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Autism Spectrum Disorder: Public Policy Propositions for Evidence-Based Practices[1]

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Abstract: In recent years, Brazil has registered a significant increase in the incidence rate of individuals diagnosed with autism spectrum disorder (ASD). This phenomenon is accompanied by the growing number of inclusive policies and guidebook for educators and health agents, describing interventional practices that guarantee the education/treatment of these individuals in school and non-school settings. The purpose of this literature review, associated with documentary research, was to analyze reference publications, disseminated by the Ministry of Health and Education, which address interventional practices for individuals with ASD, published in the last 20 years. Results

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from the six documents identified indicated that the conceptions of ASD, the interventions proposed, as well as the professional profiles of those who work with this population were not always aligned with empirically validated protocols. Alternatives for the production, dissemination, and improvement of evidence-based practices (EBP) for students with ASD are discussed.
Keywords: autism; legislation; public policies; evidence-based practices

Transtorno do Espectro Autista: Proposições das políticas públicas às práticas baseadas em evidências

Resumo: O Brasil registra, nos últimos anos, aumento significativo da taxa de incidência de indivíduos diagnosticados com Transtorno do Espectro Autista (TEA). Esse fenômeno vem acompanhado do crescente número de políticas inclusivas e de cartilhas para educadores e agentes de saúde, com vistas a orientar sobre práticas interventivas que garantam a educação/tratamento desses indivíduos em contextos escolares e não escolares. Seguindo-se a metodologia de pesquisa de revisão da literatura, associada à pesquisa documental, o objetivo desse estudo foi analisar documentos consultivos, disseminadas pelo Ministério da Saúde e da Educação, que abordam práticas interventivas para indivíduos com TEA, publicados nos últimos 20 anos. Os resultados da análise dos 6 documentos identificados sustentam que a conceituação do transtorno, as práticas sugeridas e a definição do perfil profissional dos que atendem essa poplação nem sempre se alinham aos protocolos empiricamente validados. Alternativas para a produção, disseminação e aprimoramento de Práticas Baseadas em Evidências (PBE) para educandos com TEA são discutidas.
Palavras-chave: autismo; legislação; políticas públicas; práticas baseadas em evidências

Trastorno Del Espectro Autista: Proposiciones de políticas públicas a prácticas basadas en evidencia

Resumen: En los últimos años, Brasil ha registrado un aumento significativo en la tasa de incidencia de personas diagnosticadas con trastorno del espectro autista (TEA). Este fenómeno se acompaña del creciente número de políticas y fascículos inclusivos para educadores y agentes de salud, con propósito de orientar sobre prácticas interventoras que garanticen la educación / tratamiento de estas personas en contextos escolares y no escolares. Siguiendo la metodología de investigación de revisión bibliográfica, asociada a la investigación documental, el objetivo de este estudio fue analizar documentos de consulta, difundidos por el Ministerio de Salud y Educación, que abordan prácticas de intervención para personas con TEA, publicados en los últimos 20 años. Los resultados del análisis de los 6 documentos identificados sugieren que la conceptualización del trastorno, las prácticas sugeridas y la definición del perfil profesional de quienes atienden a esta población no siempre se alinean con los protocolos validados empíricamente. Se discuten alternativas para la producción, difusión y mejora de Prácticas Basadas en Evidencia (PBE) para estudiantes con TEA.
Palabras-clave: autism; políticas públicas; legislacion; autism; prácticas basadas en evidencia

Autism Spectrum Disorder: Public Policy Propositions for Evidence-Based Practices

Autism spectrum disorder (ASD) is a condition characterized by socio-communicative difficulties and behavioral challenges evidenced throughout an individual's development process, beginning in the early childhood years. Currently, the term spectrum is conceived as a complex and wide range of characteristics, composed of different levels of severity and in combination with other disorders (Schmidt, 2017), imposing different challenges for parents, clinicians, and educators.

Current epidemiological rates reveal that 1 in every 54 children are diagnosed with ASD (Maenner et al., 2020), making it essential to develop strategic public policies, both in health and education fields. These would concern governmental actions regarding the adoption of intervention practices that produce treatment effects on individuals diagnosed with ASD. In the recent past, the types of treatments chosen for this population depended exclusively on the experience of the selected professionals and their theoretical preferences. Considering the complexity levels of the demands, it is essential to adopt objective standards when defining the criteria for the professional profile of those involved in clinical/educational care, as well as the requirements for their regular and continued education.

The way of selecting intervention procedures tends to be replaced by the adoption of evidence-based practices (EBPs), defined by the American Psychological Association as the individualized process of clinical decision-making that occurs by integrating the best available evidence with clinical expertise in the context of individual characteristics, culture, and preferences (APA, 2006, 2011). Three principles underlie this process: scientific evidence, available resources, and client characteristics (Medrado & Nunes Sobrinho, 2016; Satterfield et al., 2009). The first principle concerns the results of empirical studies. In this context, research agencies outline specific guidelines to assess the effectiveness of intervention practices disseminated in the scientific literature. Thus, the treatments are assessed and classified into different gradations, which represent the levels of evidence, which range hierarchically from randomized clinical trials to experts' opinions (Burns et al., 2011). The second principle includes both the level of knowledge of the intervention agent and the physical, material, and cultural conditions of the context where the intervention will be implemented. In other words, the individual characteristics refer to the values, preferences and demands of those who will be directly affected by the intervention. In the school context, it would concern the students and, in the clinical setting, the patients (Satterfield et al., 2009).

