

Original Article

Artigo Original

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Self-assessment and readiness for change in dysphonic patients

Autoavaliação e prontidão para mudança em pacientes disfônicos

Keywords

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Descritores

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ABSTRACT

Purpose: To examine whether there is an association between vocal self-assessment and readiness for change in dysphonic patients. **Methods:** 151 patients with vocal complaints and diagnosis of dysphonia, between 18 and 65 years of age, 47 men and 104 women treated at the voice clinic of a public institution participated in the study. Four self-assessment instruments were applied, including the Voice-Related Quality of Life (V-RQOL), the Voice Handicap Index (VHI) and the Voice Symptom Scale (VoiSS), and the use of URICA-VOICE instrument to verify the patients stage of readiness for change. All instruments were applied immediately before the start of vocal therapy. The variables were correlated and compared using inferential statistics. **Results:** Most patients were in the contemplation stage (76.2%, n = 115), 22 (14.6%) were in the pre-contemplation stage and 14 (9.3%) in the action stage. There was a negative correlation between the score in URICA-VOICE and the socio-emotional domain and total score V-RQOL. There was a positive correlation between the score URICA-VOICE and full social, emotional and functional VHI, as well as between the score URICA-VOICE and full fields, limitation and emotional VoiSS. Only the social-emotional domain V-RQOL and emotional in VoiSS values showed statistically significant differences between the motivational stages. **Conclusion:** There is association between vocal self-assessment and readiness for change in dysphonic patients. Patients with major impact on quality of life in voice in V-RQOL and higher frequency of vocal symptoms mentioned in the VoiSS show greater readiness for change.

RESUMO

Objetivo: Analisar se existe associação entre a autoavaliação vocal e a prontidão para mudança em pacientes disfônicos. **Método:** Participaram 151 pacientes com queixa vocal e diagnóstico de disfonia, entre 18 e 65 anos de idade, 47 homens e 104 mulheres, atendidos no ambulatório de voz de uma instituição pública. Foram aplicados quatro instrumentos de autoavaliação, incluindo o Questionário de Qualidade de Vida em Voz (QVV), o Índice de Desvantagem Vocal (IDV) e a Escala de Sintomas Vocais (ESV), além da utilização do instrumento URICA-VOZ, para verificação do estágio de prontidão para mudança dos pacientes. Todos os instrumentos foram aplicados imediatamente antes do início da terapia vocal. As variáveis foram correlacionadas e comparadas por meio de estatística inferencial. **Resultados:** A maioria dos pacientes encontrava-se no estágio de contemplação (76,2%, n = 115), 22 (14,6%), no estágio de pré-contemplação e 14 (9,3%), no estágio de ação. Houve correlação negativa entre o escore no URICA-VOZ e o domínio socioemocional e escore total do QVV. Ocorreu correlação positiva entre o escore do URICA-VOZ e os domínios total, emocional e funcional do IDV, assim como entre o escore do URICA-VOZ e os domínios total, de limitação e emocional da ESV. Apenas os valores do domínio socioemocional do QVV e emocional no ESV apresentaram diferenças estatisticamente significantes entre os estágios motivacionais. **Conclusões:** Existe associação entre a autoavaliação vocal e a prontidão para mudança em pacientes disfônicos. Pacientes com maior impacto na qualidade de vida em voz no QVV e maior frequência de sintomas vocais referida na ESV apresentam maior prontidão para mudança.

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INTRODUCTION

The voice disorder is multidimensional and includes for diagnosis, laryngeal examination, perceptual analysis, acoustic analysis and the patient's self-assessment in the frequency of symptoms and influence of disorder in his daily life⁽¹⁾. It can cause psycho-emotional stress, depression and frustration, negatively affecting social functioning and causing significant impact on the individual's quality of life⁽²⁾.

In general, voice disorders can be caused by behavioral or organic factors, or a combination of them⁽³⁾. However, regardless of etiology, vocal therapy involves alterations in respiratory muscle adjustments, phonation and resonant, as well as alterations in inefficient vocal learned behaviors throughout life. Thus, the success of the vocal therapy depends largely on the patient's adherence to the guidelines and procedures indicated by the speech language pathologist and / or physician, and readiness to modify certain behaviors that contributed to the genesis and / or maintenance of dysphonia^(4,5).

Although it is one of the most important aspects of vocal rehabilitation, and key to its success, there are few studies addressing adherence to voice therapy and its associated factors⁽⁴⁻⁸⁾.

