RELATION BETWEEN VOICE SELF-ASSESMENT AND CLINIC EVALUATION DATA IN DYSPHONIC INDIVIDUALS

Relação entre autoavaliação vocal e dados da avaliação clínica em indivíduos disfônicos

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ABSTRACT

Purpose: to associate the rates of vocal self-assessment and clinic evaluation data from of dysphonic individuals. **Methods:** observational, descriptive and retrospective study. It were studied medical records of patients treated at a school-clinic of Speech Language Patology in the period from 2007 to 2011. Data were presented regarding the vocal self-assessment (voice related quality of life, vocal handicap index and assignment of note regarding the impact vocals), anamnesis (sex, age, occupation, type of abuse, duration of abuse, previous treatment for dysphonia), perceptual evaluation (vocal quality, degree of alteration, pitch, loudness, resonance, articulation and CPFA) and objective data (maximum fonation time and relation between consonants s / z). Data were statistically analyzed. **Results:** there was no difference in comparing the scores of voice related quality of life, vocal handicap index with variables related to gender, vocal quality, grade of dysphonia, pitch, resonance, articulation, rhythm of speech and type of dysphonia. Individuals with pneumophonoarticulatory incoordination, who use their voice professionally and who have made previous treatments for dysphonia were the worst rates in the vocal self-assessment. There were no correlations between rates of vocal self-assessment and other continuous variables (age, duration of abuse, maximum phonation time and relation s / z). **Conclusion:** the vocal self-assessment is a very subjective impression, and is independent of most of data collected in the clinical evaluation. Being professional voice, already have had other previous treatments for dysphonia, and incoordination pneumophonoarticulatory seem to influence negatively on the individual's self-assessment about the impact of dysphonia in his/her daily life.

KEYWORDS: Voice; Voice Disorders; Dysphonia; Quality Of Life

■ INTRODUCTION

Currently, self-assessment data of dysphonic patients regarding voice disturbances have been much valued in speech-language pathology clinic and in the field literature[1-4]. It seems clear that the demand and treatment adherence are particularly related to the voice disturb impact in subject's daily life. Therefore two subjects having similar voice disturbances and the same larynx lesion may face the impact of these disturbances in really different ways, depending on social, professional and/or emotional characteristics.

Vocal self-assessment is unique and may even no to be directly related to the clinician evaluation[5]. For this reason, it has becoming more and more necessary to elaborate clinical reasoning and, hence, the voice disturbances cases' management.

Voice self-assessment questionnaires, also entitled voice related quality of life questionnaires, had already existed in other countries, but started to be validated in Brazil in 2005. Nowadays, there are several translated and validated questionnaires to Brazilian Portuguese language that have sensibility and reliability granted, with broad clinic usage[6-10].

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In Brazil most part of researches performed with the questionnaires quoted above has focus in the self-assessment specific group results, as for voice professionals' category or diverse pathology carriers[11-15]. In some cases, the data collection meet the subjects, which not necessarily have a voice disturb and/or sought for speech language pathology help[11,12].

Although there are researches looking for relating voice self-assessment to voice clinic assessment of dysphonic subjects[16-20], these relations still need to be more clarified and deeply investigated. That is because, in practice the results many times occur diverse from the expected or different from which is pointed out by literature as probably determined for that kind of case.

The Speech Language Pathology School Clinic of *Universidade Estadual do Centro-Oeste/ Unicentro-PR* attends every month patients with vocal complaints that seek for speech-language assistance. There are standards to assessment procedures and the collected data are included in the patients' individual record. It is considered fundamental to better understand the relation between the dysphonia impact in life of the person and clinical assessment in order to offer a service to the patient's real need, considering his own particularities and characteristics.

Therefore, the purpose of the present research was to associate the voice self-assessment to the voice clinic assessment data of dysphonic subjects.

■ METHODS

This is an observational, descriptive, and retrospective study. The project was approved by the Ethic Committee of *Universidade Estadual do Centro-Oeste*, under protocol number 216/2009. The data collection was performed in School Clinic of Speech and Language Pathology of *Universidade Estadual Centro-Oeste – UNICENTRO-PR.*

It was analyzed 116 patients' records of voice clinic from 2007 to 2011. Hence, it was searched to select the records having information regarding voice self-assessment and voice related quality of life. From total, only 51 had the information regarding the indexes of Voice-Related Quality of Life (V-RQOL)[6], 34 had the Voice Handicap Index (VHI)[7], 37 had the "Impact of Dysphonia Value", and only 18 had Voice Activity and Participation Profile (VAPP)[8]. Due to the significant loss it was chosen to not include the data regarding VAPP in the present study, once statistical analysis was frustrated.

