

LANGUAGE DELAY AND PHONOLOGICAL DISORDERS: A CONTINUUM OR TWO DISTINCT DISEASES?

Atraso de linguagem e desvio fonológico: um continuum ou duas patologia distintas?

Diéssica Zacarias Vargas⁽¹⁾, Carolina Lisbôa Mezzomo⁽¹⁾, Carolina Ramos de Freitas⁽²⁾

ABSTRACT

Purpose: to study and verify that the phonological disorder is a continuum of language delay, in other words, if children with atypical phonological development previously had some delay in language development. **Methods:** the data were collected and organized into two groups, Group 1 comprised 10 children with language delay, speech therapy performed for stimulation and progressed after treatment, and then changed to the speech sector. Already Group2 consists of 554 subjects who arrived with phonological features and thus were diagnosed after the evaluations. **Results:** the findings of this study showed no significant association between sex and diagnosis, and the distribution between boys and girls was similar. In the analysis performed between age of onset of first words were not found significant results. However, the comparison between age of onset of first words and diagnosis were significant result, and the age of onset in the group with language delay, later than in other diagnostic hypotheses. **Conclusion:** the results of this study support the literature, because the phonological refers to a change in the phonological level only, rather than a continuum of language delay.

KEYWORDS: Speech-Language Pathology; Speech Disorders; Child Language; Speech Therapy; Child

■ INTRODUCTION

Language development occurs gradually; thus, it is part of an evolutionary process¹⁻³. It is known that, in a cognitive perspective, language will be developed upon the interaction between the child and the environment. Symbolism emerges by such exploration of the environment, and the child uses it to mentally represent their schemes of action, even in the absence of the object in question⁴. Therefore, language development occurs in the representative period, at about two years of age⁵. However, in order for language to develop normally, and for the representative period to occur, the first words should also appear at the appropriate time. Appropriate

development does not always occur, and parents and caregivers often fail to seek proper treatment when they realize developmental delay. Sometimes speech therapists see children whose speech is reported as wrong; they started speaking late and their speech already showed changes. Phonological disorder occurs when there are changes in the normal development of speech in children older than four years of age³.

Thus, this research was motivated by a few questions. For example, did children with atypical development, i.e., changes in speech, have a previous history of language delay? Did such children with phonological disorder need some type of therapy to stimulate their language development? Even when no therapy was given, did subjects with atypical speech acquisition show language delay? When this intervention did not occur and language delay was overcome, was there any disorder left as a sign of broader overall previous change?

Therefore, the objective of this research was to study and verify if phonological disorder is part of

⁽¹⁾ Universidade Federal de Santa Maria – UFSM, Santa Maria, RS.

⁽²⁾ Pontifícia Universidade Católica do Rio Grande do Sul, Porto Alegre, RS, Brasil.

Research grant: scholarship granted by the Coordination for the Improvement of Higher Education Personnel (CAPES)

Conflict of interest: non-existent

a continuum of language delay. It aimed to investigate whether children with atypical phonological development had some previous delay in language development and evolved to a change only at the phonological level of language.

METHODS

This paper was developed from collection of data on children with abnormal speech, in a clinic of a higher education institution. Data were collected from all patients with atypical phonological development, who have been treated at the speech therapy department of that institution since 1991.

The database was comprised of records of patients screened and treated since 1991, and children who were still being treated in the speech therapy department. Parents and/or guardians signed an authorization for compilation of the database and use of data from therapy in the research. This study was authorized by the Research Ethics Committee of the Federal University of Santa Maria (UFSM), under number 0202.0.243.000-11. Therefore, it is a retrospective study.

Data collection discarded subjects with other changes such as disfluency, verbal and/or buccolingual-facial dyspraxia, cleft palate or neurological disorders. Thus, data from 644 children were collected over a period of 10 months, between September 2012 and June 2013. The data were categorized into two groups - G1 and G2. G1 was composed of 10 children who came to the clinic with language delay, underwent speech therapy for language stimulation and progressed after treatment, and were relocated from the language department to the speech department. So after the progress of patients, i.e., when the language features that were previously lagged (pragmatics, morphology, syntax, semantics) were adequate, patients were then transferred to the speech department because they still had changes at the phonological level, i.e., phonological disorders. G2 consisted of 554 subjects who came to the clinic and had phonological disorders. In this group, 80 subjects were excluded from G2 because they did

not meet the inclusion criteria, information on age of onset of first words.

