ACQUISITION OF CV SILABLE IN THE TYPICAL AND IMPAIRED PHONOLOGICAL DEVELOPMENT

Aquisição da sílaba consoante vogal (CV) por crianças com desenvolvimento fonológico típico e atípico

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ABSTRACT

Purpose: to describe and compare acquisition of the consonant-vowel syllable in children with typical and atypical development of speech, investigating the linguistic and extra linguistic variables intervening in this process. **Methods:** it was analyzed the speech of 24 children, 12 with typical phonological development and 12 with phonological deviation, equated in relation to gender, between 1:0 and 3:11;29 (typical group) and between 4:0 and 6:11;29 (group with phonological diversion). The samples were transversally collected, based on the Children Phonological Evaluation instrument. It was analyzed the words which presented the consonant-vowel as the target syllable (consonant + vowel), with a corpus of 888 words for the typical development and 2.233 for the atypical development. It was considered as variables of variants dependent of correct production, the consonant erasure, the syllable erasure, epenthesis, metathesis and others (as, for example, the compensatory stretching). As independent intervenient variables it was considered the extra linguistic factors as age, gender, kind of development and the variables as tonicity, sound groups, syllable number, following and preceding syllable context, Word position and metrical foot. The speech data were statistically analyzed by the VARBRUL. **Result:** the statistic program selected as statistically meaningful variants for the correct production of consonant-vowel, the variables age and sound groups, analyzing the typical data; the variable sound groups, gender, age and metrical foot, in the atypical data; and the variables of sound groups, gender, age, tonicity and kind of development, when analyzed in conjunct with the typical and atypical data. It was verified, from the findings of this study, that both groups use the same fixing strategies, however, with more frequency in the group of children with phonological diversion. On the other hand, the correct productions are more frequent in typical children. **Conclusion:** a bigger number of statistically meaningful variables were selected in the group with atypical development for the correct production. Furthermore, a greater frequency of strategies occurs in this group.

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

INTRODUCTION

The language acquisition and development are complex processes which involve different domain components such as syntax, semantics, pragmatics, morphology and phonology[1]. The phonological acquisition and development of Brazilian Portuguese (BP) reach a gradual, non linear procedure, with individual variants, constituting the phonological system which corresponds to the adult system[2].

The acquisition of the syllable structures of BP occurs in gradual way. It is possible to observe definite patterns of domain, following the order V e CV > CVC > CCV, with the syllable consonant vowel (CV) as one of the first structures to be dominated by children[3].

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About the syllable and word position, the order of phonemic acquisition which is observed in literature is: medial onset, followed by final coda, initial onset and medial coda. Studies also mention the importance of the number of syllables in the process of phonological acquisition[4].

The plosive and nasal phonemes, in the acquisition of the BP consonants, are acquired by children with typical phonological system when they are from about one year and six months and to one year and eight months[4]. Then, the fricative phonemes emerge and they are acquired when children are about two years old and three years and a half year. Finally, the liquid class is acquired, with late domain. The first liquid to be consolidated is the /l/, when children are from about two years and eight months to three years, then, the /R/ and the palatal lateral liquid /ʎ/, with four years old, and, then, the /r/ is consolidated when children are four years and two months[5].

Regarding the impaired development, children with phonological disorders, it is perceived that the class of the fricatives, followed by the liquids, are the classes with the highest level of impairments[6].

In this study, it is assumed the metric theory, which represents the syllable through a phonological hierarchy. In this case, the syllable is a sequence of vowels and consonants, which may be divided in two longer constituents: onset and rhyme. The rhyme is divided in two elements, the nucleus and the coda[7]. The coda occupies the final part of the syllable, defining the (C)VC structure. It causes more difficulties for the acquisition of BP, as for children with typical as for children with impaired phonological development. The syllable CVC is even less complex than the syllable CCV, with late acquisition in BP[8].

It is known that the CV syllable is precocious in the language development, but it is believed that what define its domain are the different classes which complete the onset position.

The study of the variables in the acquisition of the CV syllable may help in the therapy of speech issues, in the sense of using factors which are favorable to the emergence of the phonemes-phones.

Considering the referred theories, this study has the purpose of studying and comparing the acquisition of the CV syllable in children with typical phonological development and children with phonological disorders, investigating the intervening linguistic and extra-linguistic variables in that acquisition.

