INFLUENCE OF GENDER, AGE, OCCUPATION AND PHONOAUDIOLOGICAL DIAGNOSIS IN THE VOICE QUALITY OF LIFE

Influência do sexo, idade, profissão e diagnóstico fonoaudiológico na qualidade de vida em voz

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ABSTRACT

Purpose: to investigate and to correlate the responses to Voice-Related Quality Of Life questionnaire and Voice Handicap Index, in a group of subjects according to age, sex, professional use of voice and speech-language diagnosis. **Methods:** analysis of responses to Voice-Related Quality Of Life questionnaire and Voice Handicap Index and records of 48 subjects, 41 women and seven men; with ages between 18 and 63 years old; six people who use their voices professionally and 42 who do not use their voices professionally; 39 subjects with functional dysphonia, six with organic dysphonia and three with organofunctional dysphonia. Qui-quadrado test and Spearman correlation coefficient (p=0,05). **Results:** a significant association between sex and emotional score Voice-Related Quality Of Life and Voice Handicap Index; ages with scores Voice-Related Quality Of Life emotional, and physical and emotional Voice Handicap Index; speech-language diagnosis. with the emotional speech of Voice Handicap Index; profession with total score, emotional and physical Voice-Related Quality Of Life, and functional Voice Handicap Index; positive correlation between aspects of each protocol separately and negative correlation between the values of questionnaires. **Conclusion:** in the study group, there was a higher quality of life in females, decreased quality of life and voice handicap increased with increasing age, the presence of dysphonia organofunctional generated greater voice handicap, voice professionals had a poorer quality of life and greater voice handicap. The protocols showed additional results and useful to measure the impact of voice on quality of life of individuals.

KEYWORDS: Speech, Language and Hearing Sciences; Voice; Quality of Life; Voice Disorders; Dysphonia

INTRODUCTION

The voice is present in the processes of human socialization as a component of oral communication and interpersonal relationship, so that vocal changes may produce impacts on people's quality of life in general, but also in occupations who rely on voice production and/or specific vocal quality for their survival occupation[1,2].

A restriction on communication may be characterized by the loss or reduction of ability to interact vocally and limitation on quality of life, on voice related aspects, may be defined as a self-perceived decrease on the physical, emotional, social or economic status of the person due to dysfunction vocal[3]. These definitions highlight the fact that a voice problem affects individuals differently.

To an evaluation on the impact of a voice disorder, the laryngoscopic findings, the description of vocal deviations and acoustic characterization are not sufficient, because it lacks important information about how this change interferes on daily activities in personal, social and occupational context[4].

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The World Health Organization, after consensus among experts, defined quality of life as the individual's perception about his condition of life in the cultural context and values and about the relation with expectations, objectives and standard concerns[5]. Thus, it is considered quality of life as the integrity of multidimensional factors based on physical, mental and social parameters[2].

The evaluation of the relation between voice and quality of life is basically done through questionnaires. The American questionnaire Voice Related Quality of Life (V-RQOL)[6] was translated and adapted to Brazilian reality as Questionário de Qualidade de Vida em Voz (QVV)[7], used to measure the impact of dysphonia in quality of life. The questionnaire Vocal Handicap Index (VHI)[8] was translated and validated in Brazil as Índice de Desvantagem Vocal (IDV)[9] and is designed to detect psychosocial consequences generated by the vocal quality disturbance[8].

Recently, the results of self-assessment protocols of treatment used in dysphonic populations were reviewed to understand if the procedures used beheld the standards of content development and psychometric assessment, concluding that none of the quality of life protocols currently used in the area of voice includes the essential methodological criteria for its elaboration[10].

However, despite the restrictions presented by questionnaires[10], it is believed that the use of such instruments allow the observation of a progression on a dysphonia, the effectiveness of phonoaudiological therapy, and allows making therapeutic decisions based in the self-perception of the person about his voice and limitations in the quality of life reported.

In this context, there are scientific studies in the literature addressing the effects of voice disorders on quality of life in different populations[4,6,9-14]. However , there are few studies correlating the variables addressed in this study (age, gender and occupational use or non occupational use of voice) with the results of the questionnaires V-RQOL and VHI[15], and so far none of them correlated phonoaudiological diagnosis with the same questionnaires.

Thus, this research aims to investigate and correlate the responses to the questionnaires Voice Related Quality of Life (V-RQOL) and Voice Handicap Index (VHI) in a group of subjects according to age, gender, occupational or non occupational use of voice and phonoaudiological diagnosis.