In the health area, in general, there are theoretical models that support the study of multifactorial aspects that are related to patient adherence to therapy, including the Theory of Reasoned Action⁽⁹⁾, Health Belief Model⁽¹⁰⁾, Health Applications of Social Cognitive Theory⁽¹¹⁾ and the Transtheoretical Model (TTM)⁽¹²⁾.

TTM investigates the readiness to change from motivational stages⁽¹³⁾. The readiness to change concept refers to the integration of awareness of individuals about their problem and confidence in their ability to change. Thus, the readiness is associated with events that occur at each stage, working as indicators for health professionals, working as indicators for health professionals, stimulating the implementation of new intervention strategies according to the characteristics presented by the patient^(14,15).

The TTM identify five stages of readiness to change behavior and / or motivational stages: pre-contemplation, contemplation, preparation, action and maintenance. In the first stage, the pre-contemplation, individuals show no intention of evidence to change the problem behavior, hardly looking for help at this stage or when they do, they are driven by external motivations. In the second stage, contemplation, the individual begins to consider the possibility of change, starting reflection on the implications of their behavior for themselves and for those around them, but has not yet set a deadline for initiating change. In the third, the decision or preparation, is intended to implement the behavior change in the near future. In the fourth, the action, the fact that individual starts changing the target behavior, applying their efforts in this change. In the last stage, maintenance, individual changes and stabilized its target behavior, avoiding relapse. The individual does not necessarily goes through these stages in a linear fashion, and may progress or regress during their stage changes⁽¹⁶⁾.

The assessment of the readiness to change is considered an important aspect in selecting the most appropriate intervention

for the patient, regardless of treatment used⁽¹⁶⁾. Using the best strategy facilitates patient mobilization for behavior change, moving towards stages of readiness⁽¹⁷⁾.

One of the instruments used to measure the stages of readiness to change is the University of Rhode Island Change Assessment (URICA)⁽¹⁸⁾. The URICA scale is based on the TTM stages of change, in the case of a measurement scale and self-report. Initially, this school was created to analyze the stages of smokers readiness to change, although, at present, its use have been understood to several other conditions involving changing a problem behavior.

In Brazil, URICA scale was adapted to check the stages of readiness to change in patients with voice disorders undergoing voice therapy, being named URICA-VOICE⁽¹⁹⁾. It has 4 of the 5 stages of the original URICA instrument, suppressing the decision stage.

In this research, we assume the hypothesis that the readiness for behavior change of dysphonia patient is influenced by their perception of the impact of voice problem⁽⁶⁾, which can be analyzed from different instruments of self-evaluation. These instruments make it possible to evaluate the magnitude of the voice disorder from the patient's experience with the use of voice in their daily activities, estimating the impact on quality of life, experienced voice handicap or frequency of reported vocal symptoms⁽²⁰⁻²³⁾.

Thus, considering the magnitude of the voice issue from the patient's point of view, can be one of the main factors responsible for the readiness to change and, consequently, to join the vocal therapy^(6,7), this study aimed to investigate whether there is an association between vocal self-assessment and the stage of readiness to change in patients with voice disorders.

METHODS

This is a descriptive, observational and cross-sectional study. This study was approved by the Ethics Committee of the UFPB (Universidade Federal da Paraíba) under Opinion No. 52492/12. All participants signed an Informed Consent Form, authorizing the use of data for research purposes.

A total of 151 volunteers participated in this study, 95 women and 56 men, with a mean age of 40.19 ± 16.56 years, population of patients with vocal complaints who underwent screening in the Integrated Laboratory of Voice Studies (LIEV) Department of Speech Language Pathology of UFPB from August 2012 to March 2013, with the inclusion criteria: own diagnosis of voice disorder, with voice complaints and larynx report, and aged between 18 and 65 years. The following exclusion criteria were considered: presence of hearing complaints and neurological or cognitive problems that would prevent the application of self-assessment protocols.

The group of patients included 41 (27.1%) subjects with normal laryngeal condition, 32 (21.2%) patients with nodules on the vocal folds, 14 (9.3%) individuals with middle-posterior triangular glottis (dysphonia due to primary muscle tension),

13 (8.6%) patients with vocal polyp, 13 (8.6%) with unilateral vocal fold immobility, 12 (7.9%) with vocal cysts, 12 (7.9%) with secondary speech disorder gastroesophageal reflux (Hyperemia of vocal folds and retrocricoid region), 11 (7.3%) with vocals and groove 3 (2.0%) with Reinke's edema.