The scientific literature presents the efforts of different international research agencies that developed protocols for assessing EBPs for students with ASD (National Autism Center [NAC], 2009; National Research Council [NRC], 2001; Steinbrenner et al., 2020). Driven by the culture of accountability, publications of this nature have supported educational policies in countries such as the United States, Australia, and Canada (Nunes & Schmidt, 2019). The Federal No Child Left Behind Act (NCLB, 2002), for example, requires U.S. schools, which receive federal financial resources, to select and implement only interventional practices that present evidence of effectiveness. Moreover, the scientific community has paid special attention to the adoption and integration of EBPs for caretaking procedures. In this respect, just over a decade ago, a research area termed Implementation Science was created along with an international journal with the same name dedicated exclusively to the investigation of this subject (Eccles & Mittman, 2006).

In Brazil, it is estimated that there are about 2 million people with ASD. Approximately 1.2 million of these individuals are enrolled in schools or receive treatment in rehabilitation institutions (Mello et al., 2013). As a result of the considerable increase in the incidence rate of people with ASD, the Brazilian Ministry of Health (MH) and Ministry of Education (MEC) developed inclusive policy actions to meet the needs of this population. The goal of these actions was to provide theoretical and practical supports for educators and healthcare agents who work with these individuals.

Among the actions proposed by the ministries was the publication of guidebooks for educators and healthcare professionals with the objective of offering them resources for selecting procedures in education/treatment for their clientele. Pedagogical devices of this nature are regarded as appropriate instruments for helping parents, families, students, and healthcare professionals (Silva et al., 2017). Based on this panorama, it is relevant to analyze, from the perspective of EBPs, the intervention practices recommended by these government agencies.

Three studies of similar nature were published in the last 10 years. The first, authored by Guareschi, Alves, and Naujorks (2016), is a documentary research that analyzed how autism was described in national public policies and in documents published by the MEC and the Anísio Teixeira National Institute of Educational Studies and Research (INEP), in Brazil, from 1994 to 2015. Following the same methodological design, the other two investigations, produced by Pereira, Mascarenhas, Pisaneschi, Araujo, Amancio, and Katz (2016), and Oliveira, Feldman, Couto, and Lima (2017), analyze the divergences of two institutional guidebooks, published by the Ministry of Health, on the characterization and therapeutic demands of people with ASD.

As a complement, this study aims to expand the research of Guareschi et al (2016), Pereira et al. (2017), and Oliveira (2017) by focusing specifically on the interventional practices disseminated by the Ministries of Education and Health in the last 20 years. Specifically, the objectives of this investigation are to: a) analyze the conceptions on the nature of ASD; b) critically analyze the publication on interventional practices for this population; and c) analyze the recommended professional profile needed to provide support for this population.

Selecting documents from health and education domains is justified by the need of contemplating the integrality of the individual, focusing on the human development in multiple dimensions.

Method

The present study is designed as a documentary research, defined as an investigative procedure of a phenomenon through the examination of human made products. These products, called documents, can be written materials, such as laws or normative guidebooks, intended to prescribe norms of conduct in a given social, economic, and political context. The study of these materials leads to an understanding of current ideas in a determined historical moment (Kripka et al., 2015).

The identification of the documents for analysis followed two distinct protocols, one for the MH, and another one for the MEC. In the first one, the last two guidebooks, published by the MH, were considered, which related to the treatment of people with ASD. These documents, previously analyzed by Pereira et al. (2017) and Oliveira (2017), were chosen for being recent, electronically available, and for explaining therapeutic practices to be adopted by healthcare professionals.

For the MEC, the guidebooks and technical standards, published between 2000 and 2019, electronically available on the MEC website and on the electronic portal of the Brazilian Autism Association (ABRA), were assessed. On the MEC platform, the publications of the now-defunct Secretariat of Special Education (SEESP) and the Secretariat of Continued Education, Literacy, Diversity, and Inclusion (SECADI) were consulted. At the ABRA website, the documents produced by the MEC regarding interventional practices for students with ASD were reviewed.

The documents identified focus on the way ASD is conceptualized, the interventional practices described, and the professional profile of the educators or healthcare agents responsible for the treatment/care of this population.

Results

In the MEC "publications" platform, 72 references associated with the SECADI were identified - many of which had been published by SEESP. These materials included collections on Special and Inclusive Education, technical standards, issues of *Revista Inclusão*, as well as other documents concerning students supported by Special Education services.

The search terms "typical conducts," "pervasive developmental disorder," and "autism spectrum disorder" were used to identify the documents concerning ASD. The adoption of these terms was based on the analysis made by Guarechie et al. (2016) who identified the use of these three designations in documents published by government agencies in the last 25 years.