METHODS

Analytical, quantitative and retrospective observational cross sectional study, approved by the Ethics Committee in Research from the original institution (23081.016945/2010-76).

The target population consisted of patient records contained in the database of the voice department of a clinical-school of Speech Language Pathology from October, 2009, year in which the questionnaires on quality of life began to be applied in this sector, to July, 2012.

The inclusion criteria for the selection of database records were: registration of phonoaudiological diagnosis, gender, age, occupation and complete responses to the questionnaires V-RQOL and VHI. The exclusion criteria was incomplete records.

After applying the inclusion and exclusion criteria, the sample consisted of 48 records of patients aged between 18 and 63 years (mean 24:01).

From this sample, were surveyed and analyzed phonoaudiological diagnosis, classifying it in Functional Dysphonia (FD) - arising from own use of voice, without the presence of structural vocal fold lesions, Organic Dysphonia (OD) - independent of the use of voice, Organic-functional Dysphonia (OFD) - the presence of lesions resulting from use of voice[1]; gender (male or female); classification of people according to age, in adolescents (13-18 years-old), adult (19-44 years-old) or middle-aged (45-64 years-old)(DeCS, 2013); occupational or non occupational use of voice (the occupational depends on specific vocal quality production and/or quality to their occupational survival, belonging to this group singers, teachers, lawyers, religious, actors, salesmen, telemarketers, stock exchange operators, among others[1]), as well as the answers to questionnaires V-RQOL and VHI.

For the analyzed variables, the sample was characterized by: 41 subjects were female and 7 male; 8 teenagers, 36 adults and 4 middle-aged; 6 occupational voice users and 42 non occupational voice users, 39 subjects with phonoaudiological diagnosed FD (absence of laryngeal disease or presence of postural changes of vocal folds), 6 subjects with OD (association with inflammatory and infectious diseases) and 3 OFD (presence of edema or nodules).

The V-RQOL protocol includes ten questions involving aspects of the uses of the voice and their impact on quality of life. Responses should be marked on a scale of one to five, taking into consideration the severity of the problem and its frequency of appearance. The questions of V-RQOL are divided into three domains: social-emotional, physical and global (encompassing the first two domains). The maximum value is 100 (indicating better results, with less voice negative impact on quality of life) and the minimum is zero[6].

VHI protocol produces four scores, one of full disadvantage and three of sub-scales “E” (emotional), “F” (functional) and “O” (organic). The maximum score for each sub-scale is 40 points and the calculation of the total score is done by simple addition, with a maximum disadvantage of 120 points. As higher the score in this protocol is, the greater the perceived disadvantage by subject is[8].

For statistical analysis, chi-square tests were used (to analyze the correlation of V-RQOL and VHI protocols with the variables gender, age, occupation and phonoaudiological diagnosis) and Spearman’s correlation coefficient (for analyzing the correlation between the protocols V-RQOL and VHI), both with a significance level of 5% (p<0.05).

RESULTS

Table 1 shows the correlation of the emotional, physical and total V-RQOL and emotional, functional, physical and total VHI with male and female scores. It was observed a statistically significant association between female and emotional V-RQOL score (p=0.0165) and between male and emotional VHI score (p=0.0406).

Table 1 – Correlation of scores questionnaires Voice Related Quality of Life and Voice Handicap Index with gender

	Female (n=41)	Male (n=7)	p-value
V-RQOL total score	81,62195	68,07143	0,2089
V-RQOL emotional	89,70732	72,32143	0,0165*
V-RQOL physical	82,51780	62,49714	0,2800
VHI total score	20,26829	35,14286	0,1162
VHI functional	7,63415	11,14286	0,0710
VHI physical	7,39024	15,42857	0,0516
VHI emotional	5,24390	8,57143	0,0406*

Qui-quadrado test
* statistically significant values: p <0,05

Table 2 shows the correlation of scores V-RQOL and VHI with teenage, adult and middle-aged ages. A statistically significant association between age and emotional V-QROL score was observed (p=0.0028), where the middle-aged had lower scores, and between age and emotional score (p=0.0145) and physical (p=0.0347) of IDV, where middle-aged had higher scores.

