RESEARCH ARTICLE

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# Difficulties in Phonological Awareness in Children and Adolescents with Developmental Language Disorder (DLD)

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***ABSTRACT***

**Phonological awareness in children with DLD can be affected in pre-school ages as well as in school ages. Through this quasi-experimental study, formed by a sample of 24 subjects, 12 of with belongs to the experimental group or DLD and 12 belongs to the comparative group or Typical Development (TD). It is intended to know if the phonological awareness in children with SLI is affected and if the results obtained by this group are lower than the comparative group. For this, the evaluation of phonological awareness has been carried out through the PECO test, in order to affirm or deny the hypothesis that children with DLD present specific difficulties in phonological awareness. The results obtained shows that after evaluating both groups, the average performance in the different tasks of the experimental group or DLD is lower than that obtained by the comparative group or with TD; considering a significantly lower result in tasks of identification of phonemes, syllable addiction and phoneme addiction. Therefore, the results of this study reaffirm what has been corroborated by previous studies, that children with DLD have difficulties in phonological awareness and hence the need to implement intervention programs on this to avoid difficulties in other areas such as reading and writing.**

**Keywords:** Adolescents, Children, Developmental language disorder, Phonological awareness.

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## I. Introduction

Developmental Language Disorder, hereafter referred to as DLD, is a diagnostic entity used to refer to difficulties in language acquisition and development. These impairments occur at both the comprehension and expressive levels and cannot be explained by psychological causes such as emotional, psychopathological, or cognitive deficits, biological causes such as sensorimotor or cognitive deficits, or by lack of exposure to language deprivation (Hesketh & Conti Ramsden, 2013).

It is undoubtedly a heterogeneous category which means that people with DDL present a linguistic profile that is open to individual variability. This is characterized by difficulties in language processing that depend on the degree of impairment of the different components all of which may be affected to a greater or lesser extent and on the linguistic modality that is impaired (Conti-Ramsden *et al*., 2015).

The phonetic-phonological component of individuals with DLD is characterized by sparse syllabic patterns, variations in incorrect forms, occurrence of previously unseen errors and fixation on incorrect phonological patterns (Coll-Florit, 2013). In addition, these subjects have fewer verbalizations, reduced consonant and vowel clusters, and omissions of unstressed syllables and final consonants (Gallon *et al*., 2007). Also, it is notorious the difficulty they have in repeating pseudo-words or infrequent words and in repeating sentences (Redmond, 2005).

Research conducted with people with DLD has shown that this population presents alterations specifically associated with phonological awareness (Zúñiga *et al*., 2018). This area can be understood as a metalinguistic skill that allows explicitly targeting and identifying the phonological units of the word (De Eslava & Cobos, 2008). In this case, depending on the unit to be analyzed, two types are distinguished: that of the syllable and that of the phoneme (Gutiérrez-Fresneda *et al*., 2020).

There are studies that confirm that deficits in phonological awareness in children with DLD not only occur in the pre-school stage, but also appear in the school stage (De Barberi & Coloma, 2004). These deficits are manifested when analyzing and synthesizing words at both syllable and phoneme level (Rodríguez *et al*., 2014).

According to authors such as De Barberi and Coloma (2004), three types of errors can be distinguished: syllable-related, assimilation and substitution errors (Coloma *et al*., 2010). Syllable-related processes are procedures that induce simplification of the syllable structure by bringing it closer or transforming it into a basic syllable (consonant + vowel) (Rodríguez *et al*., 2011). This can be done by eliminating the syllabic coda, reducing consonant clusters, or simplifying

diphthongs (Pavez *et al*., 2013). In addition, these processes include the reduction of word length, which is achieved by omitting unstressed syllables (Mediavilla, 2003). Likewise, assimilation processes are based on the replacement of phonemes to make them similar or equal to others present in the word that the child has reduced or in the word emitted by the reference adult (Pinto *et al*., 2007). The aim of this strategy is to maintain the harmony of the word (Coloma *et al*., 2008). Finally, substitution processes cause classes of phonemes to be exchanged for members of another class when fricative phonemes are replaced by occlusives (Inostroza, 2015).

Other authors report that difficulties in the phonetic-phonological component of children with DLD may be the product of an alteration in phonological representation (De la Guía, 2014). This explains how the atypical phonological representation produced in DLD translates into more difficulties in reflecting on and manipulating the phonemes and syllables that make up a word (Sastre-Gómez *et al*., 2017).

As a consequence, an alteration in word structure is observed as a result of the close link between phonological awareness and the ability to identify and manipulate the phonological units used in the spoken word (Soriano-Ferrer & Contreras-González, 2012). In addition, some studies based on the development of phonological awareness have observed that children with DLD present more difficulties in phonological awareness tasks at the syllabic level compared to their neurotypically developing peers.

All these difficulties can lead to children with DLD presenting difficulties in accessing learning to read (Acosta *et al*., 2012). In this process of learning to read, the development of phonological awareness is "an interface between the teacher's instructions and the children's cognitive system", which they believe is fundamental for acquiring grapheme-phoneme correspondence (Lorenzo, 2017).

