EVALUATION OF PRAGMATIC ASPECTS OF CHILDREN WITH PHONOLOGICAL DISORDERS

Avaliação de aspectos pragmáticos em crianças com desvios fonológicos

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ABSTRACT

Purpose: to investigate the pragmatic abilities in children with phonological disorder. **Method:** 12 children (three girls and nine boys) with phonological disorders aged from 3:7 to 7:8 were chosen by triage. Pragmatic analysis was executed using the instrument ABFW – pragmatic through speech and hearing screening. Furthermore, we calculated the level of severity of the phonological evolutionary disorder using a quantitative – Percentage of Consonants Correct – Revised (Shiriberg & Kwiatkowski, 1982) and a qualitative approach (Keske-Soares, 2001). **Results:** there are no statistically significant correlation between the level of severity of the phonological disorder and pragmatic performance. However, we observed that subjects with phonological disorder showed a number of communicative acts per minute lower than the default values of the test when ranged by age group. **Conclusion:** based on the results, it is not possible to state a direct relationship between level of severity of the phonological disorder and pragmatic performance even if these subjects have a lower performance than the default values of the test.

KEYWORDS: Speech Disorders; Language Development; Language; Language Tests

INTRODUCTION

Understood as a branch of linguistics that studies the relationship between the social significance of language (expressed by the interactional context) and semantic content (expressed by the meaning of the communicative act itself), pragmatics refers to the effective use of language and its functional purposes of communication. To do so, it relies on different meanings intrinsic to communicative processes, determined by extra-linguistic information (contextual and situational cues) and the linguistic messages (explicit semantic) [1-3].

This study lists the pragmatic aspects of phonological, semantic and syntactic speech to the context in which this occurs, explaining their different uses. Knowing how the context in which speech occurs, you can share the theme without necessarily verbalizing the intent of the subject [4].

The primitive speech acts are the first child's knowledge of the pragmatics of language, yet in emissions of a word or a single prosodic pattern that serves as a statement of intent before the child's acquisition of sentences. Referring expressions can be rudimentary (appointment) or specific words expressive (form of interaction with others) [5].

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In some cases, the usual acquisition of pragmatic is not observed. The breach or failure in the intentional character of communication is the main feature observed in pragmatics disorders. The linguistic aspect of this change is revealed by the difficulties in correctly interpreting the actions of others and / or adequately expresses their desires and intentions. Therefore, the pragmatic disorders are usually begot of cause or consequence of impairment in expressive and receptive components of language [1-3].

For language be effective, it is necessary to acquire the formal levels, including phonetics and phonology. Phonology is the level of language related to how the sounds are organized and function within a given language. The acquisition of phonemes depends on the perception, organization and production of sounds. Speech is a complex function resulting, among other things, the programming of the central nervous system.

The expected age for any child's phonological system is established, on average, with five years old. At this age it is expected that most children already produce the sounds of the target language properly, without changes such as omissions, substitutions or transposições[8, 9]. There are authors who claim to six years old, no longer expected to find changes, omissions and distortions of speech sounds. In this sense, the speech disorders presented after five or six years old can be understood as a phonological disorder (PD), affecting therefore the organization of linguistic sounds[10, 11].

As the typical process of language acquisition presents interactions between linguistic domains, the procurement process can also have a deviant or other linguistic domain also affected. There is a study that indicates that changes are a pragmatic reflection of involvement of other linguistic components [12]. Linguistic studies and language acquisition report the interdependence between pragmatics and phonology. Specifically, what concerns the DF, may be associated with semantic disorders, pragmatics and the syntactic language [13]. The unintelligibility in cases of language-change development may be a factor in the decrease of communication initiatives[14].

The studies which attempt to relate the modes of language use (pragmatics) with DF cases are rare if compared to studies of morphosyntactic, semantic and phonological development.