- G2 was divided into:
- G2A - Phonological disorder;
- G2B - Phonetic and phonological disorder;
- G2C - Phonological disorder associated with environmental/emotional factors;
- G1 was composed of subjects with language delay, identified as HD 4.

For evaluation of language, both Behavioral Observation Protocol (PROC)⁶, and observational assessment of language were performed. Speech samples were collected with the "Phonological Assessment of Child Speech (AFC) - "7, which is based on spontaneous picture naming of 125 words represented by five thematic pictures. The speech sample from each child was transcribed and later revised.

To analyze the data, the Statistics 9.1 software was used with a significance level of less than or equal to 0.05. Nonparametric Kruskal-Wallis and Mann-Whitney U tests and the chi-square test were performed. Intersections of the following variables were performed: *gender* and *diagnosis*; *age* and *diagnosis*; *age* and *gender*.

RESULTS

The graph below shows the distribution of subjects in each group. It was found that only 10 subjects participated in this sample of group G1 (with language delay). In G2, subjects with phonological disorders, the onset of first words by two years of age occurred in 359 children, while the onset of first words between 2 and 3 years of age occurred in 107 subjects. The onset after three years of age occurred in 88 children.

When analyzing the gender variable with the two groups analyzed, it was found that there was no significant association for the data of this study.

Although there was no significant association between gender and the different groups, Figure 2 shows that there are more males than females in all groups.

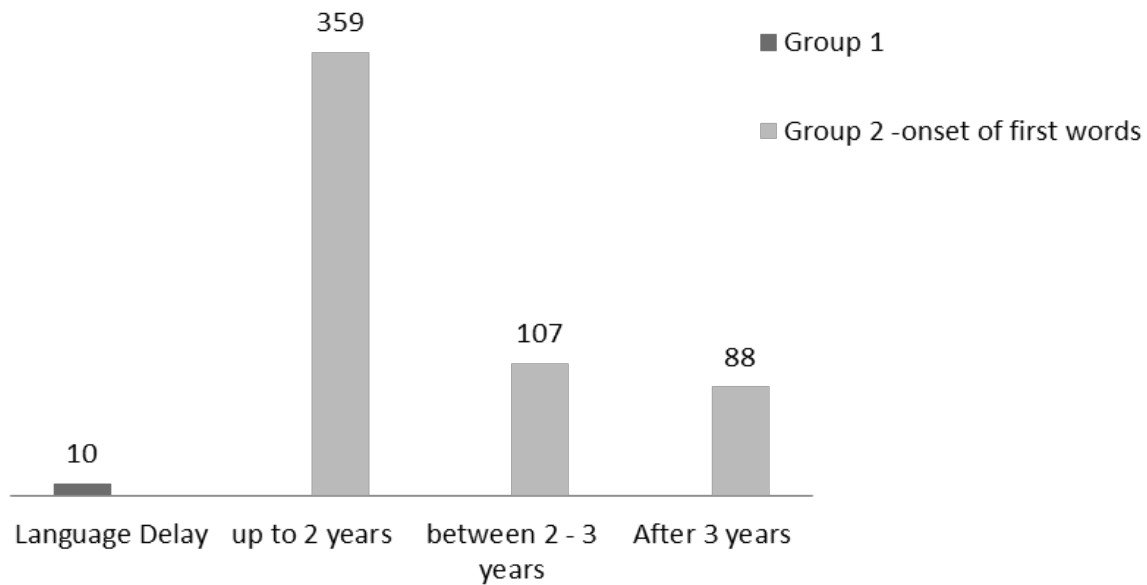


Figure 1 - Distribution of subjects by age of onset of first words in group 1 and group 2

Table 1 - Association between boys and girls (gender variable) in the different groups

Gender vs. GROUPS 1 AND 2	p = 0.038
---------------------------	-----------

Caption: Statistical software: Statistics; Chi-square test with a significance level of 5% ($p < 0.05$)