METHODS

The speech samples which were collected and analyzed in this study are part of data bases from two research projects at the origin institution, both approved by the ethics committee of the same institution, n. 064/2004 and 046/02.

This research is quantitative and transversal. The sample consisted of data from 24 children, divided in two groups: typical and impaired (phonological disorder) phonological development. Each group consisted of six girls and six boys, monolingual BP speakers, *Gaúcho* dialect.

To be part of the sample, the participants should not be receiving or have received any type of speech language therapy, they should not present motor, organic, emotional and/or cognitive alterations, evident neurological problem, or language problems. Besides, bilingual children or speakers of other languages than Portuguese were not included in the study.

The speech samples were collected based on the instrument Children Phonological Assessment (CPA)[9], which uses spontaneous naming of 125 words through five thematic pictures, pictures from books and toys. The recording of the sample by each child was transcribed by the researcher through restrict phonetic transcription and, then, it was reviewed by two more researchers, students of the last year of the Speech Language Course.

For this study, the only words which were collected were words containing the target syllable CV. In the group of children with typical development, the corpus consisted of 888 words, and in the group of children with impaired development, the corpus consisted of 2233 words, a total of 3121 words.

After the collection of the words with CV syllables, the words were codified according to their production. That codification was performed through the typing of the data in a form on Microsoft Access. It served as entrance for the statistical program. The considered variables for the performance of the statistical analysis were the linguistic variables s*yllabic repair strategies and correct production* (dependent variables)*, tonicity, number of syllables, class of sound, precedent and following syllabic context, word position and metrical foot (independent variable);* as the extra-linguistic variables *gender, age and type of development*.

For both groups, the considered variants for the dependent variable were: correct production (*casa* (house) – [´taza], [´kaza]), consonant omission (*amigo* (friend) – [a´igo]), syllable omission (***sa****pato* (shoe) – [´pato]), epenthesis (*doze* (twelve) – [´do**j**zi]), metathesis (*po**r**ta* (door) – [´pota**r**]), and the other ways of production, such as compensatory lengthening and idiosyncratic substitutions.

For the analysis of the variable *age* in both groups, six age groups were considered. The group with typical acquisition was organized with children with ages between 1:0 and 3:11;29, and the group

with phonological disorders consisted of children with ages between 4:0 and 6:11;29. In both groups the ages were studied in intervals of six months, with one boy and one girl in each group. Regarding the variable *gender*, the analysis consisted of 12 girls and 12 boys in each group, as previously mentioned. It was also considered the extra-linguistic variable *type of development*, with the variants typical and impaired.

About the variable tonicity, the following variants were considered: pretonic (*sapato* – shoe), tonic (*sapato*), post-tonic (*sapato*). The number of syllables was analyzed as monosyllables (*pé* – foot), disyllable (*casa* – house), trisyllables (*macaco* – monkey) e polysyllable (*cafezinho* – coffee).

The variable *precedent syllabic context* has as variants zero (*bola* – ball), open syllable and simple onset (*casa* – house), open syllable with complex onset (CCV – *prato* – plate), blocked syllable with simple coda and simple onset (CVC – *casca* – peel), blocked syllable and complex onset (CCVC – *planta* – plant), syllable without onset (there is a vowel before the syllable – *avião* – airplane), syllable without onset, but with simple coda (vc – *árvore* – tree; *está* – is).

The variable *following context* was analyzed regarding the variants zero (*bola* – ball), open syllable and simple onset (CV after – *casa* – house), open syllable with complex onset (CCV- *cobra* – snake), blocked syllable with simple coda and simple onset (CVC – *rosas* – roses), blocked syllable and complex onset (CCVC- *cobrindo* – covering), syllable without onset (V – *voo* – flight), syllable without onset, but with simple coda (VC – *duas* – two).

In relation to **word position**, the CV syllables were categorized as initial position (*bola* – ball) and medial position (*bola* – ball). About the *class of sound*, the classification was the following: liquid (l, ʎ, R, r), plosive/affricate (p, b, t, d, k, g), nasal (m, n,ŋ) and fricative (f, v, s, ʃ, z, ʒ).