Records data were collected as they were reported at evaluation moment, in which the procedure follows the specific protocol developed by the course professors. It was excluded only the data with wrong measurement proven. From vocal anamnesis were collected data as gender, age, profession, complaint time, and previous treatment undertaken to voice problems. From perceptual evaluation were collected data regarding voice quality, deviation degree, pitch, loudness, articulation, resonance, speech rate, pneumo-phono-articulatory coordination (PPAC), and respiratory type. As for the objective measures, it was included only the data regarding Maximum Phonation Time (MPT), and s/z relation. Speech-language pathology diagnose hypothesis regarding the dysphonia type (functional, organic-functional or organic) were also collected.

It was still tabulated the results regarding voice self-assessment variables (voice related quality of life). It was considered only the total mean scores (main domain) from V-RQOL and VHI questionnaires. Furthermore, it was considered the "dysphonia impact value":

About the V-RQOL[6], quality of life questionnaire, as closer to 100 (maximum value) as better is the subject's self-assessment. Calculation is performed trough specific formula.

About VHI[7], total punctuation is 120 points. Since this is a handicap questionnaire as higher the obtained value as higher the dysphonia impact in subject's life.

The Dysphonia Impact Value is attributed by the patient with a simple question asked by the evaluator. The patient is guided to attribute a note from 0 to 10 to the voice problem impact in his daily life, as 0 pointing none impact and 10 pointing maximum impact.

From tab, the data were statistically analyzed. The non-parametric tests of Mann-Whitnney (two groups) and ANOVA of Kruskall-Wallis (more than two groups) were used in the association between the indexes of voice/quality of life in voice self-assessment and the other categorical variables. Pearson correlation was used to correlate the self-assessment data to continuous variables. To all analysis it was adopted the significance level of 0.05.

It was considered as real associations those that were at least related to two of the three vocal self-assessment indexes (V-RQOL, VHI, and Impact). Therefore, two or more values in determined crossing should be statistically significant or tending to difference to indicate possible real association and the other searched variable. It was opted to consider the tendencies to statistically significant differences ($p>0.05$ and <0.15), once the reduced size sample may exist an error type II[21].

■ RESULTS

Table 1 has data of the association among the V-RQOL, VHI, and "Dysphonia Impact Value" and the categorical variables regarding anamnesis (gender, profession, and previous treatment undertaken due to dysphonia). There was no statistical difference in the comparison between men and women. However, subjects that reported had already searched by other treatments to dysphonia had worst vocal self-assessment index in V-RQOL and VHI. The voice professionals attributed higher values regarding the measurement of dysphonia impact (from 0 to 10) in their daily lives and presented the worst indexes in V-RQOL and VHI.

In table 2 are presented the values regarding the relation among the scores of V-RQOL, VHI, and "Impact Value" and the categorical values regarding the main data of voice perceptual evaluation. There was no difference in the comparison among the indexes of self-assessment and the variables of voice quality, deviation degree, pitch, and loudness. Other variables not presented in the table, as resonance articulation, speech rate, and respiratory type did not had association statistically significant when compared to the vocal self-assessment indexes. Subjects that had pneumo-phono-articulatory incoordination (PPAI) had the worst self-assessment indexes in V-RQOL and VHI.

Table 1 – Association among voice self-assessment indexes, and gender, profession and previous treatment variables.

	Gender	Mean	Median	SD	n**	CI	p-value
VHI	Female	31.5	19.5	28.6	24	11.4	0.949
	Male	32.1	29	20.5	10	12.7	
V-RQOL	Female	71.4	81.3	24.8	35	8.2	0.831
	Male	73	76.3	24	16	11.8	
Impact	Female	5.8	6	2.8	24	1.1	0.152
	Male	4.4	5	2.8	13	1.5	
Voice Professional		**Mean**	**Median**	**SD**	**n**	**CI**	**p-value**
VHI**	No	24.9	19.5	20.4	18	9.4	0.072
	Yes	41.4	34	30	15	15.2	
V-RQOL**	No	77.1	85	22.7	28	8.4	0.059
	Yes	64.1	66.3	24.8	22	10.4	
Impact	No	4.4	4	2.7	23	1.1	0.016*
	Yes	6.7	6	2.6	14	1.4	
Previous treatment		**Mean**	**Median**	**SD**	**n**	**CI**	**p-value**
VHI**	No	27.8	20	25.6	21	11	0.11
	Yes	47.5	55.5	28.5	6	22.8	
V-RQOL	No	76.4	81.3	22.9	33	7.8	0.005*
	Yes	47	51.2	18.6	6	14.9	
Impact*	No	4.5	4.5	2.6	24	1	0.19
	Yes	6.2	6	2.8	6	2.2	

*p<0.05; Mann-Whitnney. - ** n values correspond to the number of patient records that had the information regarding the two analyzed variables. ** Possibility of error type 2 due to frontier p-values
Subtitles – VHI: Voice Handicap Index; V-RQOL: Voice-related quality of life; Impact: Dysphonia impact in daily life; n: subjects number; SD: standard deviation; CI: confidence interval.