In this search process, two guidebooks, published respectively in 2002 and 2010, were identified. In view of the scant number of available publications - possibly due to recent changes in the MEC platform - a second database was inspected. In this case, the ABRA was selected, because it is an entity that aims, among other objectives, at disseminating information published by the MEC. In this new platform, a guidebook on Early Childhood Education, published in 2004, and a Technical Note from 2013 were found.

On the Documents and their Conceptions of ASD

Four publications were identified by the MEC. The oldest one was entitled "Projeto Escola Viva or Living School Project - Ensuring access and permanence for all students at school - Students with special educational needs: Recognizing students with higher levels of conduct-related, learning difficulties" (Brasil, 2002). The guidebook is written for teachers of students who display "typical conducts," a term that, at the time, contemplated students with autism.

The adoption of this terminology, according to the authors, is an attempt to avoid terms that could be demeaning. Despite this proposal, the guidebook classifies five categories of "typical conducts " commonly observed in the school context. These include attention disorders, impulsiveness, hyperactivity, aloofness, and physical and/or verbal aggressiveness. Many of the attributes described by these terms resemble behavioral patterns identified in people with autism (Guareschi et al., 2016).

The second guidebook, "Knowledge and Practices of Inclusion: Severe Learning Difficulties: Autism," was published in 2003 and is designed for early childhood education teachers, who work both in the regular classroom and in special education classes. In the first section of the document, guidance is presented regarding the identification of autism signs in children from 0-6 years of age. In this context, the use of evaluation forms, presented in the document to monitor student development, are recommended. In the following section, the manuscript focuses on the learning process of children with autism in daycare. Finally, in the subsequent segment, the document describes aspects related to the inclusion of children with autism in regular and in special education classrooms.

In this document, autism is initially conceived as a severe learning difficulty, as suggested by the title itself. In line with the previous guidebook, despite the terminology used, the characteristics are highlighted in some fragments. Thus, the authors claim that autism is:

> A set of characteristics that can be found in affected people within a range of possibilities that go from mild social disorders without mental disability all the way to severe mental disability. (Brasil, 2003, p. 14)

Although medical diagnostic manuals are not mentioned, the authors use the term "childhood autism," adopted by the 10th edition of the International Classification of Diseases -ICD (WHO, 1993), and discuss the diagnostic triad highlighted in this manual. In spite of this definition, statements that could lead to mistaken understandings of the disorder are identified. This is the case, for example, of the following segments,

> It is very common for children with autism to learn to read by themselves before the age of four, but they never manage to learn to write because they are unable to

> hold a pencil and they never even try to scribble anything on paper. (Mello, 2004, p. 22)
>
> Their unresponsiveness to demonstrations of affection or compliments made by parents and teachers prevents them from learning things to please parents and teachers. (Mello, 2004, p. 15)

The first statement, possibly, relates to hyperlexia, a disorder characterized by decoding skills expressively superior to those of reading comprehension. Caused by language and executive function disorders, this condition affects approximately 6% of people with ASD (Ostrolenk et al., 2017). Thus, it cannot be inferred that it is a "very common" disability, nor that limitations in writing are associated with motor difficulties, such as holding a pencil.

In the second statement, considerations on affective issues could lead teachers to infer that students with ASD are unable make affectional bonds. The representation of the person with autism as someone unable to feel affection has been widely broadcasted in films that mistakenly portray such trait as a characteristic of people with autism (Schmidt, 2012). This belief constitutes a basic barrier to any pedagogical intervention since it produces a negative impact on teacher-student affective relationships. In fact, studies corroborate this idea by highlighting that teacher perception can indirectly influence pedagogical practices (Gregor & Campbell, 2001; Nascimento et al., 2016; Schmidt et al., 2016).

The third document, entitled "Special education from the perspective of school inclusion: global development disorders," was published in 2010. The adoption of the term pervasive developmental disorder (PDD), extracted from the fourth edition of the *Manual of Diagnosis and Statistics of Mental Disorders* (DSM-IV), resemble medical models of diagnosis, which became prevalent in official documents from 2008, with the publication of the National Policy of Special Education in an Inclusive Perspective (Guareschi et al. 2016). The issue is designed for regular classrooms teachers as well as those in special education services (SES) who work with ASD students in basic education.

Behavior patterns typically identified in the disorder are described through everyday school scenes. This may provide teachers with a better understanding of the condition. In the following segment, the authors describe Paulo, an 8-year-old boy, presented in the third case report of the guidebook

> (...) He couldn't stay in the classroom for long. And when he did stay in the classroom, he would keep pounding his fist against his desk at a constant pace for a long time, or restlessly fiddle with strips of paper or plastic, which he often brought from home (stereotyping). (Belisary & Cunha, 2010, p. 28)

The observed behaviors are additionally analyzed through the perspective of Theoretical models of executive functions (Ozonoff et al., 1991) and the theory of mind. These two approaches are accepted by the scientific community and widely disseminated by the international literature.

The fourth document to be analyzed in this study is Technical Note 24/2013. It provides specific guidelines for the implementation of Federal Law 12.764/2012, which establishes the National Policy for the Protection of the Rights of People with Autism Spectrum Disorder. This document recommends that people with ASD be provided with the same special attention as those with disabilities, according to the definition proposed by the United Nations.