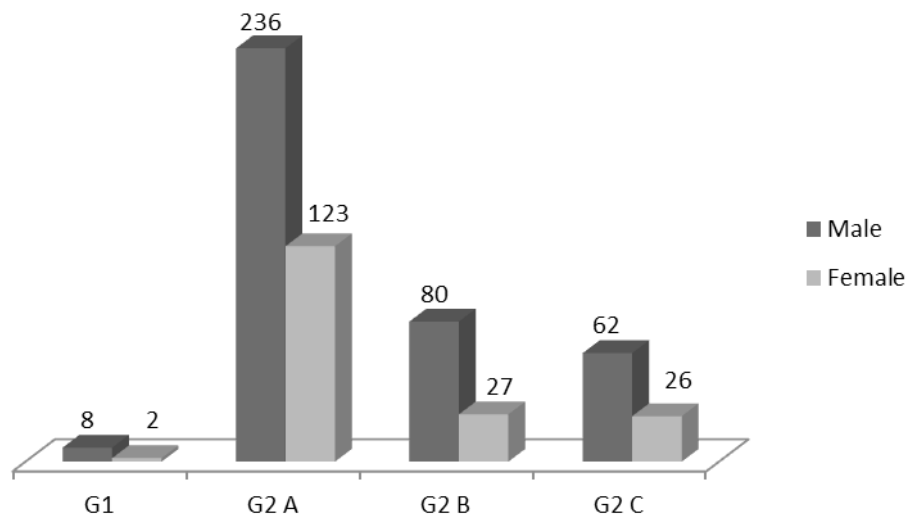


Figure 2 - Distribution of subjects according to gender and the different groups

The result obtained by the Mann-Whitney test showed that there is no significant difference between the performance of male and female children for age of onset of first words.

Figure 3 shows that there was no significant outcome between the performance of male and female children for age of onset of first words, since the distribution was quite similar between subjects.

Table 2 - Comparison between the variable age of onset of first words and gender

Age of onset of first words vs. Gender	p = 0.813
--	-----------

Caption: Statistical software: Statistics; U test of Mann-Whitney test with significance level of 5% ($p < 0.05$)

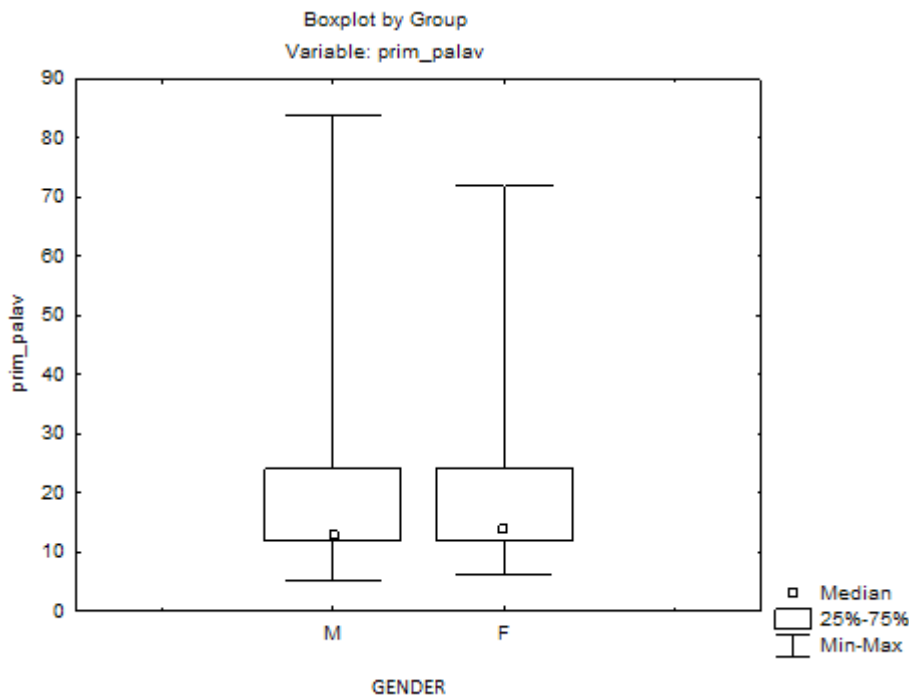


Figure 3 - Graph of the distribution of subjects according to age of onset of first words and gender

Table 3 shows a significant difference when comparing the age of onset of first words of children in the different groups studied (phonological disorder, phonetic and phonological disorder, phonetic disorder associated with environmental/emotional factors and language delay).