For the position regarding the accent metrical foot, it was attributed the variants extrametrical syllable ((L.vo).re), head of the metrical foot ((sa.(L.to)), weak part of the metrical foot ((sa.(L.to)), out of the metrical foot (sa.(L.to)).

The used statistical program was the VARBRUL[10] in Windows environment, known as Varbwin[11]. This program has been used, since the 1990s with data of language acquisition, because it provides frequencies and probabilities about the studied phenomena. It also selects the relevant variables in the process of phonological acquisition[6]. The program performs the probabilistic analysis in binary way. It means that the program, through statistical calculation, attributes relative weighs to the variants of the independent variables, in relation to two variants (correct and incorrect production) of the studied linguistic phenomenon, represented by the dependent variable. It is highlighted that the Varbwin attributed significance values to the linguistic and extra-linguistic variables through interaction among them (such as gender X age; tonicity X number of syllables). Thus, it does not attribute *p value* to the variants into a variable. For example, the Varbwin does not generate a significance value in the comparison between male and female. For those variants, there are relative weights. The relative weights or probability of occurrence of the studied phenomenon (syllable CV acquisition) will be taken from the statistical interaction which will contain all the variables which were selected by the program as significant.

The relative weights considered as not favorable were the ones between 0 and .49, the considered neutral values were .50 to .59, and the favorable values were higher or equal .60.

Frequency categorical values of 0% and 100% were considered as knockout. It means that that data was not submitted to statistical analysis (because the program does not work with categorical values), so, without relative weight.

The performed statistical analyzes used data of correct production, of C omission, of syllable omission with typical and impaired data. The other repair strategies were not used, because of their absence or nonexistence. Besides, the data of both groups (typical and impaired) were also analyzed together considering the correct production, the C omission and the syllable omission, in order to evaluate the role of the variable *type of development*.

RESULTS

The statistical program, analyzing the typical data, selected as significant variables, for the correct CV production, the variables *age* and *class of sound*. During the analysis of the variable *age*, it was observed higher probability of correct production in the ages between 2:6 and 3:5;29. About the variable *class of sound*, the results showed higher probability of correct production of the CV syllable when the C position consists of nasal sounds (Table 1).

In the statistical analysis of the impaired data, it was verified that the variables *class of sound*, *gender*, *age* and *metrical foot* were significant for the correct CV production. In the evaluation of the variable *class of sound*, it is observed higher probability of CV correct production when that position is filled in with nasal, liquids and plosives/affricates. About the variable *gender*, it was verified that girls present higher probability of correct CV syllable production. Regarding the variable *age*, the

results demonstrated higher probability of correct production between 6:0 and 6:11;29. In relation to the variable *metrical foot*, the probability of correct production was higher in the weak part of the foot, in post-tonic syllables.

About the repair strategy *omission of the C* of the CV syllable in typical development, it was selected the variables *age* and *class of sounds*. In the analysis of the variable *age*, it was observed the highest occurrence of C omission in ages between 1:0 and 2:5;29. About the variable *class of sound*, it was verified that the class of liquids presents higher probability of C omission (Table 2).

Table 1 – Statistically significant variables in the correct production by typical and impaired phonological development

		CORRECT PRODUCTION					
		Typical development			Impaired development		
Variables	Variants	Frequency	Relative Weight	Percentage	Frequency	Relative Weight	Percentage
Gender	Female	468/491	.44	95%	1189/1219	.74	98%
	Male	386/397	.58	97%	914/1014	.23	90%
Age	1:0 – 1:5;29	11/17	.04	65%	-	–	–
	1:6 – 1:11;29	36/47	.06	77%	-	–	–
	2:0 – 2:5;29	213/224	.40	95%	-	–	–
	2:6 – 2:11;29	180/193	.69	98%	-	–	–
	3:0 – 3:5;29	173/176	.65	98%	-	–	–
	3:6 – 3:11;29	241/241	*	100%	-	–	–
	4:0 – 4:5;29	-	-	-	185/196	.24	94%
	4:6 – 4:11;29	-	-	-	336/381	.22	88%
	5:0 – 5:5;29	-	-	-	425/451	.53	94%
	5:6 – 5:11;29	-	-	-	434/461	.49	94%
	6:0 – 6:5;29	-	–	–	380/389	.77	98%
	6:6 – 6:11;29	-	–	–	343/355	.64	97%
Class of sound	Nasal	133/135	.71	99%	311/313	.74	99%
	Fricative	165/169	.55	98%	494/500	.03	99%
	Plosive	439/451	.57	97%	963/971	.72	99%
	Liquid	117/133	.12	88%	335/449	.65	75%
Metrical foot	Extrametrical Syllable	9/10	.14	90%	119/134	.54	89%
	Head of the metrical Foot	338/353	.53	96%	699/758	.45	92%
	Weak Part	364/379	.46	96%	860/893	.64	96%
	Out of the foot	143/146	.56	98%	425/448	.29	95%