The guidebooks published by the MH are entitled "Guidelines for The Rehabilitation of People with Autism Spectrum Disorder (ASD)" and "Care Line for People with Autism Spectrum Disorders and Their Families in the Psychosocial Care Network of the Brazilian Unified Health

System." The documents published, respectively, in 2014 and 2015, aim to provide guidance for the treatment of people with ASD in the Brazilian Unified Health System (SUS). In conceptual terms, the first document focuses on neurobiological and genetic aspects, such diagnostic evaluation, and comorbidities, in addition to highlighting psychosocial risk factors for ASD. The second one claims that biological conceptions coexist with affective, relational, cognitive, and structural perspectives that explain the disorder.

The Interventional Practices Highlighted in the Documents

The authors of the 2002 guidebook state that there are multiple interventional strategies for working with children with "typical conducts." This nonspecific terminology, which encompasses multiple diagnostic possibilities of biological, psychological, behavioral, and/or social origin, can lead to the adoption of inappropriate practices (Guareschi et al. 2016). The manuscript initially enumerates therapeutic practices of psychological and medical natures, then it emphasized that the document aims at the work developed by teachers in the classroom environment.

The behavioral paradigm seems to underlie the recommended teaching strategies. These resemble a subset of EBPs called "behavioral package," composed of several focal practices (Steinbrenner et al., 2020). For example, focusing on events that are contingent to the student's responses resembles "functional behavioral analysis." This focal practice is based on the Experimental Behavior Analysis model (Neno, 2003), which is used to identify the function or purpose of a behavior (Steinbrenner et al., 2020). In these terms, the behavior should be operationally defined, and its frequency, intensity, and duration recorded (Sam & AFIRM Team, 2015). Two of these aspects - objective description and frequency, are contemplated in the excerpt below.

> When observing this type of behavior, it is important that the teachers produce **an objective record of the characteristics of the behavior**. It is very useful to have a description containing information such as what times and how often such behaviors are presented by ASD students, the consequences of such behaviors for these students, their classmates' responses, what intervention strategies have already been tried, and what was the result of such interventions. (Brasil, 2002, p. 18, excerpt highlighted by the authors)

The intervention strategies described in the following examples share similarities with another focal practice, of behavioral nature, called differential reinforcement. It is an intervention model used to reduce the frequency of inappropriate conducts by reinforcing functionally incompatible behaviors or any other response, except the undesired behavior (Steinbrenner et al., 2020).

> Teach students acceptable and appropriate responses to physical and/or verbal outbreaks. Students need to be reminded that they have a whole range of behavioral alternatives available for them to use when facing unexpected situations.
>
> Explicitly recognize and compliment students who replace aggressive responses with desirable, non-aggressive behaviors (p. 23, Brasil, 2002)

Multidisciplinary support and family involvement are highlighted in the development of the Plano de Ensino (PE), or Teaching Plan. According to the authors, the plan should focus on classroom behaviors, on the social contextualization of the students' skills, and on their academic development. This plan resembles the Plano Educacional Individual (PEI), or Individualized

Educational Plan (IEP). The PEI is a guiding document, elaborated in an interdisciplinary way, used for identifying intervention strategies for developing academic and functional skills in students with disabilities (Tannus-Valadão & Mendes, 2018). Although both the PEI and the PE serve the purpose of planning teaching strategies for all students, the former has broader and multidisciplinary characteristics suitable for teachers, other professionals, and parents involved, while the latter is restricted to teachers (Costa & Schmidt, 2019). It is noteworthy that the PE is an essential tool for planning and organizing interventional practices, and the PEI is recommended for inclusive classrooms.

Based on two North American researchers (Lewis & Doorlag, 1991, cited in Brasil, 2002), the authors of this guidebook list thirteen aspects that must be taken into consideration before implementing a treatment. In addition to conducting intervention in the classroom and collecting data in a systematic manner, they highlight the need of considering available materials and human resources, as well as establishing success criteria for the implementation of the intervention program. These aspects are included in the following considerations:

> 10. What resources are needed? Does the intervention require teacher time? Will the teacher need an assistant? Will it be necessary to use motivational tools? Are these tools available in the school unit?
> 11. What other factors should be considered? Is there a need for other adaptations, such as the re-organization of the space, the re-organization of the way students are grouped up, or the use of alternative methodological strategies?
> 12. What criteria will be used to determine the success or failure of the program?
> 13. If the program fails, what alternative interventions could be adopted? (Brasil, 2002, pp. 27-28)

The considerations above are in line with one of the principles that underlie the EBP decision-making paradigm. According to that principle, it is important to consider the resources available when adopting intervention practices. This issue has been previously discussed in the present manuscript.

