

Vocabulário expressivo de crianças com desenvolvimento fonológico normal e desviante****

Expressive vocabulary of children with normal and deviant phonological development

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Abstract

Background: expressive vocabulary of children with normal and deviant phonological development. Aim: to determine whether alterations presented by children with phonological disorders occur only at the phonological level or if there are any impacts on lexical acquisition; to compare the vocabulary performance of children with phonological disorders to reference values presented by the used test. Method: participants of the study were 36 children of both genders, 14 with phonological disorders (Study group) and 22 with typical language development (Control Group). The ABFW – Vocabulary Test (Befi-Lopes, 2000) was used for assessing the expressive vocabulary of children and later to compare the performance of both groups. Results: the performance of children with phonological disorder in the expressive vocabulary test is similar to that of children with normal phonological development. Most of the children of both groups reached the benchmarks proposed by the test for the different semantic fields. The semantic field Places demonstrated to be the most complex for both groups. Conclusion: the alterations presented by children with phonological disorder area limited to the phonological level, having no impact on the lexical aspect of language.

Key Words: Vocabulary; Language Development; Language Development Disorders; Language Tests.

Resumo

Tema: vocabulário expressivo de crianças com desenvolvimento fonológico normal e desviante. Objetivo: verificar se as alterações das crianças com desvio fonológico ocorrem apenas no nível fonológico ou se há algum impacto na aquisição lexical e comparar o desempenho em vocabulário das crianças desta amostra com os valores de Referência de Normalidade do teste utilizado. Método: a amostra foi composta por 36 crianças de ambos os sexos, sendo 14 com desvio fonológico (Grupo Estudo) e 22 com desenvolvimento normal de linguagem (Grupo Controle). Foi aplicado o teste ABFW - Vocabulário (Befi-Lopes, 2000) para avaliar o vocabulário expressivo destas crianças e, após, foi comparado o desempenho dos dois grupos. Resultados: o desempenho em vocabulário expressivo das crianças com desvio fonológico é semelhante ao das crianças com desenvolvimento fonológico normal. Grande parte das crianças desta amostra atingiu os valores de referência propostos pelo teste na maioria dos campos conceituais, e o que mais se mostrou complexo para as crianças dos dois grupos foi o Locais. Conclusão: a alteração das crianças com desvio fonológico é realmente apenas a nível fonológico, sem impacto no aspecto lexical da linguagem.

Palavras-Chave: Vocabulário; Desenvolvimento da linguagem; Transtornos do Desenvolvimento da Linguagem; Testes de Linguagem.

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Introduction

One of the most important things children should learn is the vocabulary of their native language¹. Children with typical development begin to babble at about six to nine months of age and speak their first words from 10 to 15 months of age² with short words being acquired before longer ones³.

There are children who present atypical phonological development without an apparent organic etiology. These cases are called deviant phonological development⁴. This disorder is characterized by an abnormal production of sounds and an inadequate use of phonological rules of the language. The cause of deviant phonological development is not yet defined and its etiology is widely discussed⁵.

There is a strong synchronization between the development of lexicon and the phonological system. Children with a small phonetic repertoire tend to have relatively few words stored in the lexicon whereas children with wide vocabulary present phonological repertoire relatively complete⁶. If a child has fewer phonemes available and attempts to produce a large number of different words, he/she is not able to. This is because there are not enough sounds to produce those words. The child then produces homonymous forms, which makes his/her speech difficult to comprehend².

An alternative hypothesis is that the vocabulary of children with phonological deviance is similar to that of children with typical language development. Thus, the purpose of this study was to determine whether the alterations in children with phonological deviance occur only at the phonological level, or whether an impact could also be observed on language acquisition. Moreover, the present study aims to compare the lexical performance of children with phonological deviance with the reference values of the test used.

Methods

This study was carried out with the use of clinical data from children participating in the research project "Expressive Vocabulary Skills and Working Memory in Children with Typical and Deviant Phonological Development," approved by the Ethics Committee under number 0102.0.243.000-07.