It is believed that by having a different phonological system of the target adults and children of the same age group, children with SCD may have a lower pragmatic performance and not as efficient when compared to their peers with typical language development. Some children with SCD are shown withdrawn, shy and avoiding certain interactions and / or verbal productions, compared to teasing and / or reprimands for adults and children with the same age. These attitudes seem to indicate a change in uses of language.

Therefore, the main objective of this research is to investigate the pragmatic abilities in children with SCD through the instrument ABFW – pragmatic[15]. Moreover, the objective is to verify the relationship between the severity of DF, obtained by quantitative ratings, (PCC-R) [16] and qualitative[17] and pragmatic performance, and also to compare the performance of individuals with normal parameters offered by the test. Still, we investigate the role of children gender and age with SCD concerning the pragmatic performance.

METHOD

This is a quantitative, explanatory of the experimental type, in which 24 subjects were screened. They were submitted to the aspects of language, oral motricity, voice and hearing. These individuals were on the waiting list for care in the Foreign Service's Speech at Universidade Federal de Santa Maria. The keepers were contacted to conduct a screening, and from this, there was a selection of children according to the criteria for inclusion and exclusion.

In screening, the subjects were tested for receptive and expressive language, oral motricity, voice and hearing. Through these assessments was possible to reach a diagnosis by selecting some of them to participate in the study. The ones selected were the individuals diagnosed with PD.

Still, as criteria for inclusion in the sample, it was considered that children of both sexes should be monolingual speakers of Brazilian Portuguese, with a diagnosis of DF and absence speech therapy progress and to have the term of consent (IC) signed by parents / keeper consenting to participate in research. Furthermore, volunteers should have ages between 4:0 and 9:0 and present different degrees of severity of PD.

To the exclusion criteria were considered the following aspects: present organic changes that could interfere with speech production, as well as cognitive, psychological and / or evidence of neurological impairment.

12 subjects attended the inclusion criteria. They were aged 3:7 (despite this early age the child already had with 3:7 feature and diagnosis of DF) and 7:8 years. Three of the subjects were female and nine male. These patients underwent procedures for collection of speech data (phonology) and pragmatic performance.

The phonological assessment was performed by applying the Phonological Assessment of Children (AFC) [18]. This instrument consists of five thematic figures, which provides the spontaneous naming of drawings contained in the instrument.

Thus, the AFC has allowed the recording of the speech contained all the sounds of the target language and in all possible sequences, providing opportunities for a complete record of the phonological system.

The speech data were phonetically transcribed and reviewed by two experienced judges in the area. With the same data was performed contrastive analysis, and from the results, children were classified accordingly to the deviation severity. We used quantitative classification – CCP-R[19] – qualitative[17] and the DF.

The quantitative classification, most used in clinical speech therapy, is the Percentage of Consonants Correct – Revised (PCC-R) [19]. This measure considers errors, omissions and substitutions disregards distortions found in the subjects' speech. The PCC-R is based on the Percentage of Consonants Correct (PCC) [16], which is obtained by dividing the number of correct consonants (NCC) by the total number of consonants produced by the subject, and then multiplying the result by 100. This classification divides the severity of DF in medium (PCC between 86 and 100%), medium moderate (PCC between 66 and 85%), moderate-severe (PCC between 51 and 65%) and severe (PCC less than 50%).

There are several ways to qualitatively classify the DF. The classification used in this work is based on characteristics of the phonological system and the deviant nature of the system expressed by the subjects [17]. From a study based on the phonological processes of 35 children with SCD, phonological disorders were classified into four different groups: those with unusual characteristics (subjects whose phonological system is outdated, with unusual processes) with the initial characteristics (subject to show typical system of early development in language acquisition), and the backward characteristics (subjects to a "mere delay" in relation to the acquisition stage), and with additional phonetic characteristics (children with phonetic factors that affect the development of the phonological system) [20].

From 12 children with SCD, five had medium severity, five had medium-moderate and two were severe. In the qualitative classification of DF, of the 12 children, four of them fitted up in the standings with Phonological Disorders Initial Characteristics (IC) and eight in the standings with Features Delayed Phonological Disorders (CA).