Statistical program: Varbrul; Significance: 5% ($p<0.05$); (–) variables not selected as statistically significant, * knockout

In the cases of phonological disorders, the omission of the C in CV syllables presented as significant variables the *class of sound*, *gender*, *tonicity* and *age*. Regarding the variant *class of sounds*, the liquids presented higher probability of C omission. About the variable *gender*, it was verified higher probability of C omission for the male gender. In relation to *tonicity*, in pretonic and tonic syllables there was higher probability of C omission. About *age*, the highest probability occurred in aged between 4:0 and 4:11;29.

When examining the syllable omission in the typical development, the results of the statistical analysis demonstrated that only the variable *age* was statistically significant and more probable to occur in precocious ages, between 1:6 and 1:11;29.

Table 2 – Statistically significant variables in the performance of the C omission in typical and impaired development

C OMISSION							
Variables	Variants	Typical development			Impaired development		
		Frequency	Relative Weight	Percentage	Frequency	Relative Weight	Percentage
Gender	Female	18/491	-	4%	24/1219	.27	2%
	Male	5/397	-	1%	83/1024	.77	8%
Age	1:0 – 1:5;29	6/17	.99	35%	-	–	–
	1:6 – 1:11;29	6/47	.94	13%	-	–	–
	2:0 – 2:5;29	9/224	.71	4%	-	–	–
	2:6 – 2:11;29	1/183	.23	1%	-	–	–
	3:0 – 3:5;29	1/176	.27	1%	-	–	–
	3:6 – 3:11;29	0/241	*	0%	-	–	–
	4:0 – 4:5;29	-	–	–	6/196	.66	3%
	4:6 – 4:11;29	-	–	–	36/381	.75	9%
	5:0 – 5:5;29	-	–	–	22/451	.48	5%
	5:6 – 5:11;29	-	–	–	25/461	.57	5%
	6:0 – 6:5;29	-	–	–	7/389	.21	2%
	6:6 – 6:11;29	-	–	–	11/355	.40	3%
Tonicity	Pretonic	3/171	.46	2%	20/556	.64	4%
	Tonic	9/353	.45	3%	58/756	.63	8%
	Post-tonic	11/354	.57	3%	29/921	.31	3%
Class of sound	Plosive	6/451	.34	1%	2/971	.20	0%
	Nasal	1/135	.34	1%	2/313	.45	1%
	Fricative	3/169	.57	2%	2/500	.29	0%
	Liquid	13/133	.92	10%	101/449	.98	22%

Statistical program: Varbrul; Significance: 5% ($p<0.05$); (–) variables not selected as statistically significant, * knockout

In the analysis of the syllable omission in cases of phonological disorders, the probability of higher occurrence were in the significant variables *class of sound*, *metrical foot*, *age*, *gender*, *word position* and *following syllable context*. In relation to the variant *class of sounds*, the CV syllable tends to be more frequently omitted when it is filled in by liquids. About the *metrical foot*, the weak part, out of the foot and the extrametrical syllables are favorable for the CV omission. About the variable *age*, it was verified higher probability between the ages 4:0 and 4:11;29. The highest probability of syllable omission occurred in medial word position. Regarding the *following syllabic context*, it was verified the highest occurrence of syllable omission when it was followed by open syllable and simple onset (casa – house) and also by syllable with complex onset (cobra – snake). In relation to the variant *gender*, the boys presented higher possibility of syllable omission.