Data were collected between October 2007 and June 2008.

The following inclusion criteria were considered for the subjects in the study:

- to have authorization by their parents or guardians to participate in the research according to the signature of the consent form;
- study group (SG): to present diagnosis of phonological deviance;
- control group (CG): to present adequate comprehensive and expressive aspects of language as well as on pragmatic, semantic, syntactic, morphological and phonetic/phonological language components.

The following were considered as exclusion criteria:

- evidence of alterations on neurological, cognitive and/or psychological aspects;
- evidence of hearing loss;
- alteration of the stomatognathic system that could be related to speech disorders;
- previous Speech-Language therapy;
- impossibility of completing the vocabulary assessment in one day;
- difficulties in concentrating.

Children selected were selected from a public Speech-Language Therapy service, and a State and a Philanthropic Public School.

The children were individually assessed at their home institution. All children went through a Speech-Language screening in which were carried out: hearing screening; informal assessment of receptive and expressive language through logical sequence analysis; complete phonological assessment⁴ for children with alterations on the phonological system; and assessment of the stomatognathic system.

Next, the ABFW - Child Language Test⁷ was applied in order to assess the lexical competence of each child. Through this test, nine semantic conceptual fields were assessed: clothing, animals, food, transportation, furniture and fixtures, occupations, locations, shapes and colors, toys and musical instruments. This test analyzes designation by usual names (DVU), the non designations (ND) and the processes of substitution (PS) used by children to achieve the correct naming of figures. The test has a reference value (RN) for each one of the conceptual fields.

The assessments were carried out in three different days. On the first day, the Speech-Language screening and the phonological assessment was carried out, on the second day, the hearing screening, and on the third and last day, the vocabulary assessment was carried out.

After exclusion of 10 children, the sample was composed by 36 children, 14 belonging to the Study Group (SG) and 22 to the Control Group (CG). Children were between 5:1 and 5:11 years of age. The mean age was 5:9 years for SG and 5:7 for the CG. The group SG was composed by seven girls and seven boys, and the CG by 15 girls and seven boys.

The Kruskal-Wallis test was used to compare the performance between the groups. The significance level adopted was of $p < 0.05$. A qualitative analysis was used on the analysis of RN values.

Results

The data on performance on the vocabulary test of SG and CG are presented in Table 1.

Regarding the DVU, it was observed that on the fields clothing, animals, food, occupation, locations, shapes and colors, toys and musical instruments - and even on the mean DVU - children from the CG presented higher mean than children from the SG did. However, the SG presented higher means than the CG on the means of transportation and furniture and fixtures fields. Only the between groups difference regarding the field shapes and colors was statistically significant.

As for ND, it was observed that SG had higher means than CG in all fields and, consequently, on the overall ND. However, only the difference between the groups on the field locations was statistically significant.

When analyzing the PS, it was noted that the SG presented higher means than the CG on the fields: food, professions, shapes and colors, toys and musical instruments and on the overall PS. On the other hand, the CG presented means above the SG on the fields: clothing, means of transportation, furniture and fixtures, and locations. The means were equal for the field food. However, only the difference between groups referring to the field toys and musical instruments was statistically significant.

Table 2 presents the percentages of children from SG and CG who showed satisfactory results in each field, according to reference values provided by the test.

With regards to the DVU, it can be observed that a small number of children from SG and CG achieved the normal reference values on the field locations. The same occurred to children from the SG for shapes and colors. Regarding other fields, the majority of children achieved the reference values.

As for the ND, it was observed that no field proved to be complex for children from both groups once the majority of them presented expected results in all semantic categories.

With regards to the PS class, a minority of children from SG presented satisfactory results in the fields of food and profession whereas in the field of shapes and colors only half of the children presented a satisfactory result. Regarding the CG, only a small number of children presented satisfactory results on the field locations.

TABLE 1. Between Groups Comparison of vocabulary performance.