In addition, the age of onset of first words in the group with language delay was quite late compared with the other groups, as can be seen in Figure 4. Moreover, when examining the median, it was found that data distribution is not uniform, and late onset of first words in the group with language delay is evident.

Table 3 - Comparison between the variable age of onset of first words and the different groups

Age of onset of first words vs. Groups	$p < 0.01$
--	------------

Caption: Statistical software: Statistics; Kruskal-Wallis test with significance level of 5% ($p < 0.05$)

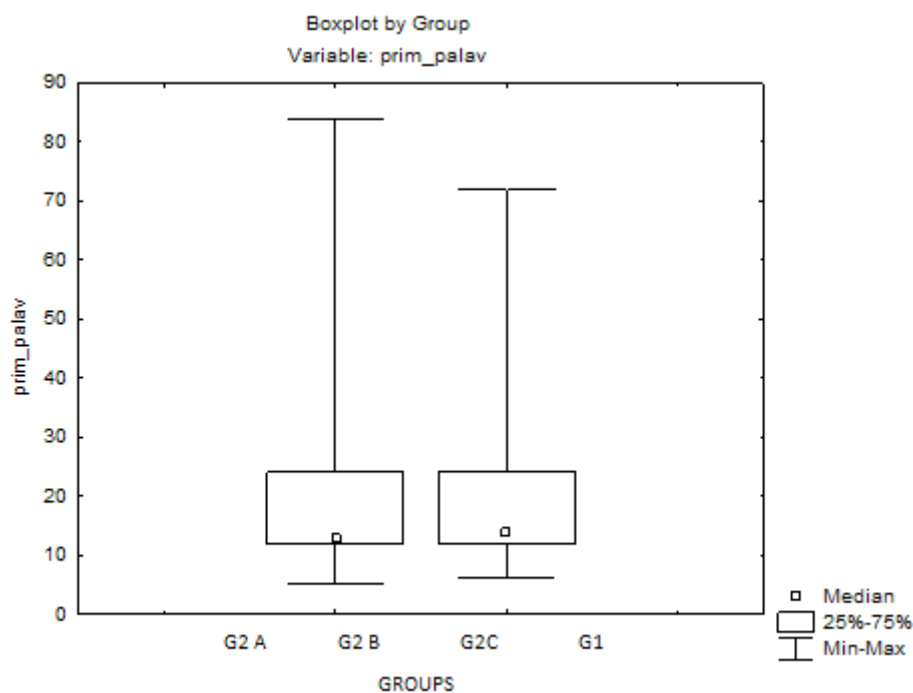


Figure 4 - Distribution of subjects according to age of onset of first words and groups

DISCUSSION

The initial hypothesis of this research was that if there were more cases with language delay, and that the other levels of language were adjusted when these subjects performed speech therapy, change in phonological level could remain. This finding was not observed in this study, because only 10 subjects in the speech department had a history of language delay. Thus, the results had no significant difference between different groups. However, this finding agrees with the literature, which reports that phonological disorder refers only to a change at the level of phonology, with no change in the other

linguistic levels, no mechanical alteration of speech production, i.e., there is a flaw in the organization of the sound system of language, even in the absence of detectable organic changes⁸⁻¹².

Nevertheless, although there are few subjects with language delay, many children in the present study began speaking their first words later, after two years of age, as can be seen in the frequency graph (Figure 1). Given this outcome, it is worth noting that parents should be attentive to the emergence of the language of their children, because during the first years of life, significant acquisitions occur. Thus, the sooner early intervention occurs, the more effective it will be for the proper development of the child^{4,13,14}.