Table 3 – Statistically significant variables in the performance of syllable omission in typical and impaired development

SYLLABLE OMISSION							
Variables	Variants	Typical development			Impaired development		
		Frequency	Relative Weight	Percentage	Frequency	Relative Weight	Percentage
Gender	Female	4/491	-	1%	3/1219	.19	0%
	Male	3/397	-	1%	16/1014	.85	2%
Age	1:0 – 1:5;29	0/17	*	0% –	-	–	–
	1:6 – 1:11;29	05/47	.94	11% –	-	–	–
	2:0 – 2:5;29	0/224	*	0% –	-	–	–
	2:6 – 2:11;29	1/183	.42	1% –	-	–	–
	3:0 – 3:5;29	1/176	.42	1% –	-	–	–
	3:6 – 3:11;29	0/241	*	0% –	-	–	–
	4:0 – 4:5;29 –	-	–	–	5/196	.92	3%
	4:6 – 4:11;29 –	-	–	-	9/381	.71	2%
	5:0 – 5:5;29 –	-	–	-	3/451	.43	1%
	5:6 – 5:11;29 –	-	–	-	2/461	.19	0%
	6:0 – 6:5;29 –	-	–	-	0/389	*	0%
	6:6 – 6:11;29 –	-	–	-	0/355	*	0%
Following syllabic context	Zero/Nulo	4/426	-	1%	10/974	.24	1%
	Open syllable and simple onset	2/365	-	1%	7/1053	.72	1%
	Open syllable with complex onset	0/22	-	0%	001/57	.93	2%
	Blocked syllable with simple coda /simple onset	0/36	-	0%	001/86	.50	1%
	Blocked syllable and complex onset	0/1	-	0%	0/5	*	0%
	Syllable without onset	1/31	-	3%	0/50	*	0%
	Syllable without onset and with simple coda	0/7	-	0%	0/8	*	0%
Classe de Sons	Plosive	2/451	-	0%	2/971	.24	0%
	Nasal	1/135	-	1%	0/313	*	0%
	Fricative	1/169	-	1%	4/500	.53	1%
	Liquid	3/133	-	2%	13/449	.91	3%
Word position	Initial	4/342	.58	1%	2/853	.15	0%
	Medial	3/546	.45	1%	17/1380	.74	1%
Metrical foot	Extrametrical syllable	0/10	-	0%	7/134	.91	5%
	Head of the metrical foot	2/353	-	1%	1/758	.08	0%
	Weak part	3/379	-	1%	6/893	.62	1%
	Out of the metrical foot	2/146	-	1%	5/448	.92	1%

Statistical program: Varbrul; Significance: 5% ($p<0.05$); (–) variables not selected as statistically significant, * knockout

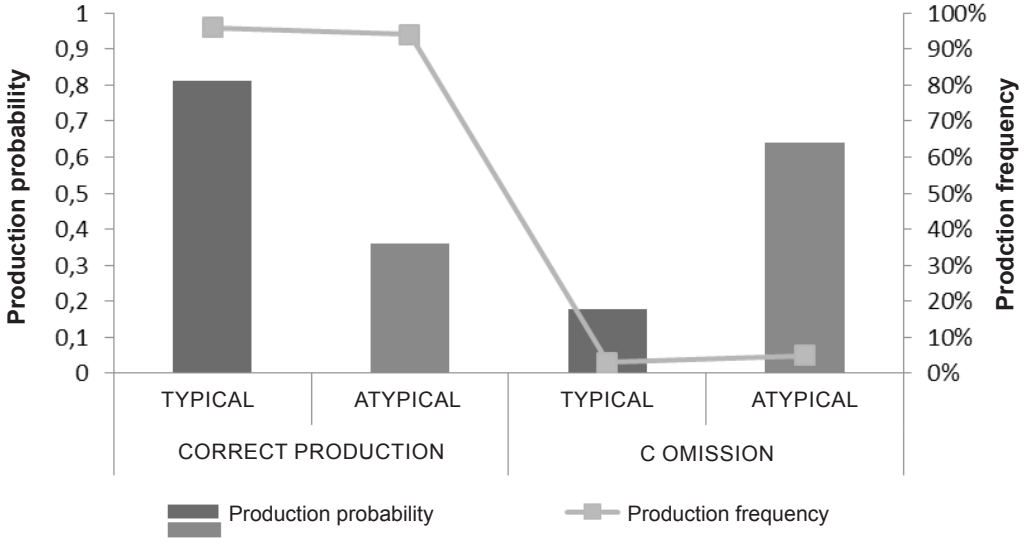
According to Table 4, in the cases of phonological disorders, the repair strategies of C omission, the *syllable omission* and the *epenthesis* occurred more frequently. The frequency of correct production and the other strategies (such as compensatory lengthening) were higher in the typical development. The only repair strategy which did not occur in data of typical development and phonological disorders the metathesis.