Classes	Conceptual Fields	Groups	Means	Standard Deviation	P value
DVU	Clothing	SG	79,28	12,06	0,8004
		CG	79,54	12,90	
	Animals	SG	84,69	12,39	0,6971
		CG	87,70	5,21	
	Food	SG	70,88	14,68	0,0649
		CG	79,31	7,38	
	Means of transportation	SG	88,30	10,35	0,8390
		CG	87,59	11,41	
	Furniture and Fixture	SG	82,83	10,37	0,4375
		CG	82,82	7,71	
	Occupation	SG	44,28	16,03	0,1420
		CG	52,72	16,38	
	Locations	SG	44,03	18,89	0,7435
		CG	47,51	22,43	
	Shapes and Colors	SG	59,28	26,44	0,0322*
		CG	76,36	16,48	
	Toys and Musical Instruments	SG	67,52	19,76	0,0722
		CG	78,91	18,26	
	Mean	SG	69,01	10,66	0,1047
		CG	74,72	8,425	
ND	Clothing	SG	0,71	2,672	0,7436
		CG	0,45	2,132	
	Animals	SG	5,70	10,06	0,5588
		CG	2,42	3,87	
	Food	SG	9,30	11,60	0,2792
		CG	4,23	4,84	
	Means of transportation	SG	1,29	4,85	0,6129
		CG	1,23	3,19	
	Furniture and Fixture	SG	3,56	3,20	0,0888
		CG	1,89	3,07	
	Occupation	SG	7,14	9,13	0,4630
		CG	4,54	5,95	
	Locations	SG	7,73	10,05	0,0339*
		CG	1,89	4,40	
	Shapes and Colors	SG	10,71	13,28	0,4197
		CG	6,81	9,94	
	Toys and Musical Instruments	SG	9,73	9,74	0,2218
		CG	6,61	8,95	
	Mean	SG	6,21	4,81	0,0945
		CG	3,34	2,42	
PS	Clothing	SG	19,28	11,41	0,9727
		CG	20,00	12,72	
	Animals	SG	9,99	11,31	0,5450
		CG	9,99	5,33	
	Food	SG	19,98	11,97	0,3983
		CG	16,04	5,68	
	Means of transportation	SG	10,38	7,85	0,9191
		CG	11,15	10,47	
	Furniture and Fixture	SG	14,20	10,62	0,2923
		CG	15,28	6,69	
	Occupation	SG	48,57	21,07	0,2629
		CG	42,72	16,67	
	Locations	SG	48,79	16,93	0,7190
		CG	49,60	20,95	
	Shapes and Colors	SG	29,28	19,79	0,0693
		CG	17,27	14,53	
	Toys and Musical Instruments	SG	23,37	15,42	0,0402*
		CG	13,63	12,77	
	Mean	SG	19,47	6,60	0,3467
		CG	16,99	5,93	

Note: DVU - designation by usual names; ND - non designation; PS - substitution process; SG - study group; CG - control group; significant p values ($p < 0,05$) with an asterisk; Statistical Test applied: Kruskal-Wallis.

TABLE 2. Percentages of children who presented satisfactory results in each conceptual field.

Classes	Groups	CL	AN	FD	MT	FF	OC	LO	SC	TMI
DVU	GE	85,71	100	71,42	100	92,85	71,42	7,14	42,85	57,14
	GC	90,9	100	90,9	100	100	81,81	22,72	77,27	86,36
ND	GE	92,85	85,71	78,57	92,85	78,57	92,85	78,57	64,28	78,57
	GC	95,45	100	100	86,36	86,36	100	95,45	81,81	81,81
PS	GE	85,71	92,85	42,85	100	100	42,85	0	50	71,42
	GC	90,9	100	63,63	100	100	59,09	13,63	72,72	86,36

Note: values in percentage of children who presented satisfactory results; DVU - designation by usual names; ND - non designation; PS - substitution process; SG - study group; CG - control group; RN - reference values; CL - clothing; AN - animals; FD - food; MT - means of transportation; FF - furniture and fixture; OC - occupation; LO - location; SC - shapes and colors; TMI - toys and musical instruments.