It should be noted that the number of subjects with language delay (G1) and phonological change could be more common if the families of the 195 children (whose emergence of first words occurred after 2 years of age, which can be considered late) had sought treatment earlier. Thus, when they were to start speech therapy, they would have probably already overcome language delay, and only phonological change would have to be treated.

There was no significant association, either, in the comparison of performance between boys and girls and different groups. Such fact disagrees with the literature^{15,16}, which shows that phonological disorder happens more often among boys. There are studies where girls show better outcomes than boys with regard to tasks involving language skills¹⁷⁻²¹. However, although there was no significant association, there has been a prevalence of males with phonological disorders, phonetic phonological disorders, phonological disorders associated with environmental/emotional factors and language delay/disorder (Figure 2).

Similarly, in this study, no statistical correlation was found between the variables "age" and "gender". The results obtained were similar among boys and girls, as regards the onset of first words. This result does not agree with the literature, because girls often excel in activities involving language skills¹⁷⁻²¹.

Therefore, in this study, the onset of first words was expected to occur earlier in girls and later in boys. However, the results agree with a study in which there was no significant difference for gender as regards phonological acquisition²².

For the comparison between age of onset of first words and diagnosis, the result showed a significant difference in the comparison, since children with language delay had later ages of onset of first words than children with phonological disorder. This finding is consistent with the pathology of language delay, since the emergence of language occurs later, while language development starts within the expected period for phonological disorder, but there are changes in the phonological system^{3,13,23}.

■ CONCLUSION

According to the results presented in this study, it was found that phonological disorder does not refer to a continuum of language change, i.e., it is not identified as a final step to overcome linguistic difficulty. Thus, the findings from this study support the literature, because phonological disorder refers to a change at the phonological level only, while the other language levels are adequate and, therefore, not due to a delay in language.

RESUMO

Objetivo: estudar e verificar se o desvio fonológico é um continuum do atraso de linguagem, ou seja, se crianças com desenvolvimento fonológico atípico possuíam anteriormente algum atraso no desenvolvimento de linguagem. **Métodos:** os dados foram coletados e organizados em dois grupos, sendo o Grupo1 composto por 10 crianças com atraso de linguagem que realizaram terapia fonoaudiológica para estimulação e evoluíram após tratamento, sendo remanejados para o grupo de fala. Já o Grupo2 foi constituído por 554 sujeitos apresentando características de desvio fonológico e assim foram diagnosticados após realização das avaliações. **Resultados:** os achados deste estudo não mostram associação significativa entre sexo e hipótese diagnóstica, sendo que a distribuição entre meninos e meninas foi semelhante. Na análise realizada entre idade de surgimento das primeiras palavras também não foram encontrados resultados significantes. No entanto, na comparação realizada entre idade de surgimento das primeiras palavras e hipótese diagnóstica houve resultado significativo, sendo a idade de surgimento no grupo com atraso de linguagem mais tardio do que nas demais hipóteses diagnósticas. **Conclusão:** os achados deste trabalho corroboram a literatura, no sentido de que o desvio fonológico se refere a uma alteração no nível fonológico apenas, não sendo considerado como um continuum do atraso de linguagem.

DESCRIPTORIOS: Patologia da Fala e Linguagem; Distúrbios da Fala; Linguagem Infantil; Fonoterapia; Criança

