuals with ASD.

New interventional and observational studies with large samples, developed by researchers from different areas, are necessary to generate evidence of higher quality.

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2. writing of the article and relevant critical review of the intellectual content: Andréa Maria Alves Vilar and Márcia Farias de Oliveira;

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