Therefore, the aim of this research was to find out the level of phonological knowledge presented by people with DLD in comparison with people with Typical Development, as well as the characteristics of this knowledge.

## II. Method

### A. Participants

A total of 24 school-aged children (Primary and Secondary Education) participated in this study, of whom 12 were diagnosed with SLI and the remaining 12 had Typical Development (TD).

The age range of the group of children with DLD is 9 to 17 years (X=12.33), of which there are 2 girls and 10 boys. On the other hand, the comparative group of children and adolescents with TD is made up of 4 girls and 8 boys with the same comparative mean age (12.33 years).

### B. Instrument

Phonological awareness was assessed using the PECO test: Phonological Awareness Evaluation Test by Ramos and Cuadrado (2006). This test is administered to subjects in the last level of early childhood education and at any educational level with difficulties in the initial acquisition of reading and writing.

The aim of the test is to assess the subject's ability to become aware of and intentionally manipulate the syllables and phonemes that make up words. It assesses both syllabic and phonemic phonological knowledge.

### C. Procedure

Prior to the start of the evaluation, the project was approved by the Ethics Committee of the Faculty of Health Sciences (UCLM). The assessment was carried out individually in a room where only the examiner and the person being assessed were present in order to avoid distractions. The parents of the participants signed an informed consent form before the tests were carried out.

The time used for the evaluations was a maximum of 20 minutes with each subject in which the complete test was carried out in a playful context for the children.

The correction was carried out according to the criteria established by the PECO test. If the answer was correct, 1 point was awarded and if the answer was wrong, 0 was awarded.

## III. Results

With regard to performance on the phonological awareness test, the results indicate that the mean score of the group of children and adolescents with DLD (X=21.66; Standard Deviation=8.58) is lower than the group of those with TD (X=28.58; Standard Deviation=1.83).

In terms of the type of items they make, in general, people with TD make more correct items than people with DLD in all tasks. There is a greater difference between the groups in the tasks of phoneme identification, syllable addition and phoneme addition, and there is more equality in the tasks of syllable identification, syllable omission and phoneme omission, as can be seen in Fig. 1.

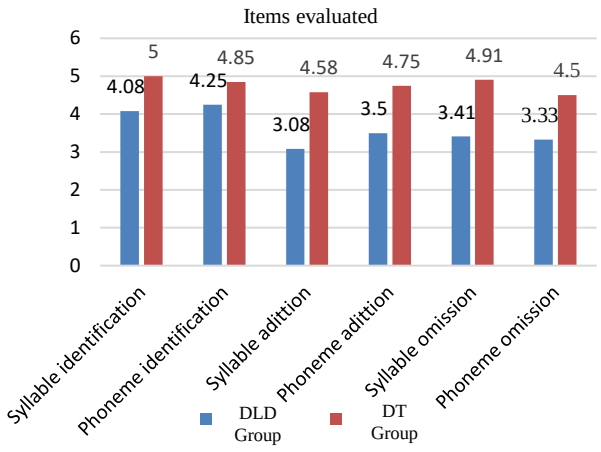


Fig 1. Comparison of the mean scores for the different tasks.

However, and once the corresponding statistical analysis (T-test for independent samples) has been carried out, it can be seen that there are only significant differences between the two groups in three of the areas evaluated: phoneme identification ($t(11)=-1.31$, $p<0.01$), syllable addition ($t(11)=-3.62$, $p<0.05$) and phoneme addition ($t(11)=-2.68$, $p<0.01$).

## IV. Discussion

The results obtained confirm that children and adolescents with DLD present a lower level of phonological knowledge than their peers with TD, which continues the line established by previous research (Acosta *et al*., 2012).

As has been discussed, phonological awareness is a very important area not only for oral language development, but also for reading and writing development. It seems, therefore, that phonological awareness is a weak point in this disorder (Zourou *et al*., 2010). Given that the results of people with DLD are lower at ages when they should already have a complete mastery of phonological awareness (as is, in this case, from the age of 9 years and throughout adolescence), we can infer that these people will also have difficulties that will have a direct impact on their academic performance (Marton *et al*., 2005). In some cases, it would even be interesting to analyze whether these characteristics could be predictors of the presence of dyslexia (Alonzo *et al*., 2020).

The results found in this study are also in line with other research on the specific difficulty in phoneme identification (Acosta *et al*., 2012). It also appears that people with DLD may be sensitive to syllable length (Pérez & Moraleda, 2021) as in this case with syllable addition and phoneme addition (Villalobos & Jackson-Maldonado, 2017).

It seems, therefore, essential to consider specific intervention in phonological awareness, given that it would be necessary to provide subjects with strategies and specific work in this area. This intervention should not only be considered in terms of oral language development, but also lays the foundations for the prevention of future problems in learning to read (Zens *et al*., 2009). Similarly, it should be taken into account that this approach to intervention in children and adolescents with DLD should not only take place in the initial stages but should be a specific work developed throughout their schooling and their developmental cycle.

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## Conflict of Interest

Authors declare that they do not have any conflict of interest.

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