■ REFERENCES

- Keske-Soares M, Pagliarin KC, Ceron MI. Terapia fonológica considerando as variáveis linguísticas. *Rev Soc Bras Fonoaudiol*. 2009;14(2):261-6.
2. Vieira MG, Mota HB, Keske-Soares M. Relação entre idade, grau de severidade do desvio fonológico e consciência fonológica. *Rev Soc Bras Fonoaudiol*. 2004;9(3):144-50.
3. Mota HB. Terapia fonoaudiológica para desvios fonológicos. Rio de Janeiro: Revinter, 2001.
4. Zorzi JL. Aspectos básicos para compreensão, diagnóstico e prevenção dos distúrbios de linguagem na infância. *Rev CEFAC*. 2000;2(1):11-5.
5. Santos R. A aquisição da linguagem. In: Fiorin JL. (Org). *Introdução à Linguística I – Objetos Teóricos*. Porto Alegre: Editora Contexto, 2008. P. 211-26.
6. Zorzi JL, Hage S. PROC - Protocolo de Observação Comportamental: avaliação da linguagem e aspectos cognitivos infantis. Pulso Editorial, 2004.
7. Yavas M, Hernandorena CLM, Lamprecht RR. Avaliação fonológica da criança. Porto Alegre: Artes Médicas, 1991.
8. Backes FT, Pegoraro S, Costa VP, Wiethan FM, Melo RM, Mota HB. A influência da gravidade do desvio fonológico na determinação da alta fonoaudiológica. *Distúrb Comum*. 2013;25(1):65-72.
9. Mezzomo CL, Giacchini V, Dias RF, Luiz SW, Lopes SG. Aquisição da coda simples e complexa com /s/ em crianças com desvio fonológico. *Rev CEFAC*. 2013;15(1):17-24.
10. Oliveira MMF, Wertzner HF. Estudo do distúrbio fonológico em crianças. *Rev Soc Bras Fonoaudiol*. 2000;7(5):68-75.
11. Zorzi JL. A intervenção Fonoaudiológica nas Alterações da Linguagem Infantil. Rio de Janeiro: Revinter, 1999.
12. Lamprecht RR. Diferenças no ranqueamento de restrições com origem de diferenças na aquisição fonológica. *Letras de Hoje*. 1999;34(3):65-82.
13. Crestani AH, Oliveira LD, Vendruscolo JF, Souza APR. Distúrbio específico de linguagem: a relevância do diagnóstico inicial. *Rev CEFAC*. 2013;15(1):228-37.
14. Crestani AH, Rosa FFM, Souza APR, Pretto JP, Moro MP, Dias L. A experiência da maternidade e a dialogia mãe-filho com distúrbio de linguagem. *Rev CEFAC*. 2012;14(2):350-60.
15. Cavalheiro LG, Brancalioni AR, Keske-Soares M. Prevalência do desvio fonológico em crianças da cidade de Salvador, Bahia. *Rev Soc Bras Fonoaudiol*. 2012;17(4):441-6.
16. Indrusiak CS, Rockenbach SP. Prevalência de desvio fonológico em crianças de 4 a 6 anos de escolas municipais de educação infantil de Canoas RS. *Rev CEFAC*. 2012; 14(5):943-51.
17. Vargas DZ, Mezzomo, CL. Estratégias de reparo e distintas variantes dialetais do /R/ em coda utilizadas em dois municípios do sul do Brasil. *Distúrb Comum*. 2012;24(2):199-213.
18. Mezzomo CL, Mota HB, Dias RF, Giacchini V. Fatores relevantes para aquisição da coda lexical e morfológica no português brasileiro. *Rev CEFAC*. 2010;12(3):412-20.
19. Moura SRS, Mezzomo CL, Cielo CA. Estimulação em consciência fonêmica e seus efeitos em relação à variável sexo. *Pró-Fono R Atual Cient*. 2009;21(1):51-6.
20. Moura SRS, Cielo CA, Mezzomo CL. Consciência fonêmica em meninos e meninas. *Rev Soc Bras Fonoaudiol*. 2009;14(2):205-11.
21. Mezzomo CL. Aquisição dos fonemas na posição de coda medial do português brasileiro, em crianças com desenvolvimento fonológico normal. *Letras de Hoje*. 2001;36(125):707-14.
22. Ferrante C, Borsel JV, Pereira MMB. Aquisição fonológica de crianças de classe sócio econômica alta. *Rev CEFAC*. 2008;10(4):452-60.
23. Hage SRV, Cendes F, Montenegro MA, Abramides D, Guimarães CA, Guerreiro MM. Specific language impairment: linguistic and neurobiological aspects. *Arq. Neuro-Psiquiatr*. 2006;64(2a):173-80.

Received on: January 29, 2014

Accepted on: September 25, 2014

Mailing address:

Diéssica Zacarias Vargas

Travessa Antônio Nelson da Cunha, 188

Cachoeira do Sul – RS – Brasil

CEP: 96506-530

E-mail: diessiczvargas@gmail.com