Table 2 – Association among vocal self-assessment and categorical variables regarding voice perceptual evaluation.

			Mean	Median	SD	n**	CI	p-value
Voice quality*	VHI	Adapted	32.9	21.5	28.1	14	14.7	
		Rough	33.8	27	27	11	16	
		Rough / Breathiness	25.7	22.5	19.2	6	15.4	0.938
		Breathiness	29.7	10	38.5	3	43.5	
	V-RQOL	Adapted	71.2	75	23.3	17	11.1	
		Rough	75.7	85	27.9	18	12.9	
		Rough / Breathiness	73.4	80	21.5	11	12.7	0.921
		Breathiness	67.1	67.5	14.4	3	16.3	
	Impact	Adapted	5.2	5	2.9	13	1.6	
		Rough	4.5	4	2.7	13	1.5	
		Rough / Breathiness	6	6	2.9	9	1.9	0.7
		Breathiness	5	5		1		
Deviation degree**	VHI	Discrete	39.1	31	25.4	11	15	0.039***
		Moderate	17	13	13.1	8	9.1	
	V-RQOL	Discrete	73.5	77.5	25.8	17	12.3	0.873
		Moderate	74.9	81.9	20.6	14	10.8	
	Impact	Discrete	5	5	2.5	15	1.3	0.781
		Moderate	5.3	5	3.2	9	2.1	
Pitch*	VHI	High	26.8	21	24	6	19.2	
		Low	33.3	24	24.4	17	11.6	0.866
		Mid	33.6	19.5	32.7	10	20.3	
	V-RQOL	High	65.9	72.5	26	11	15.4	
		Low	76.6	82.5	20.4	25	8	0.405
		Mid	69.5	75	27.1	13	14.7	
	Impact	High	6	5	2	4	2	
		Low	5.4	5	3.1	19	1.4	0.8
		Mid	4.9	4	2.9	13	1.6	
Loudness*	VHI	Strong	19.7	16	12.9	3	14.6	
		Weak	40.9	25	33.9	13	18.5	0.283
		Normal	27.8	20	19.9	17	9.4	
	V-RQOL	Strong	88.3	85	10.4	3	11.8	
		Weak	59.4	67.5	26.3	21	11.3	0.002*
		Normal	81.2	87.5	16.2	25	6.4	
	Impact	Strong	3	3	1.4	2	2	
		Weak	6.1	6	2.8	11	1.7	0.336
		Normal	5.1	5	2.9	23	1.2	
PPAC**	VHI	No	44.8	55	31.3	13	17	0.034*
		Yes	24	20	16.4	15	8.3	
	V-RQOL****	No	64.5	71.3	27.8	24	11.1	0.098
		Yes	76.7	80	19.1	21	8.2	
	Impact	No	5.9	6.5	2.6	16	1.3	0.185
		Yes	4.6	4.5	3.1	16	1.5	

*p<0.05; *ANOVA of Kruskall-Wallis and *Mann-Whitnney. - ** n values correspond to the number of records that had the information regarding the two analyzed variables - ***value probably attributed by chance; **** possibility of error type 2.
Subtitles – VHI: Voice Handicap Index; V-RQOL: Voice-related quality of life; Impact: Dysphonia impact in daily life; n: subjects number; SD: standard deviation; CI: confidence interval.

Speech language diagnose hypothesis did not had statistical association when compared to self-assessment indexes. Subjects with functional, organic-functional, and organic dysphonia respond

similarly to V-RQOL, VHI, and the question about the dysphonia impact in life (note from 0 to 10) – table 3.

Table 3 – Association among vocal self-assessment indexes and speech-language diagnose hypothesis.