Discussion

The results of the present study support the hypothesis that children with phonological deviance present performance on vocabulary tests that is similar to that of children with typical phonological development. This suggests that the phonological deviance affects only the phonological component of language.

Comparing the DVU between CG and SG, it was observed that, only on the field shapes and colors, the CG has performed significantly better than the SG. In other fields there were no statistically significant differences.

Regarding the ND, the only significant difference was observed in the field locations, indicating that the SG made more ND in this field than the CG. No statistically significant between groups differences were observed on other conceptual fields.

As for the PS, the only statistically significant between groups difference was observed in the field toys and musical instruments in which the children from the SG made more PS than the children from the CG did. There were no statistically significant differences in other fields.

These findings are in line with what was predicted for this study - a similar performance in vocabulary when comparing both groups.

Most children from both groups presented difficulties in the field locations. Taking into account that picture naming involves three steps: identification of the object, activation of its name and response generation⁸, the children may have shown poor performance for not acknowledging the figures in this field.

Another study⁹ also found that children have very poor performance in the field locations, which, according to the authors, can be explained by the visual input provided.

One study¹⁰ supports this explanation by saying that familiarity and frequency of objects on the daily lives of children is important for the naming task, as these factors influence the activation of the lexical, via short-term and long term memory. Other authors¹¹ also affirm that familiarity and visual complexity of the figure to be named are important because of their effect on memory and on other cognitive processes. In addition to these factors, another study¹² states that the time necessary for the child to name the figure (latency) is more affected by the length of the name of the picture than by the frequency of the word.

The field shapes and colors also proved to be difficult for most children in the SG. This could be explained by the fact that all the children from the CG were preschoolers, whereas only nine children from the SG were.

Such result coincides with findings from other study⁹ in which children with phonological deviance had similar vocabulary to children with typical language development. Another study found similar results. Statistically significant differences were not observed on the three degrees of severity of phonological deviances studied (mild-moderate, moderate-severe and severe)¹³. The mean of correct naming, non designation, and substitution processes in all semantic fields assessed were similar when comparing the three severity degrees.

These findings suggest that the phonological deficit does not influence the performance on expressive vocabulary tests. However, results of a similar longitudinal study¹⁴ disagree with the present study by affirming that the performance on receptive vocabulary of individuals with speech disorders was significantly lower than the performance of the CG at the age of five.

When comparing the performance of groups with the reference values of the test, it was observed that, for the DVU, most children in both groups had difficulties on the field locations, and most children of the SG also presented difficulties in the field shapes and colors. Most children did not present difficulties in other conceptual fields of the test.

Regarding the class of ND, most children in both groups did not present any difficulty in any conceptual level. For the PS, most children from SG presented difficulties in the fields: foods, occupations, locations, and shapes and colors. Indeed, most of the CG presented difficulties in field locations. Most of the children achieved expected scores on other semantic fields.

This result suggests that children from both groups prefer to replace the target word than to not designate it. However, one study¹⁰ disagrees with this finding by affirming that older children (five and six years old) report not knowing how to name the figure when they not recognize it, instead of making more errors.

The words referring to objects are named with more precision than those referring to actions. This is because the word referents to objects are stable and concrete. In contrast, words referents of actions are transitory⁴. This may justify the difficulties that children presented at the conceptual level occupations, in which figures represent actions.

Conclusions

The expressive vocabulary of children with phonological deviance is similar to that of children with typical phonological development. This confirms the hypothesis that the alteration observed on children with phonological deviance is focused only at the phonological level, with no impact on the lexical aspect of language.

Most children in this sample achieved the reference values proposed by the test for most of the conceptual fields. The field that has proven to be more complex for children from both groups was the semantic field locations.

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