Table 2 – Correlation of scores questionnaires Voice Related Quality of Life and Voice Handicap Index with age

	Teenage (n=8)	Adult (n=36)	Middle-aged (n=4)	p-value
V-RQOL total score	83,62500	82,19444	48,75000	0,9991
V-RQOL emotional	90,21875	82,86778	40,62500	0,0028*
V-RQOL physical	77,60125	83,80686	54,16500	0,1479
VHI total score	20,25000	19,97222	49,00000	0,2152
VHI functional	6,50000	8,02778	12,50000	0,1850
VHI physical	9,00000	7,58333	16,50000	0,0347*
VHI emotional	4,75000	4,36111	20,00000	0,0145*

Qui-quadrado test
* statistically significant values: p <0,05

Table 3 shows the correlation of scores V-RQOL and VHI with the phonoaudiological diagnosis of FD, FO and OFD. It was observed a statistically significant association between phonoaudiological diagnosis and VHI emotional score (p=0.0008), with the diagnosis of OFD with higher scores.

Table 4 shows the correlation of scores V-RQOL and VHI with the occupational and non occupational use of voice. A statistically significant association between non occupational use of voice and total score (p=0.0055), emotional (p=0.0400) and physical (p=0.0395) of V-QROL, and between occupational use of voice and functional score (p=0.0088) of VHI.

Table 5 shows the negative correlation between emotional, physical and total scores of V-QROL and emotional, functional, physical and total scores of VHI.

Table 3 – Correlation of scores questionnaires Voice Related Quality of Life and Voice Handicap Index with the phonoaudiological diagnosis

	FD (n=39)	FO (n=6)	OFD (n=3)	p-value
V-RQOL total score	82,60	68,16	64,16	0,4663
V-RQOL emotional	90,30	77,08	47,91	0,2316
V-RQOL physical	83,97	59,71	62,50	0,5718
VHI total score	18,56	32,33	55,00	0,0739
VHI functional	7,07	10,66	16,66	0,0918
VHI physical	7,07	14,16	16,66	0,0599
VHI emotional	4,23	15,00	21,66	0,0008*

Qui-quadrado test
* statistically significant values: p <0,05

Table 4 – Correlation of scores questionnaires Voice Related Quality of Life and Voice Handicap Index with the occupational and non occupational use of voice

	Voice professional (n=6)	No professional of voice (n=42)	p-value
V-RQOL total score	59,58	80,45	0,0055*
V-RQOL emotional	67,70	94,56	0,0400*
V-RQOL physical	73,60	82,03	0,0395*
VHI total score	39,83	74,40	0,0890
VHI functional	11,69	6,73	0,0088*
VHI physical	15,33	7,59	0,0695
VHI emotional	9,66	5,16	0,1793

Qui-quadrado test
* statistically significant values: p <0,05

Table 5 - Correlation between scores of questionnaires Voice Related Quality of Life and Voice Handicap Index

	V-RQOL total score		V-RQOL emotional		V-RQOL physical		VHI total score		VHI functional		VHI physical		VHI emotional	
	R	p-value	R	p-value	R	p-value	R	p-value	R	p-value	R	p-value	R	p-value
V-RQOL total score	-	-	0,7821	0,0000	0,9330	0,0000	-0,7758	0,0000	-0,5337	0,0000	-0,8448	0,0000	-0,6423	0,0000
V-RQOL emotional	0,7821	0,0000	-	-	0,7441	0,0000	-0,8201	0,0000	-0,5850	0,0000	-0,8141	0,0000	-0,7533	0,0000
V-RQOL physical	0,9330	0,0000	0,7441	0,0000	-	-	-0,7439	0,0000	-0,5100	0,0000	-0,8127	0,0000	-0,6152	0,0000
VHI total score	-0,7758	0,0000	-0,8201	0,0000	-0,7439	0,0000	-	-	0,8284	0,0000	0,8634	0,0000	0,8893	0,0000
VHI functional	-0,5337	0,0000	-0,5850	0,0000	-0,5100	0,0002	0,8284	0,0000	-	-	0,5461	0,0000	0,7419	0,0000
VHI physical	-0,8448	0,0000	-0,8141	0,0000	-0,8127	0,0000	0,8634	0,0000	0,5461	0,0000	-	-	0,6539	0,0000
VHI emotional	-0,6423	0,0000	0,7533	0,0000	-0,6152	0,0000	0,8893	0,0000	0,7419	0,0000	0,6539	0,0000	-	-

Spearman correlation
*statistically significant values: p <0,05

DISCUSSION

The VHI and V-RQOL protocols have been used in investigations that are guided by the vocal self-assessment and the perceptions of individuals about their own voice and their voice disorders. Such instruments intended to explore the impact of voice disorders on patient's quality of life in clinical voice and also in people who use the voice professionally, and other social levels. It is about functionally simple protocols, easy to apply, which have clear questions, thus becoming clinical tools for the assessment of treatment results. Also, provide more refined understanding of the dimensions of the effects of a voice problem in the patient's life and their psychosocial consequences, through self-awareness about their dysphonia, despite criticism on its preparation[1,4,9,11-19].