To evaluate the pragmatic function were recorded 30 minutes of interaction between the child and an adult family member, in spontaneous situations. The member of the family should play or practice an activity of the child's interest, thus providing a spontaneous communicative context. To record the images we used a digital camera, *Mitzuca* model DC8388BR. We transcribed the 30 minutes of recording, the shifts being reported in children and adults for further analysis of the pragmatic functions of children using the Child Language Test ABFW – pragmatics [15], which analyzes the communicative acts, communication means and communicative functions.

The assessment of the number of communicative acts begin when adult-child interaction, child-adult or child-object and ends when the child's focus of attention shifts or there is a turnover. The communication means can be divided into verbal (those involving at least 75% of phonemes of the language), vocals (all other emissions) and gestures (involving body movement and facial expression). The communicative functions are divided as follows: object order, action, social routine consent and information, protest, recognition of the other, view, review, self-regulatory, appointment, performative, exclamatory, reactive, non- focused, play, exploratory and narrative expression of protest and shared set.

The results regarding the number of communicative acts per minute were compared with those offered by the test parameters ABFW, which provides the minimum number of communicative acts per minute for certain age groups. In addition, we verified the relationship between pragmatic performance (communicative functions, communicative acts and communicative means) and the severity of DF using the classification and the quantitative classification [19] qualitative classification[17].

The data for this study were obtained through a survey previously approved by the Ethics Research Center of Health Sciences (CCS), registered as number 6331 and was considered a signature of IC, prepared in accessible language to the layman as recommended by article 196/96 of the National Research Ethics – CONEP/1996.

Data were collected in the second half of 2009 and analyzed by means of tables and descriptive statistics. The comparisons between the data and two independent samples were performed using the Mann-Whitney test and comparisons between data with more than two independent samples were performed using the Kruskal-Wallis test. And for the correlation between the results, we used the Spearman test. The data for this study was processed and analyzed in electronic form from

the construction of a database (Excel ® 2000) and an analysis program to meet the specific research objectives, the Statistical Package for Social Sciences 15.0 (SPSS). In addition, some findings have been described without statistic analysis. It was considered a significant level of 5% ($p < 0.05$), for all tests.

RESULTS

Table 1 shows the comparison of the results of varying degree of DF (PCC-R), number of communicative acts per minute, total number of communicative functions and total communication means in relation to gender.

Table 2 shows the average number of communicative acts per minute, average of total communication means and average of total communicative functions of each group of subjects, according to the DF severity ratings used in this study.

Table 3 shows the results of the correlation between age, the severity of PD (PCC-R), the total communication means, the total communication functions, the number of communication performances per minute and the voice communication means, oral and gesture separately.

Table 4 presents the incidence of the communicative functions of each subject.

Tables 5 and 6 were exposed to the number of communication functions of each subject, and they are grouped according to the severity of PD in accordance with the quantitative classification (PCC-R) and qualitative, respectively.

Table 1 – Comparison between the pragmatic variables and gravity of deflection in relation to gender

	Gender (n)	p
Degree of DF PCC-R	Female (3) Male(9)	0.110
N of communicative acts per minute	Female (3) Male (9)	0.926
Total of communicative functions	Female (3) Male (9)	0.782
Total of communicative means	Female (3) Male (9)	0.853

Legend of Table 1: DF: Phonological deflection;
PCC-R: Percentual of Correct Consonants - Reviewed
n: number of subjects
Statistic test: Mann-Whitney
$p<0.005$

Table 2 –Average variables in relation to the gravity of the DF

		Average n communicative acts per minute	Total average of communicative means	Total average of communicative functions
Degree of DF - PCC-R	medium	5.324	233.80	172.40
	medium-moderated	5.340	233.60	172.00
	severe	5.850	276.50	193.00
Degree of DF - Qualitative	Delayed characteristics	4.975	219.25	160.25
	Inicial characteristics	5.640	250.63	183.38

Legend Table 2: DF: Phonological deflection;
PCC-R: Percentual of Correct Conconants – Reviewed
Statistic Test: Kruskal-Wallis
$P<0.005$

Table 3 – Correlation between age. gravity of DF (PCC-R). totality of communicative means. totality of communicative functions. totality of communicative acts per minute and the oral. verbal and gestural communicative acts.