Table 4 – Frequency of repair strategies and correct production obtained in the groups of children with typical and impaired phonological development

REPAIR STRATEGIES AND CORRECT PRODUCTION		
	Typical	**Impaired**
Correct production	96.17%	94.18%
C omission	2.59%	4.79%
Syllable omission	0.78%	085%
Epenthesis	014%	0.34%
Others	0.12%	0.04%

Statistical program: Varbrul; Significance: 5% (p<0.05)

When considering all the data (typical and impaired), the results of the statistical analysis revealed that the type of development is significant as for the correct production as for the C omission, but not for the syllable omission, which were the three performed analyses. The probability of correct production was higher in the typical development and the C omission presented higher probability of occurrence in the group of children with phonological disorders.



Statistical program: Varbrul; Significance: 5% (p<0.05)

Figure 1 – Variable type of development in the performance of correct production and C omission

DISCUSSION

Considering all the typical and impaired data together, in a single group, it was verified that, among other variables, the *type of development* was considered as statistically significant for the correct production of the CV syllable. In relation to the variable type of development, the probability of correct production was higher in the typical development, fact that agrees with literature[12]. However, the fact that the correct production is lower in the phonological disorders is a diagnostic characteristic which corresponds to that condition of speech production[2].

In the isolated statistical analyses, as for typical development as for phonological disorders, the variables *class of sound* and *age* were significant for the correct CV production, as observed in Table

1. About *age*, it is verified that as children get older, their phonological system improves and become more similar to the target. That stabilization usually occurs when children are from 4 to 5 years old[13].

The corroboration of that issue happened after the analysis of the variable *age* in the typical development, because it was possible to observe that there is more benefit for the correct production gradually, as children get older. In the cases of phonological disorders, it was observed that the probability of correct production was not gradual, in relation to the age, because children with phonological disorders presented instability in the CV correct production[14], regardless their age.

The class of sound was selected in both types of development. In the typical development, it presented higher probability of syllable CV correct production when the C position is taken by nasal sounds. According to studies, the nasal and plosives are the first consonantal segments to be acquired by children with typical phonological development, both acquired before children are two years old[15]. In cases of phonological disorders, there was higher probability of CV correct production when it is taken by nasal, liquid and plosive/affricate sounds. The affricate consonants emerge in the children's phonetic inventory a little later, when they are from about 3:6 to 4:6. The liquid is the last class to be acquired in Brazilian Portuguese in typical phonological development[15]. However, that data disagrees with some studies which mention that the liquid is the most affected class of sounds in cases of phonological disorders, because of its complexity[12].

Besides, in the statistical analysis of the impaired group, it was verified that the girls present higher probability of correct production and the CV syllable is frequently produced when it is part of the metrical foot (weak part of the foot). In a study about fricatives position, it was observed that the syllables containing fricatives, which are in the language foot, are never omitted by children[16]. About the variable *gender*, that finding agrees with another study which also verified that the variant female presents higher probability of correct production[17]. That research discusses the higher difficulty of phonological acquisition by the male gender. According to a study, which mentions that there are significant differences between the genders regarding verbal skills, it is possible to notice, in general, that girls start speaking before and with more grammar accurateness than boys[18]. In the cases of typical development, researches verify that boys present more probability of phonemes correct production than girls[19]. Moreover, other studies demonstrated that the boys produce significantly more language than girls[20].

