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Reading Disorders and the Role of Speech-Language Pathologists

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Abstract

Speech-language pathologists have been actively involved with the assessment and intervention processes of language disorders, especially concerning the child population. Regarding their professional role toward reading disorders, other professionals have been equally involved with the learning process such as educational psychologists, educators, for instance. It is therefore less clear of the involvement and possible role of speech-language pathologists, focused on adolescent and young adults with reading difficulties that may interfere with the learning processes. The aim of this chapter is to discuss the competences of speech-language pathologists and their essential role in the clinical settings with reading disorders, not only with children but also at later stages in the schooling process. Additionally, it will be discussed of the role of these professionals as a part of the school team in order to advice best practices of language-related learning processes, as well as to work with students who need special education adaptations, in all ages.

Keywords: reading disorders, language, intervention, assessment, speech-language pathology

1. Introduction

Reading disorders (RDs) are a major concern in school settings both, in early stages of literacy instruction and further years of schooling, and may probably be the major cause for referral to speech-language therapists for clinical intervention. There are many instances where the reading process may be impaired. A wide range of language disorders are reported to have an impact on reading and writing skills [6]. Furthermore, there is clear evidence both, from research and clinical practice that demonstrates that reading disabilities are language-based [11].

Language deficits associated with reading disabilities are often present since preschool years, and therefore these deficits should be taken as early indicators of risk for reading disabilities [20]. These language deficits are manifested in poor vocabulary, lack of phonological skills both, in perception and production, poor morphology and other abilities proven to be essential for spelling and reading. However, not only in early years of schooling, language disorders may affect writing skills. Reading comprehension deficits in adolescents are strongly related to their word reading skills and lexical and syntactic development [24].

Furthermore, because of the reading and writing complexity, many other primary conditions such as intellectual, auditory, and visual deficits do influence how written language develops and students with these deficits need special attention to this process [35].

In children with the diagnosis of attention deficit and hyperactive disorder (ADHD), reading and writing difficulties are commonly found. Lack of attention has a strong impact in memory skills and in the process of spelling and reading comprehension, which in turn, limits all learning process via written input [1, 22]. The diagnostic of specific language impairment (SLI); there is an asynchrony on the development of linguistic subsystems in such a way that the deviant deficits will have consequences for the development of written language [36].

Finally, reading disorders are the primarily deficit found in the most frequent specific learning disorder, for example, dyslexia. Dyslexia is a neurodevelopmental disorder with a strong genetic predisposition, characterized by specific difficulties in reading and spelling that could not be attributable to cognitive disabilities, lack of educational opportunities, socio-cultural environment, or obvious neurological deficits, as defined by the diagnostic and statistical manual of mental disorders (DSM-V) [4]. It affects around 5% of the population regardless of the writing system and orthographic profile [28].

The main signs of children with dyslexia are identified in word decoding and phonological processing abilities and the diagnosis is possible after at least one school year. Another important aspect of dyslexia and other specific learning disabilities is its pervasive and persistent nature [13]. There is to say, that even though the major impact of dyslexia is in the initial phase of reading acquisition process, some difficulties may resist through adulthood [12].

Although SLI and dyslexia may show similar difficulties, both conditions are considered as different development disorders that have different cognitive and linguistics deficits, and consequently different manifestations in reading and writing [7].

According to Ref. [2], the speech-language pathologist is the professional who engages in clinical services, prevention, advocacy, education, administration, and research in the areas of communication and swallowing across the life span from infancy through geriatrics. The professional roles and activities in speech-language pathology include clinical/educational services (diagnosis, assessment, planning, and treatment), prevention and advocacy, and education, administration, and research. Speech-language therapy should address the underlying language deficits as well on the specific comprehension strategies.

Considering, that in all these instances that affect reading development, the participation of speech-language pathologists is essential, if not mandatory, we should describe clearly, what their role is as clinicians and as members of a multidisciplinary teams.

1.1. The role of speech-language pathology on prevention of reading disorders

Precursors of reading could be stimulated since early in development. Such activities should use emphasize language games, rimes and child music, storytelling, poetry, as well as shared book reading. In the school setting, the speech-language therapies may advise kindergarten teachers to work on children's attention for speech sounds and phonological representations [25].