	Age	Degree of DF – PCC-R	N of communicative acts per minute	Total of communicative means	Total of communicative functions	Oral	Verbal	Gestural
Age								
Degree of DF – PCC-R	**R= 0.597* P= 0.04**							
N of communicative acts per minute	R= -0.252 P= 0.429	R= 0.000 P= 1.000						
Total of communicative means	R= -0.074 P= 0.820	R= -0.076 P= 0.815	**R= 0.953** P<0.001**					
Total of communicative functions	R= -0.308 P= 0.331	R= -0.019 P= 0.954	**R= 0.970** P<0.001**	**R= 0.921** P= 0.000**				
Oral	R= -0.425 P= 0.169	R= 0.233 P= 0.466	R= 0.237 P= 0.458	R= 0.232 P= 0.468	R= 0.246 P= 0.442			
Verbal	R= -0.091 P= 0.779	R= -0.057 P= 0.861	**R= 0.963** P<0.001**	**R= 0.991** P<0.001**	**R= 0.909** P<0.001**	R= 0.186 P= 0.563		
Gestural	R= 0.046 P= 0.888	R= -0.189 P= 0.556	**R=0.839** P= 0.001**	**R= 0.937** P<0.001**	**R= 0.813** P= 0.001**	R= 0.332 P= 0.291	**R= 0.907** P<0.001**	

Legend Table 3: DF: Phonological deflection;
PCC-R: Percentual of Correct Consonants – Reviewed
Statistic Test: Spearman's rho
* p<0.005.
** p<0.001

Table 4 - Frequency of occurrences of communicative functions per subject

Subjects	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	Total
PO	3	0	0	0	3	1	2	0	2	0	0	2	**13**
PA	3	10	2	16	2	5	14	16	16	1	10	7	**102**
PS	6	3	0	1	3	5	10	7	6	0	2	4	**47**
PC	0	1	2	0	3	0	4	3	0	0	0	0	**13**
PI	5	6	11	49	14	24	20	30	28	15	9	31	**242**
PR	5	1	0	6	2	7	9	6	4	0	1	0	**41**
RO	1	0	0	0	0	1	0	0	0	0	0	2	**4**
E	1	0	3	5	0	0	1	4	3	0	19	2	**74**
C	25	13	22	88	35	26	54	24	71	29	102	24	**513**
AR	3	9	2	21	5	12	37	36	9	0	8	2	**144**
N	4	8	1	31	10	9	10	0	16	43	30	5	**167**
PE	1	16	10	9	0	3	2	0	8	0	3	2	**54**
EX	11	8	1	12	4	5	4	1	18	6	27	5	**102**
RE	1	4	0	0	0	1	1	2	0	0	2	1	**12**
NF	0	0	0	0	0	0	0	0	0	0	1	0	**1**
J	21	6	10	32	4	13	5	19	19	26	25	7	**187**
XP	9	1	13	16	14	12	9	12	38	9	22	1	**156**
NA	22	44	2	53	11	10	18	13	3	0	2	5	**183**
EP	0	0	0	0	0	0	0	0	0	1	0	0	**1**
JC	13	2	5	0	4	7	16	9	6	3	10	13	**88**
TOTAL	**134**	**132**	**84**	**339**	**114**	**141**	**216**	**182**	**247**	**133**	**273**	**113**	

Legend Table 4: PO – Request for object; PA – Request for action; PS- Request for social routine; PC – Request for Consent; PI – Requesting Information; PR – Protest; RO – Recognize the other; E - Exhibition; C – Comment; AR – Self-regulatory; N – Nomeação; PE – Performative; EX – Exclamative; RE – Reactive; NF – Não-focalizada; J – Jogo; XP – Exploratória; NA – Narrative; EP – Expression of protest; JC – Shared game; S – Subject.