In the present study, the studied group was characterized by a predominance of females, adult, no professional use of voice and individuals with FD, agreeing with other current studies found in the literature[13,14].

Gender showed a significant association with emotional scores of VHI and V-RQOL, with the average of the emotional scores of V-RQOL higher in women and lower in VHI, when compared with men. Thus, it appears that the emotional impact was greater in males, so that results in the two protocols were similar. This finding agrees with two studies that compared gender with VHI protocol and did not observed significant differences[19,20].

Even, in a research that verified the self-reported impact of a voice disorder on quality of life of individuals with voice complaints, using VHI protocol, it was concluded that this impact was perceived similarly by men and women[6]. This fact converges with other studies[21,22], although it is recognized in the literature that women seek more phonoaudiological therapy in the clinic of voice than men[15], which was also observed in this work where most of the records of the school clinic were women.

The greatest emotional impact on men suggests greater concern about the quality of the voice regarding to the impression on listeners, so that the change can provide discomfort and/or embarrassment through interpersonal relationships. Probably, voice changes in women are more accepted by listeners than in men, making women do not bother much about the perception caused by their voices.

In the present study, age influenced the value of the emotional score V-RQOL, beyond the physical and emotional of VHI, where older individuals had the lowest score of the emotional V-RQOL, as well as higher values in the physical and emotional scores of VHI.

According to the literature, the age variable deserves attention, because as age advance, the vocal efficiency decreases, with greater or lesser vocal impact[13], and a positive correlation was found between the total score of VHI and age[19]. Other studies have also found that elderly showed lower scores of V-RQOL compared to younger individuals, realizing greater impact of dysphony on their quality of life[23,24].

These results can be justified by the fact that, with aging, changes in laryngeal structures and consequent vocal changes happen, which influence the process of construction of personal identity and may be a factor of conflict, interfering in quality of life[1,25,26], since the voice has specific characteristics in adolescence, adulthood and senescence. However, there are studies in the elderly in whom there was no difference about the age in the scores of V-RQOL protocol[16,24,27].

There was also a correlation between the phonoaudiological diagnosis and the emotional

score values of VHI, showing that subjects with OFD got higher values, in other words, greater negative impact when compared with diagnoses of functional and organic dysphonia. Studies indicate that laryngeal disorders cause negative impact on people's quality of life[2,12,25,28] because undertake communication and, consequently, people social relations. However, in a research which related quality of life and voice to the degree of dysphonia, no significant difference was found[2], and in another study, with people who underwent cordectomy, with OD, it was found no reduction in scores of V-RQOL[11].

In this investigation, the presence of OFD caused higher voice handicap, especially in the emotional aspect, showing that the occurrence of vocal fold lesions resulting from functional dysphonia diagnosed late, and thus, related to the use of voice, interfered on activities of daily life, causing limitations in social or personal life[1,29].

Even, in another study, subjects with spasmodic dysphonia had higher scores in VHI, showing a reduction of these scores after neurectomy of the thyroarytenoid branch of the inferior laryngeal surgery, showing that the presence of any lesion, regardless of its cause, affects quality of life[30].

In this study, the occupation has influenced the values of all V-RQOL scores and functional VHI score, and no professionals of voice had the highest physical and emotional V-RQOL scores, as occupational voice users had higher scores on functional VHI, showing greater voice handicap.

Professional voice users feel more the impact of dysphonia, because they depend on a production and specific vocal quality to their occupational survival, and have great vocal demand, justifying the increase in functional VHI score as well as the best quality of life of non voice occupational found[29].

Confirming these results, a study that verified the impact of dysphonia in dysphonic teachers showed poorer quality of life in V-RQOL compared to the general population of dysphonics[8]. The physical domains of V-RQOL and organic of VHI showed similar results, however, the socio-emotional of V-RQOL showed greater impact on voice changes in dysphonic teachers than the VHI.