In line with the 2002 guidebook, the document produced by the MEC in 2004 also privileges practices based on the behavioral model. In this case, the TEACCH (Treatment and education of autistic and related communication handicapped children) method, created by Eric Schopler in the 1970s, is presented. It comes as a response to the limited effects of psychoanalytic practices adopted by Americans in the 1960s. The idea of an "autistic culture," which presents cognitive and sensory specificities, underlies the Structured Teaching model proposed by Schopler (Mesibov et al., 2006). The guidelines offered to teachers in the MEC guidebook are aligned with the theoretical assumptions of *Structured Education. A*ccording to the guidebook, structured education:

> can introduce a new repertoire of skills while increasing autonomy in relation to basic daily activiies, such as eating and dressing. (Mello, 2004, p. 21)

Structured Education includes a set of strategies involving the environment´s physical arrangement and the sequencing of tasks to be performed by children. Among them, the use of visual aids, which is a recommended EBP (Steinbrenner et al., 2020), is highlighted, as indicated below:

> (...) by using objects or **figures, we can organize** a notice board with the sequence of activities of the day, which children can consult, thus reducing anxiety over what

> comes next or what they are supposed to do after they have accomplished the task. (Mello, 2004, p. 19, excerpt highlighted by the authors)

Active family participation, besides being a practice recommended by international research agencies (NRC, 2001; Steinbrenner et al., 2020) is considered a central factor in the TEACCH model (Mesibov et al., 2006). In this respect, the guidebook emphasizes that the teacher should work together with the family, requesting that practices analogous to those used in school be implemented at home. It is noteworthy, however, that guidelines on how to operationalize these joint actions are not provided in the document.

There are important limitations involving the TEACCH model when it comes to EBPs. U.S. research agencies such as the National Professional Development Center on Autism Spectrum Disorder (NPDC) and the National Research Council (NRC) used to investigate the effectiveness of several programs, called "comprehensive treatment models," including TEACCH. More recently, however, they have started investigating only their components (focal practices) (Steinbrenner et al., 2020). This is because the TEACCH model allows flexible implementation procedures, which favor the adjustment to different demands and contexts. On the other hand, it is difficult to evaluate its effectiveness since it is not possible to compare studies in meta-analytic investigations (Virues-Ortega & Pastor-Barriuso, 2013). Therefore, the guidebook recommends the adoption of an intervention program that uses empirically validated components but does not constitute an EBP.

In addition to TEACCH, the guidebook encourages the use of Augmentative and Alternative Communication (AAC), a practice considered effective by international research agencies (Steinbrenner et al., 2020). AAC includes the use of non-verbal communication methods to supplement or replace, temporarily or permanently, unintelligible, non-functional, or non-existent speech (Nunes & Walter, 2018). Considering that a significant segment of students with ASD does not develop speech for communicative purposes, AAC becomes paramount.

In this respect, the guidebook provides guidelines for teachers in the form of "tips" without, however, naming the practices described or providing the foundations of such statements, as illustrated below:

> Verbal language is very important, and should be developed, but it is necessary to introduce a parallel communication system based on non-verbal language by means of concrete objects and illustrations. (Mello, 2004, p. 19, excerpt highlighted by the authors)

> Talking too much just gets in the way because it often confuses. **Communication with illustrations helps** a lot, because it associates the word with a concrete and well-known object or person. (Mello, 2004, p. 21, excerpt highlighted by the authors)

The terminology adopted in the previous segments suggests that this is AAC. There is no definition of what a communication system would be or why, from Mello's perspective (2004), "talking too much" could be counterproductive. Thus, it is advisable to provide readers with more accurate and empirically supported information about the socio-communicative deficits observed in students with ASD, as well as the components (e.g., symbols, communicator system, vocabulary) that constitute AAC systems.

The objective of the third guidebook (Brasil, 2010) is to "contribute to the development of inclusive practices in school education" for students with ASD. It is interesting to note that an operational definition of "inclusion" is not provided in the manuscript. This would help understand the extent to which the practices described could be classified as "inclusive." The reader is informed

that such practices emanate from observational records conducted in the context of public schools for early childhood and elementary education.

In line with the Inclusive Education paradigm, the authors emphasize the importance of placing students with autism in the social context of the regular school and suggest that, by means of school mediation, these students will be able to develop their own personal skills. This idea is highlighted in the following segment:

> We had the opportunity to observe children who, when entering school, had no language and performed activities such as asking for things with the aid of other people.
>
> The social experience in the school environment and the mediation of teachers and classmates led these children to begin to use verbalizations when they wanted to make requests, abandoning the instrumental use of other people as conveyors of their requests. (Belisário & Cunha, 2010, p. 33)

As in the guidebooks by Brasil (2002), and Melo (2004), the guidelines are provided in the form of tips, without naming or providing the empirical foundation for such practices. The two following segments exemplify this style.

> Considering that the ability to anticipate is a function that is impaired for those who have Pervasive Developmental Disorder (PDD), **anticipation**, made with the help of others, becomes the facilitator of school environment familiarization.
> **Anticipation** made by another person means refers to these children's need of becoming aware, in a simple and objective way, of what is going to take place in the next moment. (Belisário & Cunha, 2010, p. 23, excerpt highlighted by the authors)
>
> One strategy that can help is the use of **visual aid resources** produced at the school. This material must be created with the children's collaboration and it must be based on their daily lives. By means of association, it will help professionals approach these children and communicate what is expected from them, what will happen next in the school routine. It will also be a means to provide children with the opportunity to make choices and be rewarded with a feeling of fulfillment. (Beisário & Cunha, 2010, p. 34, excerpt highlighted by the authors)

The first highlighted practice can be defined as a *priming* step*,* which consists of preparing the students for an activity that will take place. This is one of the procedures used in the Antecedent-Based Intervention, an intervention model that aims to change the environment/context with the objective of modifying the student's behavioral repertoire (Steinbrenner et al., 2020).