Table 5 – Number of communicative functions according to the quantitative gravity of phonological deflection.

Quantitative qualification	Desvio Médio					Desvio Médio-moderado					Desvio Severo	
Sujeitos	S3	S7	S8	S9	S10	S1	S2	S4	S5	S6	S11	S12
Número de funções comunicativas	14	17	14	15	9	17	16	13	13	16	17	15

Legend Table 5: S – Subject

Table 6 – Number of communicative functions according to the qualitative classifications of the gravity of phonological deflection

Quantitative classification	CA								CI			
Subjects	S1	S2	S3	S4	S7	S8	S9	S10	S5	S6	S11	S12
Número of communicative functions	17	16	14	13	17	14	15	9	13	16	17	15

Legend Table 6: CA – Deflection with delayed characteristics; CI –Deflection qith primary characteristics. S – Subject.

DISCUSSION

Of the 12 subjects who participated in the survey, nine were male and three female. This fact can be explained by other studies that report similarity to this higher incidence of language disorders in males [21-23].

But when you performed the comparison between gender and severity of PD (PCC-R) in Table 1, it appears that gender is not a determining factor for the severity of DF.

The same was observed when comparing gender and number of communicative acts per minute, total number of communicative functions and total communication means. Thus, it appears that the gender variable does not seem to be crucial in phonological and pragmatic, as the difference between males and females is not statistically significant.

Contrary to our expectations concerning the increasing severity of PD, there is an improvement in pragmatic. It was found that the average number of communication performances per minute, the average total communication means and the average total communication function, increases as the FD becomes more severe. It is important to enphasize the exception that occurs in groups of subjects with mild-moderate and middle. The group with medium degree of FD had better averages of communication means and the total number of communicative functions in relation to medium-moderate group. However, this difference is subtle.

As shown in Table 3, the correlation between the number of communication performances per minute, the total communication means and the total communication functions are statistically significant, i.e.: the increase of a variable that determines the increase of the other. It is noteworthy that, as the number of communicative acts per minute, total communication means and the total increase of communicative functions, the use of verbal and gestural means also increases. Not as much as with the use of the medium voice, that shows no significant correlation.

Furthermore, it is noticed that the correlation between the use and verbal middle sign is statistically significant, i,e: as the oral language increases, increases the use of gestural. This fact agrees with observations from another study that points out that non-verbal communication never happens separately, as a mean of expression of the common language of the adult who has all the linguistic resources to communicate verbally[24].

The results of this study show a positive correlation between age and severity of phonological disorder, since younger age favor deviations more severe (lower values of the PCC-R) and advanced age, the deviations lighter (higher values of PCC-R).

As shown in Table 4, the communication functions most frequently used by the subjects were

comments, followed by the information request. The results are consistent with other studies, which indicate that the communicative functions that most occur in normal development are the comment and order in general as a request for information [25,26].

It is noteworthy that all communicative functions were used by the research subjects, although none has used all of these functions. The functions of others' recognition, non-focused and expression of protest were the least used. You can also see in Table 4 that subjects with greater use of communicative functions are S4, followed by S11, S7 and S9. Analyzing the characteristics of deviation gravity, sex and age of each subject perceives that there is no evidence to justify this result. This shows that the number of communicative functions used by individuals unrelated to the severity of PD, both in quantitative as in qualitative classification, as there is no relationship between the number of communicative functions and gender and / or age of the subjects.

According to the literature[25], the communicative profile of children with normal language development can be characterized by the predominant use of the medium followed by verbal gestures and vocal. This pattern can also be observed in this study, in which it was realized that most subjects made predominant use of verbal means of communication in their efforts.