	Dysphonia type	Mean	Median	SD	n**	CI	p-value
VHI	Functional	28.4	21.5	25.3	18	11.7	
	Organic	44.1	40	33.8	7	25.1	0.433
	Organic-functional	29.3	31	19.6	3	22.1	
V-RQOL	Functional	76.8	81.9	21.8	26	8.4	
	Organic	61.3	62.5	25.2	13	13.7	0.172
	Organic-functional	73.8	80	30.9	5	27	
Impact	Functional	5.2	5	2.7	21	1.2	
	Organic	6.7	7	3.3	7	2.4	0.139
	Organic-functional	3.3	3.5	1	4	0.9	

*p<0.05; ANOVA of Kruskall-Wallis. - ** n values correspond to the number of records that had the information regarding the two analyzed variables.
Subtitles – VHI: Voice Handicap Index; V-RQOL: Voice-related quality of life; Impact: Dysphonia impact in daily life; n: subjects number; SD: standard deviation; CI: confidence interval.

Table 4 shows the correlation among the V-RQOL, VHI, and "Impact Value" to the other continuous variables. There was no statistical difference among the scores of self-assessment and the complaint time, maximum phonation

time (MPT), s/z relation variables. In variable age correlation there was a slight difference pointing a correlation (<0.4). Therefore, none correlation was considered significant.

Table 4 – Correlation among vocal self-assessment indexes and the others quantitative variables.

		Age	Complaint Time	MPT	s/z relation
VHI	Correlation	6.50%	-17.20%	24.10%	-4.20%
	p-value	0.716	0.541	0.17	0.817
V-RQOL	Correlation	-18.10%	1.70%	1.10%	6.20%
	p-value	0.203	0.933	0.936	0.671
Impact	Correlation	34.70%	-21.30%	-1.90%	2.34%
	p-value	0.035*	0.447	0.912	0.495

*p<0.05; Pearson Correlation.
Subtitles - MPT: maximum phonation time; VHI: Voice Handicap Index; V-RQOL: Voice-related quality of life; Impact: Dysphonia impact in daily life.

■ **DISCUSSION**

The obtained data in the present study allow inferring that are still a long way to better understand the factors, the characteristics, and the situations that cause in the dysphonic subject more or less affected by the voice problem in his daily life. It seems clear that the self-assessment is quite

subjective and overlaps major part of the attempt to relate with voice characteristics and patient history.

When the indexes of self-assessment are related to identity and history data interesting associations were obtained. In the comparison between men and women there was no difference in the mean scores of V-RQOL, VHI, and Impact Value. This finding corroborates previous research that compared the indexes of men and women with vocal complaint

and obtained similarity between them[16]. This data call the attention since it points out that even history reporting women present more voice problems and seek more assistance than men[22], it is likely that independent of gender, hence the subject seek for specialty help is because he already realized the dysphonia impact in his daily life.

Another interesting data was finding that subjects that had already sought other types of assistance to dysphonia had the worst vocal self-assessment index and voice related quality of life. It is possible to infer that these patients had already demands, symptoms, and complaints longer and that could generate permanent voice disturbances, without great improvement and worsening factors, consequently with higher vocal impact in daily quality of life. It is also possible to infer that subjects that undertake voice therapy develop higher voice self-perception.

Regarding occupational data, voice professionals self-evaluated themselves with more criticism than non-professionals. That may occurred because this group, in general, develops higher voice perception through time. Besides, a small voice problem to a patient with reduced voice demand (not a voice professional) may be a big impact to those needing their voices as main work tool. A study that sought to relate the quality of life in voice indexes to social-demographic variables in subjects without voice complaints observed that the voice professionals tend to be more rigorous in self-assessment and, therefore, to present worst questionnaires indexes[23].

In a previous study, performed with teachers, the authors concluded that VAPP is a quite sensible tool to evaluate the dysphonia impact in the voice professional life[24]. This reinforces the idea that even longer and more complex to respond by the patient it is worthy to include this questionnaire in voice clinic routine. Remembering that, VAPP data were not considered in statistical analysis, because only 18 records had this instrument data.

When self-assessment data were compared to the perceptual evaluation, few associations could be observed. Subjects with pneumo-phono-articulatory incoordination (PPAI) had the worst index of quality of life in voice. Loudness variable was not considered since only had association to one tool, which may indicate association by chance. It was not found researches that related indexes of self-assessment with each one of the perceptual evaluation apart. Therefore, to elucidate and confirm these possible relations, it is suggested the development of new studies, with a higher number of analyzed patients. Although it is clear in literature that PPAI may also damage communication fluency[25], the relation between the "damage" and quality of life

deserve to be more studied. It is believed that the big discomfort generated by PPAI during the communication process may justify its association with worst indexes in quality of life in voice.