The visual resources, highlighted in the second example, help in behavior regulation and communication. Studies pinpoint three modalities of visual aids typically used with ASD students (Shane, 2006). The first one, named visual organizational mode (VOM), has the function of organizing activities and routines, as exemplified in the guidebook segment. The second modality, entitled Visual Instructional Mode (VIM), consists of the synchronous use of visual resources in combination with speech or writing, to favor verbal comprehension. Finally, Visual Expressive Mode (VEM) concerns the use of ideographic or pictographic symbols to replace or supplement speech. In this respect, it constitutes an important support for AAC systems. It is an intervention practice not mentioned in the guidebook, but (possibly) referenced in the following segment:

> In the scope of school education, the work involving strategies for communication and language of children with PDD does not aim at implementing **structured**

> **methodologies** that already exist for this purpose. These methodologies are fit for therapeutic settings for people with autism or other disorders that affect these functions. (Beisário & Cunha, 2010, p. 34, excerpt highlighted by the authors)

The fragment above suggests that AAC must be a structured methodology, which should, according to the authors, be developed in a clinical scenario. This is a concerning issue in view of the promising effects of the use of AAC in school contexts, as highlighted in national and international studies (Nunes & Walter, 2018).

The Technical Note, published in 2013, superficially highlights 13 competencies to be acquired by professionals responsible for educating students with ASD. In line with the guidebooks published in 2002, 2004, and 2010, the document highlights teacher skills for handling stereotyped/behavior problems, minimizing segregation, adopting individualized and flexible evaluation parameters, maintaining contact with families, and employing visual communication strategies. Only one competency is accurately described. Specifically, the 12th item states that teachers should develop "theoretical-methodological knowledge in Assistive Technology focused on Alternative/Augmentative Communication." This recommendation seems to contradict what is prescribed by the 2010 guidebook, which suggests that the implementation of a structured communication intervention is a clinical attribution.

Consistent with the perspective of the MEC, the first guidebook published by the MH suggests that intervention practices aim at rehabilitation. However, treatment alternatives are not presented. According to the document:

> The choice of the treatment method, as well as the periodic evaluation of **its efficacy** should be jointly made by the team of professionals and the patients' families, ensuring adequate information about the scope and benefits of treatment (...). (Brasil, 2014, p. 63, excerpt highlighted by the authors)

Thus, the guidebook does not present intervention methods discussed in the scientific literature but warns the users to ponder the efficacy of the adopted treatment. In other words, users should assess the capacity that the intervention has in producing the intended effects (Marley, 2000).

The concept of efficacy outlined by this document approaches the idea of social validity, considering that the authors warn readers to acknowledge the relevance of the participants involved (Luz, Murta & Aquino, 2017). This suggests that the scientific verification of the intervention´s results could be suppressed by the perceptions of outcomes by family and team members, relegating evidence to the detriment of subjective analysis. In addition, it is assumed that the reader has knowledge, a priori, about a set of intervention methods, specifically designed for people diagnosed with ASD.

The second guidebook, entitled "Guidelines for The Caretaking of People with Autism Spectrum Disorders and their Families in the Psychosocial Care Network of the Unified Health System" conceives ASD as a mental disorder and proposes psychosocial treatment (Brasil, 2015). In contrast with the first document, it suggests treatment alternatives, termed "Caretaking Technologies." In this segment, it delegates the choice of intervention to the reader, arguing that:

> There is no such thing as the one most effective approach to the caretaking of people with autism spectrum disorders. There are numerous valid approaches, and it is recommended that professionals consider its **effectiveness and safety** as well as

> the uniqueness of each case before deciding. (Brasil, 2015, p. 80, excerpt highlighted by the authors)

Distinct from the previous document, the second guidebook recommends a choice of treatment based on its safety and effectiveness. Safety means that the intervention practice should not cause any harm to the physical or psychic integrity of the patient (Edwards et al., 1999). Effectiveness, in turn, concerns the degree to which a practice, implemented under natural (uncontrolled) conditions, produces the expected effects (Marley, 2000). It is relevant to consider, based on the health program development model, proposed by Flay (1986), that the effectiveness of a treatment can only be tested after the evaluation of its efficacy. Therefore, it is necessary to consider the effects of the intervention procedure under controlled conditions before applying it in natural contexts. This presupposes being aware of the scientific evidence of a treatment prior to adopting it.

From this perspective, it would be up to the reader to know, ultimately, the degree of efficacy and safety of the eight intervention approaches/strategies briefly presented by the guidebook, which include: psychoanalytic-based clinical treatment, Applied Behavior Analysis (ABA), Augmentative and Alternative Communication, Sensory Integration, the TEACCH method, therapeutic monitoring, high-tech devices, and drug treatment.