The analysis of the strategy *omission of C* in CV syllables, in the single group (typical and impaired cases), indicated that the *type of development* was significant, and the group with phonological disorders presented higher probability of using the mentioned strategy. About that aspect, it is known that, during the phonological acquisition, the increasing number of phonemes is not linear, but there are some regressions of sounds production even after their emergence in children's speech. The omission is evidenced as the most used strategy in the end of syllables and in simple onset, but in lower number in simple onset, during the BP acquisition[21]. According to the study, the adopted repair strategies indicate the way children are discovering their language's phonological system and how they deal with the absence of some phonemes in their inventory. The omission or no performance of a contrastive phone, however, does not evidence the construction of phonological knowledge, in opposition of substitution strategies, for instance[21].

As in the typical development, as in cases of phonological disorders there was the C omission that, according to literature, occurs more frequently in the impaired development, without a real attempt of target syllable production, with no consecutive pattern during the syllable acquisition[22].

As intervening variables in the C omission, in the isolated statistical analyses, it is verified that in the typical development, there was selection of the variables *age* and *class of sound*. While in the cases of phonological disorders, it was verified the influence of *class of sound* and *age*, and also of *gender* and *tonicity*, as it is observed in Table 2.

The *age* is considered an enabler of C omission, because in initial ages the occurrence of that strategy is high, and it decreases as children get older, until the complete CV acquisition, in typical development[23]. In the same way, in the cases of phonological disorders, the highest probability of use of that strategy was also concentrated in initial ages. It agrees with a study that observes that in cases of phonological disorders there is reduction of the occurrence of phonological processes when age increases. This fact may be justified by the phonological knowledge maturation as time goes by[24].

In relation to the variable *class of sounds*, the liquids are favorable for omission in both groups. According to studies about language acquisition, it is noticed that the acquisition of the liquid consonants happens later, because it is a complex class, as by the phonetic, as by the phonological point of view[25]. According to a research, different processes occur in the class of liquids when they are still not acquired[26]. Moreover, it is known that the liquids are more probable have the C omitted[27]. As age

increases, it is expected that the use of strategies occurs less frequently[28].

In the impaired development, in relation to the variable *gender*, the highest occurrence of the studied strategy happened in the male gender. Although the literature refers that boys succeed more in cases of phonological disorders, there is the possibility of more speech alteration in girls[29].

Finally, about *tonicity*, selected as statistically significant in the impaired group, it is observed that the results agree with a study that verify that the pretonic and tonic syllables are favorable for omission even in the typical development[30].

In the analysis of the strategy syllable omission, considering the whole group (typical and impaired cases), the statistical results do not demonstrate the type of development as significant to the use of that strategy, indicating that the strategy is not used in different ways by children with typical development and by children with phonological disorders. That finding agrees with a research which observes that the omission of unstressed syllables is one of the predominant processes in normal acquisition, which also occurs, frequently, in speech with phonological disorders[31].

In the groups' isolated analysis, it was verified that the *syllable omission* is benefitted by the precocious age groups in the typical and impaired developments, with statistically significant results. The repair strategy *syllable omission* occurs more usually in the group with phonological disorders. It is explained by the lack of phonological contrasts which happen gradually according to the age[32].

In the cases of phonological disorders, the variables *class of sounds*, *metrical foot*, *gender*, *word position* and *following syllabic context* were statistically significant, as it is shown in Table 3. Regarding the variant *class of sound*, the CV syllable tends to be more omitted when it is filled in by a liquid. It probably happens because that is the class with the latest acquisition, what justifies that late acquisition and the highest amount of repair strategies such as omission[6].

About the *metrical foot*, the weak part, out of the foot and extrametrical syllable are favorable for the CV omission. The highest probability of syllable omission occurred in word medial position. That fact disagrees with a study which verified that the stressed syllable of the metrical foot presented more cases of omission, and the weak syllable of the foot was more conservative[23].

In relation to the *following syllabic context*, it was observed higher occurrence of syllable omission when it was followed by open syllable and simple onset and also by syllable with complex onset. Only a few studies have approached the syllabic context as intervening for the use of repair strategies. Besides, they involve syllables with coda and complex onset. That studies showed, in relation to the context, for example, that the strategy *metathesis* presents higher probability of occurrence when the complex onset is followed by blocked syllable ((C)VC) with simple coda and simple onset (*pretos* – black)[33].