Analyzing the data obtained in the evaluation of the pragmatics of all subjects it was observed that the average communicative acts per minute of these children was lower than expected for their age according to the parameters of the test (0:1 → first act, 0:3 → two acts, acts 1:0 → 3, 2:6 → 6 acts, acts 5:0 → 8; 7:6 → 9 acts; adults acts 25 → 10), except for two subjects who showed a number of communicative acts per minutes than expected for their age according to the same authors[15].

Based on the data communication functions used by the subject and the severity of PD (Table 5) it is clear that the number of communication function does not decrease with increasing severity of the disorder. Subjects with severe disorder were used the most functions, followed by subjects with average degree and the subjects with moderate average degree. The same happens with the qualitative classification in Table 6, from which the subjects with delayed features used less communicative functions Characteristics that subjects with initial. Since phonology is more altered, children with more severe deviations use more communicative functions, i.e., they are best in performance that may be pragmatic to understand, since his phonological system does not allow it.

The relationship between phonological errors and other shortcomings of language, as pragmatics, indicate the need to evaluate the totality of language development in children. It should be noted also that therapists must be aware that children with SCD may present problems in other levels of language and that these problems potentially affect the component fonológico[18].

Applying the above that the authors refer to the area of clinical phonology, phonological therapy should be based on the principle that the role of phonological patterns is comunicativa27. Therefore, the activities should emphasize the communicative function as a whole. Thus, it is observed that the success or failure of therapeutic intervention is not determined by the production of an adequate response of the speaker, but by establishing a situation of interaction with significant changes in daily life [28].

The different components of language may not be developed separately. Thus, any research or therapeutic intervention language need to consider all the linguistic aspects, as well as organic, emotional, and cognitive and social, language since only meaningful in relation to the context in which it manifests itself. When observed changes in clinical practice pragmatic these cases need to monitor speech-based therapy helps them to have an efficient communication [15, 29].

It is suggested that further studies be conducted with larger samples of subjects with PD to better understand the possible relationship between levels of language investigated in this study. Moreover, it is suggested to conduct studies that provide the pragmatic profile of the communication of children with typical development of language with smaller age intervals, providing accurate and initial parameters for the identification of changes. This type of analysis provides a greater understanding of the skills and development of human communication, contributing to a therapeutic intervention focused not only on one component of language, but looking at all language levels.

CONCLUSION

The present study aims to evaluate the relationship between phonology and pragmatics, and from the results obtained it was possible to observe a lower pragmatic performance of subjects with PD compared with the parameters offered by the instrument ABFW – pragmatic.

However, the differences do not seem to make it possible to assert a direct relationship between the performance in phonology and pragmatics, since

the correlation between the variation in the severity of DF and pragmatic performance was not statistically significant.

Regarding sex and age, these variables were not significant interference in the relationship between phonology and pragmatics.

RESUMO

Objetivo: investigar as habilidades pragmáticas em crianças com desvio fonológico. **Método:** por meio de triagem fonoaudiológica foram selecionadas 12 crianças com diagnóstico de desvio fonológico, com idades entre 3:7 e 7:8, sendo três do sexo feminino e nove do sexo masculino. Foi realizada análise dos aspectos pragmáticos destas crianças, utilizando-se o instrumento ABFW – pragmática. Além disso, as crianças foram classificadas de acordo com a gravidade do desvio fonológico por meio de uma abordagem quantitativa – Percentual de Consoantes Corretas-Revisado e outra qualitativa. **Resultados:** não foi encontrada correlação estatisticamente significante entre gravidade do desvio fonológico e desempenho pragmático. Os sujeitos com desvio fonológico apresentaram número de atos comunicativos por minuto inferior aos parâmetros oferecidos pelo teste, de acordo com cada faixa etária. **Conclusão:** a partir dos resultados obtidos não foi possível afirmar que existe uma relação significante entre a gravidade do desvio fonológico e o desempenho pragmático, no entanto, estes sujeitos apresentam desempenho inferior aos parâmetros do teste.

DESCRITORES: Distúrbios da Fala; Desenvolvimento da Linguagem; Linguagem; Testes de Linguagem

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