The promotion of specific activities for the development of phonological awareness skills is effective even if implemented for a short duration [17]. Another study concluded that the stimulation of phonological awareness skills should be part of preschool activities since they are essential for later success in reading acquisition [27].

Because of the genetic basis for dyslexia, pre-reading children may receive early intervention to prevent severe manifestations in reading disorders later on. In an interesting prevention study, children at risk received a 14-week training in phonemic awareness and letter-sound relationships in the context of reading instruction. Families at home performed the training (e.g., a computer-based training). The results showed immediate improvements for both skills trained; however, the effects did not last for long. The authors concluded that in order to promote long-term benefits, the training activities should be delivered both at home and school [29].

The speech-language pathologist has an important role throughout the entire process of school learning, not only when the developmental disorder is already in place. Children at risk for reading disorders should be a major concern of speech-language therapists in order to create favorable conditions for improving language skills and cognitive abilities, consequently an adequate school performance [33, 34].

1.2. The role of speech-language pathology on the assessment and identification of reading disorders

Several skills have to be well developed in order to warrant success in reading and writing. As mentioned before, oral language development is essential for learning to read and all levels of language processing are involved; for example, phonology, morphology, syntax, semantics, and pragmatics [10, 31]. Assessment for reading disorders should include as well cognitive functions such as memory and attention tasks [3].

Phonological processing skills are found to be the most relevant, at least for the early stages of decoding, and among other skills, phonological awareness is an essential ability for reading and spelling. There is enough evidence in the literature that phonological awareness skills are positively related to a good performance in reading [6]. When phonological awareness shows some deficits, reading and writing may fail, regardless of the writing system to which the child is exposed (alphabetic, syllabic, or ideographic writing system). However, some studies showed that the consistency of each alphabetic orthography (e.g., regularity of the phoneme-grapheme correspondences) may determine which level of reading and writing is most affected by poor phonological awareness skills [14].

For all these reasons, it is important to evaluate these skills adequately since poor phonological awareness is considered a good indicator of reading disorders [25]. In order to have a proper assessment of phonological processing skills, the clinician must have good knowledge

of the phonemic/phonological level of language to be able to choose an efficient linguistic-based instrument for assessment, as well, to be able to interpret the results [8].

Comprehension difficulties are also largely dependent on the development of language skills, specially vocabulary, morphology, and pragmatics [9]. Even if a child has resolved his or her oral language deficits, it is possible that whenever the complexity of reading material increases, comprehension fails. Speech-language assessment should investigate not only basic language skills, but also higher level language knowledge that is used for a more complex task of reading comprehension.

Depending on the country, professional education of health and education practitioners has very limited language-related disciplines, on their professional training years. However, that is not the case for speech-language therapist training career. The Revised International Association of Logopedics and Phoniatrics (IALP) Education Guidelines [15] states that *“the study of Logopedics is highly dependent (or reliant) on supporting disciplines of psychology and linguistics, behavioral sciences and biomedical sciences. The programme should cover the main context of supporting disciplines”* [15]. Among these disciplines, linguistics is fundamental for speech-language professional training, as the document affirms:

“Language acquisition, sociolinguistics, multilingualism, phonetics, acoustics are relevant to linguistic sciences. The study should include the production and classification of speech sounds, phonology, syntax, semantics, lexicons, discourse and pragmatics, with practical work in data collection, transcription, measurement and analysis (including qualitative analysis of oral as well as written language. It should also include discourse analysis, especially in relation to disordered speech and language)” ([15], p. 4).

In Brazil and in many other countries, the speech-language pathologist is also part of the multidisciplinary team that is required for a correct diagnosis of specific learning disability such as dyslexia and many other neurodevelopmental disorders that have impact on reading and writing.

1.3. The role of speech-language pathology on the intervention of reading disorders

Clinical interventions of reading disorders by speech-language therapists are highly recommended by scientific-based evidence [11]. Intervention should encompass decoding and coding at the word level to improve reading and spelling accuracy, fluency and prosody, as well text comprehension and writing [32].