Some previous studies point out that subjects with organic dysphonia have worst scores in self-assessment voice questionnaires[6-8]. In the present study, self-assessment was similar among the patients, independent of the speech language diagnose hypothesis assigned. This aspect also deserves a broad discussion about dysphonia classification. Some types of functional dysphonia, for instance, may generate a damaged quality of life, which is the case of dysphonia due to incomplete vocal change. On the other hand, some types of organic dysphonia, as the ones related to gastro-esophageal reflux or presbyphonia, for instance, may generate lower impact regarding self-assessment. The patients included in the sample are quite heterogeneous about the probable voice problem etiology. It is possible that if there were in this study a higher demand of organic dysphonia, by head and neck cancer, the obtained results would be different, with a worst self-assessment of these subjects when compared to others.

Other aspect that deserves spotlight is the absence of statistical correlation between self-assessment indexes and the subjects' age. A previous study pointed out that dysphonic patients aging from 20 to 29 years had better indexes in quality of life in voice when compared to patients in higher age range[16]. In other research with subjects without vocal complaint, it was not observed differences in voice self-assessment in different age ranges[23]. It is believed that the obtained results may have relation with the sample heterogeneity of the present study and with the subjectivity existent in voice self-assessment. Similarly to age, the complaint duration time/symptoms also did not influence the subject's self-assessment, pointing out that this variable also do not allow inferences about the dysphonic subjects profile regarding quality of life in voice.

It is pointed out that in a retrospective study may imply an important loss of data. This was clear in the present study, once from the 116 records analyzed less than half had the information about the voice self-assessment and the dysphonia impact in subject's life. It is important that the student of Speech Language Pathology graduation course to be more and more investigative and reflect about the important relation existent among these indexes and patient clinic evolution (prognosis, adherence, etc). This will allow higher sensibility facing the particularities and specificities of the patients that seek for specialized help due to vocal complaints.

On the other hand, this kind of study allows to make a real diagnose about the functioning of a service and this aspect is of the main importance to draw speech-language actions.

It is important that the next studies search to relate the self-assessment indexes to other important variables, as the vocal complaint type, the symptoms and vocal habits reported by the patient. Besides, to have a bigger sample may be fundamental to elucidate some of the hypothesis raised in the present study.

■ CONCLUSION

Vocal self-assessment is quite subjective impression and independent from major part of collected data in voice assessment. To be a voice professional, to have already searched previously treatment to dysphonia, and to have pnemo-phono-articulatory incoordination are factors that may influence negatively self-assessment of the dysphonic subject regarding the dysphonia impact in daily life.

RESUMO

Objetivo: associar os índices de autoavaliação vocal aos dados da avaliação clínica de indivíduos disfônicos. **Métodos:** estudo observacional, analítico, retrospectivo. Foram analisados os prontuários de pacientes disfônicos atendidos em uma Clínica-Escola de Fonoaudiologia no período de 2007 a 2011. Foram levantados os dados referentes à autoavaliação vocal (índices de qualidade de vida em voz, desvantagem vocal e atribuição de nota referente ao impacto vocal), à anamnese (sexo, idade, profissão, tipo de queixa, tempo de queixa, tratamentos anteriores para a disfonia), à avaliação perceptivo-auditiva (qualidade vocal, grau de alteração, *pitch, loudness*, ressonância, articulação e coordenação pneumofonoarticulatória) e aos dados objetivos (tempos máximos fonatórios e relação s/z). Os dados foram tabulados e analisados estatisticamente. **Resultados:** não houve diferença na comparação dos escores do protocolo de qualidade de vida em voz e índice de desvantagem vocal com as variáveis referentes a sexo, qualidade vocal, grau de alteração, *pitch*, ressonância, articulação, velocidade de fala e tipo de disfonia. Indivíduos que utilizam a voz profissionalmente e que já fizeram tratamentos anteriores para a disfonia apresentaram piores índices na autoavaliação vocal. Quanto à avaliação clínica, a incoordenação penumofonoarticulatória foi o único parâmetro que interferiu negativamente na autoavaliação. Não houve correlações entre os índices de autoavaliação vocal e as demais variáveis contínuas (idade, tempo de queixa, tempos máximos fonatórios e relação s/z). **Conclusão:** a autoavaliação vocal é uma impressão bastante subjetiva, e independe da maior parte dos dados coletados na avaliação clínica. Ser profissional da voz, já ter buscado outros tratamentos para a disfonia e apresentar incoordenação penumofonoarticulatória parece influenciar negativamente na autoavaliação do indivíduo acerca do impacto do distúrbio vocal em sua vida diária.

DESCRITORES: Voz; Distúrbios da Voz; Disfonia; Qualidade de Vida

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