In a more detailed analysis of each of these indications, it is observed that psychoanalysis "is radically opposed to the objectivity proposed by empiricism" (Ferrari, 2002, p. 83), which makes its evaluation by the EBP paradigm unfeasible. The therapeutic monitoring practice is a byproduct of the political-ideological movements of antipsychiatry. Due to its high practical variability, there is no scientific consensus, which also hinders the evaluation of its evidence (Marco & Calais, 2012). The TEACCH, in turn, is considered a comprehensive model consisting of a set of practices organized to achieve broad objectives (Steinbrenner et al., 2020). Nevertheless, studies on the TEACCH model, although using focal practices that provide evidence, vary regarding the set of components used, as well as their intensity and duration during the intervention, which also hinders a direct assessment on efficacy (Virues-Ortega et al., 2013). Therefore, among the interventions indicated in this guidebook, the ones that presented reports of efficacy are ABA, AAC, high-tech devices (Computer Aided Instruction), and drug treatment (Steinbrenner et al., 2020).

Professional Profile

The professional profile concerns the skills necessary to perform a certain specialized activity. In the field of Special Education, for example, the Council for Exceptional Children (CEC), an international entity devoted for preparing special educators, lists a set of essential skills for teachers who work with students with disabilities (Nunes Sobrinho & Naujorks, 2001). This information, supported by scientific research, is periodically published in a manual format.

In Brazil, publications of this nature are not available. The official documents produced by the MEC merely emphasize that teachers working with this population should have specific training in Special Education (Brasil, 2009). From this perspective, it is pertinent to identify the competencies and skills described in the official guidebooks about the professionals who work with students with special needs. In this specific case, students with ASD.

In the guidebook published in 2002, the need for teachers to do their work in an interdisciplinary manner is highlighted in the segment below:

> The teachers cannot work alone. He/She must do his/her part of the job, which is to identify the problem, observe it, describe it, describe the contingencies that surround it, discuss the problem with other professionals in the technical team and with the

> director of the unit, follow the procedures of referral to specialized professionals, seek varied pedagogical strategies, implement them, monitor their effects, readjust his/her pedagogical practices, while seeking guidance and support from specialized professionals. (Brasil, 2002, p. 28)

Moreover, the excerpt suggests that teachers are capable of conducting functional behavioral analysis, that is, recognize the problem behaviors and their contingencies. They are also able to identify pedagogical strategies, evaluate their effectiveness, as well as adjust. Although the guidebook suggests that specialized agents assist in this process, it is not mentioned who these professionals would be.

In the 2004 guidebook, the multidisciplinary support team is not mentioned. This document asserts, however, the necessity of including specialized teachers to "facilitate inclusion into the regular school." These teachers should know how to "perform evaluations, organize work systems, evaluate their efficiency, evaluate behavior problems and define strategies (...)" (Mello, 2004, p. 25). Moreover, it is up to these professionals to know how to apply the Revised Psychoeducational Profile (PEP-R), an instrument developed by the TEACCH Center, which evaluates the student's development coefficient, and requires specialized supervision.

In this context, three factors must be taken into consideration. First, the difficulty in identifying specialized teachers, a phenomenon caused by the extinction of qualifications provided by Pedagogy courses, as well as the small number of higher education institutions that graduate special educators in Brazil (Nunes & Schmidt, 2019). In addition, national research reveals the precarious professional training of teachers working with students with ASD (Camargo et al., 2020). Finally, in relation to the recommended instrument, the guidebook does not mention the Brazilian version for the PEP-R, available in the literature (De Leon., 2002; De Leon et al., 2004). Such failure reveals the lack of dialogue between government agencies and research institutions in Brazil.

According to this guidebook, the regular teacher should consider adapting the intervention strategies described in the document, as indicated in the following excerpt:

> (...) each teacher can adapt the general ideas that will be brought to the classroom and the resources available, and even the characteristics of his/her own personality, as long, of course, as he/she understands and respects the characteristics of his/her students. (Melo, 2004, p.9)

In this context, the recommendations seem to be in accordance with the perspective of Satterfield et al. (2009) on the need of selecting intervention practices considering the environment´s physical and material conditions, as well as the users´ values and preferences. On the other hand, as these authors rightly point out, it is imperative to consider the level of teaching knowledge for implementing an intervention. What would be, in this perspective, the necessary training to adopt the strategies recommended in the guidebook?

In the third analyzed document, teachers of basic education as well as those in special education services (SES) must equip themselves with knowledge on PDD and on educational practices that promote the development of socio-cognitive skills in these students (p. 38)." In this context, there are numerous references to the skills and competencies that educators must develop in order to work with this population. In addition to the type of knowledge highlighted in the guidebook, the authors mention "conducive practices" that are possibly equivalent to the previously cited "inclusive practices."

The authors do not explain the necessary competencies of these teachers to work with ASD students, they indicate only that it will be up to special education teachers:

> (...) to contribute by guiding school professionals in the elaboration of strategies for daily school life, in the elaboration of resources, and in the organization of the routine activities, according to the peculiarities of each student and of each school." (Belisário & Cunha, 2010, p. 38)

In this document, contact with therapeutic agents in contexts outside the school seems optional, as suggested by the following excerpt:

> When we work with a student who receives support of this nature, the dialogue with these therapists **may be interesting** if it is based on the exchange of impressions, reports, and assessments on the students' development, without losing track of the specificities of each field of action in this development. (Beisário & Cunha, 2010, p.34, excerpt highlighted by the authors)

These data suggest that there is a distance between educators and healthcare agents. One resource that could favor this partnership is the IEP, previously described in this article. Despite Brazil's lack of legal provisions to ensure the adoption of IEP at schools, the literature reports the promising effects of the use of this instrument for the educating students supported by Special Education (Costa & Schmidt, 2019; Tannus-Valadão & Mendes, 2018).