Once a diagnosis of specific learning disorder, dyslexia, is established, proper instruction and intervention should be offered by a team that includes educators, educational psychologists, and speech-language therapists. *The National Joint Committee on Learning Disabilities* [23] has published some guidelines for an intervention program for children and adolescents with reading disorders related to learning disabilities based on a specially designed instruction, core instruction and interventions within a multi-tiered system of supports (MTSS) for educators developing, improving, and maintaining systems of support for all students.

As described in these guidelines, *“intensive intervention should be implemented by general education teachers, special educators, school based team members and professional support staff who have deep content knowledge and expertise implementing the evidence based interventions”* ([23], p. 9).

1.4. The role of speech-language pathology on the educational advice for learning strategies for reading disorders

Public policies on special education needs have large benefit from multidisciplinary discussions and speech-language pathologist is a professional that has been very active in advocacy for better policies for learning disabilities and other communication disorders. Several countries have specific legislation that warrant specialized support and accommodations in schools or universities for those neurodevelopmental disorders. Such strategies may include (a) allowing audio recording the class content for later transcription, (b) restricting to minimum the amount of written material in slides, and (c) providing extra time for exams [18].

Adolescents with specific learning disorder, and/or attention-deficit/hyperactivity disorder may also experience significant struggles during high school and postsecondary education [21]. Even if they have had effective interventions and treatment, it is in the academic setting that the difficulties appear more intensively and they may seldom need support [26, 30].

An interesting study in Finland reported that environmental protective factors such as high levels of peer acceptance and positive teacher affect, uniquely predicted students' improved reading fluency in Grade 4, after controlling for the risk to have reading disorders, nonverbal ability, level of parental education, and gender [19]. This evidence confirms once more the need for teacher training to support learning disabilities children through schooling. Several specialists but specially speech-language pathologists are prepared to advise school teachers and families on strategies to promote effective learning for children, adolescents, and adults with specific learning disorders, for example, dyslexia.

Some studies that aimed at characterizing dyslexia in adults show that cognitive and linguistics deficits persist in adulthood, however they have different manifestations [5]. The most commonly altered components of reading skills in adults with dyslexia are reading fluency and reading accuracy [13]. Considering these specific characteristics in adults, a reading specialist should participate in the counseling for intervention and adaptations during high school and continuing education.

According to the "*Guide for school and universities about students with dyslexia and other learning disorders*" [16], the accommodations for dyslexics in school in Brazil may be divided in five categories: allow extra time for exams and note taking, tasks development, context, answers, content presentation. It is up to the specialist (e.g., speech-language therapist) to analyze the linguistic and cognitive profile and after that, to propose accommodations, which may have a greater impact for the moment.

The accommodation related to time, is of great importance for these individuals since activities of reading and writing demands a greater cognitive demand, and in consequence, takes considerably more time to accomplish. Additionally, there might be a need for a greater number of revisions before handling in an exam or paper. Therefore, suggestion of extra time not only should be applied for evaluations and exams, but also for deadline for papers and projects, and borrowing books from the library.

Regarding school activities, some adjustments during class like recording the class content and avoiding activities that require copying, should improve the potential for learning. It is

also possible to suggest some accommodations in relation to the answers given by the students in all school activities. These individuals with reading and writing difficulties should be able to choose to give oral answers instead of by written form. In some cases, when the speech-language pathologists indicate a low rate for writing, a scribe could be requested to register the answers in and exam.

Finally, adjusting the form and organization of content presentation is a very important accommodation for students with learning disabilities. Regarding the format, audio books, videos, oral instructions, written materials with larger letters, smaller amount of text per page, and visual facilitators (drawings, diagrams, and different colors) can be offered. Regarding the organization, it is suggested to show clearly the objective and new concepts of each class, providing the student with a summary of the main ideas at the end of the lesson. Avoid very long phrases and instructions. Fragmenting tasks into smaller parts, encourage content review. In sum, the speech-language pathologist may help to establish a program of multisensory strategies that involve hearing, vision, and action.

1.5. Concluding remarks

Advances in psycholinguistics, cognitive psychology, and neurosciences have provided enough scientific evidence for the role of language skills for the development of reading and writing. It is therefore only natural that the speech-language therapists be an essential part for prevention, assessment, and intervention of reading disorders.

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