Another study that verified self-reported impact of voice disorders on people quality of life with vocal complaints, also used V-RQOL protocol and found that in the occupational voice level I (actors and singers) showed the highest levels in total and physical[15].

However, research that used V-RQOL protocol and aimed to relate the quality of life and voice with degree of dysphonia and professional use of voice found no significant difference between occupational and non occupational about the degree of dysphonia, suggesting that dysphonia compromises the quality of life in a similar way in both groups[2].

These findings can be explained by the fact that professional use of voice possibly resorting to specialized help early, so that the problem does not harm the career or their social life.

Even, in this investigation, there was a significant negative correlation between all V-RQOL scores and among all VHI scores, showing that the protocols are complementary, showing that, when the V-RQOL scores increase, VHI scores decrease and vice-versa, assessing the impact of voice on people's quality of life. In other research[28], it was found that the VHI and V-RQOL protocols are complementary, but not entirely interchangeable, as there were no negatively correlation, disagreeing to the present work.

However, a literature review article states that none of the quality of life instruments currently used in voice area covers all essential criteria for its development, also pointing out deficiencies in both protocols used in this work[10].

Recent study correlated voice quality with the responses to V-RQOL in a group of 73 teachers and found no association between changes in vocal quality and responses to V-RQOL. However, it was observed that the areas of V-RQOL showed significant correlations between themselves[13].

Another study found that the V-RQOL physical score matches to the organic VHI and that subjects with laryngeal disorders had V-RQOL physical score decreased and VHI organic score increased[28].

Based on the results of this research, it can be inferred that the self-assessment of quality of life and disadvantage related to voice is an important aid to understanding the perception of people regarding to their vocal health and their reactions to voice changes[12,15].

To a better understanding of the role of such protocols, more studies are needed. However, based on the results obtained and the existing literature on the subject, it is possible to affirm that such protocols seem to complement each other, show feasible relations with variables such as age, gender, occupation and types of dysphonia, and are useful in the evidence for the subjective aspects of the patient's perception of its evolution in the treatment itself.

The findings on this study help to understand the possible impact of age, occupation, gender and phonoaudiological diagnosis on quality of life and the self-assessment disadvantages regarding to voice and also are useful to affirm the importance of using self-assessment protocols, such as VHI and V-RQOL, in the phonoaudiological clinical practice.

CONCLUSION

The quality of life in voice was higher in females, especially in the emotional aspect; about aging, there were observed decreasing in quality of life and increasing in vocal handicap; the presence of organic-functional dysphonia generated greater voice handicap and professional use of voice presented worse quality of life. The VHI and V-QROL protocols showed complementary and useful results to measure the impact of voice on people's quality of life.

RESUMO

Objetivo: investigar e correlacionar as respostas aos questionários de Qualidade de Vida em Voz e Índice de Desvantagem Vocal, conforme idade, sexo, uso profissional ou não da voz e diagnóstico fonoaudiológico. **Métodos:** análise das respostas aos questionários Qualidade de Vida em Voz e Índice de Desvantagem Vocal dos registros de 48 sujeitos, sendo 41 mulheres e sete homens; com idades entre 18 e 63 anos; seis profissionais da voz e 42 não profissionais; 39 sujeitos com disfonia funcional, seis com disfonia orgânica e três com disfonia organofuncional. Teste Qui-quadrado e coeficiente de correlação de *Spearman* (p=0,05). **Resultados:** quanto ao questionário de Qualidade de Vida em Voz, houve associação significante entre sexo e escore emocional; faixa etária e escore emocional; profissão e escore total, emocional e físico. Quanto ao Índice de Desvantagem Vocal, houve associação significante entre sexo e escore emocional; faixa etária e escore físico e emocional; diagnóstico fonoaudiológico e escore emocional; profissão e escore funcional. Houve correlação positiva entre os aspectos de cada protocolo separadamente e correlação negativa entre as pontuações dos questionários. **Conclusão:** no grupo estudado, verificou-se maior qualidade de vida no sexo feminino; decréscimo da qualidade de vida e aumento da desvantagem vocal com o aumento da idade; a presença de disfonia organofuncional gerou maior desvantagem vocal; os profissionais da voz apresentaram pior qualidade de vida e maior desvantagem vocal. Os protocolos utilizados mostraram resultados complementares e úteis para mensurar o impacto de uma disfonia na qualidade de vida dos sujeitos.

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

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