The Technical Note considers expanding the school team by regulating the work of a Support Professional, responsible for monitoring students with autism, in addition to reaffirming the institutionalization of Specialized Educational Services in the pedagogical political project of schools. It is interesting to observe that, despite the Technical Note indicating the need for professional training and multi-professional support for students with ASD, there is no clear information concerning the specific competencies teachers must develop to work with these students.

In the documents produced by the Ministry of Health, there is no specific guideline concerning the professional profile of healthcare agents. The guidebook published in 2015 highlights, however, the need for interdisciplinary work, as in the following excerpt:

> It is important that the diagnostic process be carried out by a multidisciplinary team with clinical experience and that it is not limited to the application of tests. (Brasil, 2015, p. 43)

In addition, it is recommended that the work teams involve professionals who adopt different theoretical approaches in order to contemplate the demands of each case. In this scenario, the guidebook presents diversified treatments that can be conducted by professionals such as behavior analysts, psychoanalysts, psychiatrists, occupational therapists with training in sensory therapy, and experienced educators in the TEACCH model.

The Transposition of Policies into Practice

Some of the practices described in the documents analyzed in this manuscript are adopted by educational and therapeutic institutions in Brazil (Azevedo & Nunes, 2018; Mello et al, 2013). In the study conducted by Mello et al (2013), for example, the use of TEACCH, AAC (PECS), and procedures derived from ABA, described in the literature as an EBP, was prevalent in 106 educational and therapeutic entities, allocated in the five regions of the country. Additionally, with lower support, these entities, which provided support for 3,280 people with ASD, used sensory

integration/processing therapies, the Floortime model, psychoanalysis, as well as psychomotricity, and practices not analyzed by international agencies or requiring evidence of effectiveness.

In line with the findings of Mello et al. (2013), Azevedo and Nunes (2018) identified the use of intervention procedures derived from ABA, as well as visual routines, which underlie the TEACCH protocol, in the teaching practices described in 20 national thesis and dissertations, published between 2008 and 2013. Despite the use of these intervention strategies supported by the interactional literature, the studies indicated the precarious training of teachers, who admitted having limited knowledge about the characteristics of ASD, as well as the strategies to be implemented.

The development of professional skills seems to be, in this context, a key point in the process of transposing scientific knowledge into clinical and educational practice. It is essential, first, to replace non-dialogical models of teacher training (Garcia, 2013; Nunes & Schmidt, 2019) with alternative forms of training. In addition, it is essential to develop practices that can be used in regular educational contexts. As Martin and collaborators (2020) warn, many of the EBPs described by research agencies have been implemented in special classes, conducted by researchers rather than teachers and involved few students.

In terms of scientific research, it is imperative to establish partnerships with the academic community in order to assess the intervention practices implemented in Brazil. An important step towards achieving this goal is, as highlighted in this manuscript, to present research results in documents published by government agencies.

Final Considerations

The aim of this study was to analyze, using the EBP model, the intervention practices recommended by the MEC and the MH for students with ASD. The analysis of six publications from these agencies revealed gaps between science and practice, the lack of a consensus regarding the concept of ASD, and the fragility in the proposals for training specialists in this area. Despite these data, nationally conducted research suggests that practices recommended by government agencies have been implemented in educational and rehabilitation institutions in the country.

It is worth to consider that the documents analyzed reflect the knowledge produced at the time they were written. In this sense, the concept of autism may have been attuned with the different diagnostic manuals used in the medical field. The MEC's 2002 publication, for example, treats autism as a behavioral problem (typical conducts), which is very much related to the DSM-IV-Tr, launched in the same year. Succeeding publications recognized it as a developmental disorder, a category that autism became part of in 2014, by the DSM-5. In line with these concepts, practices aimed at modifying non-adaptive conducts are described in the first guidebook (2002), with limited reference to cognitive and sensory aspects of ASD. In subsequent documents these same aspects gain prominence and are sometimes mentioned as determinants for behavioral changes.

Contrasting the model of technical rationality - characterized by the direct application of scientific knowledge to professional practice - the MEC guidebooks published since 2010 privilege the paradigm of reflective teachers as protagonists of their practice. Thus, although they mention intervention strategies derived from research, such as the TEACCH and ABA, they favor, particularly in the cases presented, empirical knowledge, derived from action. Although this source of knowledge is relevant, caution must be taken to avoid common sense.

In an era marked by the culture of accountability, special attention should be paid to the foundations that determine the selection of intervention practices for people with disabilities in school and non-school settings. In this context, the results of this study advocate the development

of policies that connect scientific knowledge to educational and clinical treatment, in addition to protocols for assessing intervention practices for individuals diagnosed with ASD in Brazil.

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