According to the Figure 1, which illustrates the frequency of repair strategies in the typical and impaired development, all the strategies were common in both types of development, only with some differences of frequency. The studied literature indicates more similarities than differences between both types of development. During the phonological acquisition, children deal with several difficulties to produce the sounds correctly. So, they apply different repair strategies to perform the productions which are closer to the adult target. It happens as in the typical phonological acquisition as in the phonological disorders[34].

It is highlighted that the variable correct production occurred in higher number in the typical development, when compared with the phonological disorders. Thus, it is possible to conclude that the impaired development used higher number of repair strategies in relation to the typical development[13].

It is also emphasized that the restrict number of occurrences of the variables epenthesis and some others and the not occurrence of metathesis in the studied corpus made the statistical analysis involving those strategies impracticable. Those findings agree with a study that verifies that the children with phonological disorders performed words with metathesis less frequently[23].

CONCLUSION

It was verified that, based on the results of this study, that both groups use the same repair strategies, but more frequently the group of children with phonological disorders. The correct productions, on the other hand, are more frequent in typical children.

The type of development was statistically more significant for the correct production and for the C omission, but not for the syllable omission. This fact demonstrates that the last strategy is used in the same proportion by both groups.

The significant variables for the groups influenced the correct production (*gender, age, class of sound* and *metrical foot*), the C omission (*gender, age, tonicity* and *class of sound*) and CV syllable omission (*gender, age, following syllabic context, class of sound, word position* and *metrical foot*). However, in the group with phonological disorders, higher number of variables was statistically significant.

As intervening variables, the gender is statistically significant, indicating that girls produce the CV syllable more correctly in relation to age. As higher the age is, higher will be the correct production of the studied syllable.

Regarding the linguistic variables, the nasal class of sound presents higher probability of correct production in both groups. The liquids and the plosives present the most correct productions in the cases of phonological disorders.

The intention of this study is to collaborate with the elaboration of more effective therapy plans with children with phonological disorders, through the recognition of the linguistic and extra-linguistic variables which are favorable for the correct production of the CV syllable.

It should be also observed which strategies the children are using to produce certain types of sound and what difficulties they are confronting to verbalize with other individuals. Often, when analyzing the used strategies, it is possible to estimate the level of knowledge/construction of the patient's phonological system, indicating a more effective prognostic in relation to that one which does not use repair strategies.

RESUMO

Objetivo: descrever e comparar a aquisição da sílaba consoante vogal em crianças com desenvolvimento fonológico típico e atípico, investigando as variáveis linguísticas e extralinguísticas intervenientes neste processo. **Métodos:** análise da fala de 24 crianças, 12 com desenvolvimento típico e 12 atípico, equiparadas quanto ao sexo, entre 1:0 a 3:11;29 (grupo típico) e 4:0 a 6:11;29 (grupo atípico com desvio fonológico evolutivo). As amostras foram coletadas transversalmente, com base na Avaliação Fonológica da Criança. Foram analisadas palavras com a sílaba alvo consoante vogal, com *corpus* de 888 palavras do típico e 2.233 do atípico. Foram consideradas como variantes da variável dependente a produção correta, apagamento de consoante da sílaba, epêntese, metátese e outros. Como variáveis independentes intervenientes consideraram-se os fatores extralinguísticos idade, sexo e tipo de desenvolvimento e as variáveis linguísticas tonicidade, classe de sons, número de sílabas, contexto silábico seguinte e precedente, posição na palavra e pé métrico. Os dados foram analisados estatisticamente por meio do VARBRUL. **Resultado:** foram selecionadas como variáveis estatisticamente significantes para a produção correta de consoante vogal, idade e classe de sons, para típicos; classe de sons, sexo, idade e pé métrico, para atípicos; e classe de sons, sexo, idade, tonicidade e tipo de desenvolvimento, típicos e atípicos em conjunto. Verificou-se que ambos os grupos utilizam as mesmas estratégias de reparo, porém em maior frequência no grupo com desvio fonológico. Sendo as produções corretas mais frequentes no grupo típico. **Conclusão:** um maior número de variáveis estatisticamente significantes foram selecionadas no grupo atípico para produção correta, e ocorre uma maior frequência de estratégia neste grupo.

DESCRITORES: Distúrbios da Fala; Criança; Patologia da Fala e Linguagem; Desenvolvimento da Linguagem

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