All patients had otolaryngologist report based on the laryngeal image, presented at the time of vocal screening.

To investigate data on self-vocal assessment applied the protocol Voice-Related Quality of Life (V-RQOL), the Vocal Handicap Index (VHI) and the Voice Symptom Scale (VoiSS) To identify the stage of readiness to change, applied the instrument University of Rhode Island Change Assessment (URICA) adapted to the voice area (URICA-VOICE). The collection session was held at the time of initial evaluation of the patient prior to any intervention procedure itself.

The adapted version of URICA-VOICE presents 32 items, with questions relating to the pre-contemplation stage (PC), contemplation (C), action (A) and maintenance (M)⁽¹⁹⁾. In each item, patients have the possibility to score on a Likert scale of five points between "disagree" and "strongly agree". The scores on the readiness to change are obtained from the following formula: (C Average + A Average + M Average) - PC Average. For categorization of patients in stages of readiness to change we used the following scores: ≤ 8 , pre-contemplation; between 8.1 and 11, contemplation; 11.1 to 14, action; and ≥ 14.1 , maintenance stage.

V-RQOL⁽²⁰⁾ was developed specifically to evaluate the impact voice problem in quality of life. It has 10 items, with a total score and two areas: socio-emotional and physical functioning.

VHI⁽²¹⁾, questionnaire also validated for Portuguese, aims to analyze the disadvantage perceived by the patient as a result of voice alteration. It contains 30 questions with a total score and three domains: emotional, functional and organic.

VoiSS⁽²²⁾ is considered the most rigorous and psychometrically robust instrument for vocal self-assessment, specifying feature information, emotional impact and physical symptoms that a voice problem may result in an individual's life. It is divided into three subscales: limitation, emotional and physical.

All data used in this research, including sociodemographic information (sex and age), the self-assessment protocols, URICA-VOICE and laryngeal diagnosis were collected from the patients' medical records, filed in the laboratory where the vocal screening was performed.

We conducted a descriptive statistical analysis for all variables, using the mean and standard deviation values. Inferential statistical analysis was used, studying the correlation between the score of URICA-VOICE and scores VoiSS, V-RQOL and VHI, through the Spearman correlation test. Also we conducted an analysis of variance (ANOVA) to compare the scores of VoiSS, V-RQOL and VHI depending on the stages of readiness to change patients obtained through the URICA-VOICE. When there was a statistically significant difference between the groups, there was post-hoc analysis using the Tukey test.

In this research, to classify the correlation coefficients between the variables, it adopted that values from 0.1 to 0.3 represent weak correlation; between 0.4 and 0.6, moderate correlation; and above 0.7, strong correlation.

All analyzes were performed using the *software* Statistical Package for Social Sciences (SPSS), version 20.0. The significance level was 5%.

RESULTS

Initially, patients were categorized as to the stage of readiness to change that at the time the vocal screening, noting that most of the patients were in the contemplation stage (Table 1).

Subsequently, it performed the Spearman correlation test between the scores of URICA-VOICE and the scores of self-assessment instruments (V-RQOL, VHI and VoiSS), observing weak correlation between these scores (Table 2).

When comparing the means of self-assessment instruments according to the motivational stages, only the score of the social-emotional domain V-RQOL and emotional VoiSS area showed differences between the groups (Table 3). The post hoc analysis showed that patients in the contemplation stage have lower scores in the emotional field of quality of life in voice protocol ($p = 0.034$) and higher score in the emotional field of VoiSS ($p = 0.040$) than patients in the pre-contemplation stage.

Table 1. Frequencies on pre-contemplation, contemplation, action and maintenance stages of URICA-VOICE

Stage	n	%
Pre-contemplation	22	14.6
Contemplation	115	76.2
Action	14	9.3
Maintenance	0	0
Total	151	100

Table 2. Correlation between the URICA-VOICE score and the V-RQOL, VHI and VoiSS scores in each domain

VARIABLES	URICA-VOICE - score	
	Pearson Correlation	P-value
V-RQOL-T	-0.217	0.008*
V-RQOL-SE	-0.271	0.001*
V-RQOL-F	-0.150	0.067
VHI-T	0.209	0.010*
VHI-E	0.206	0.011*
VHI-FN	0.194	0.017*
VHI-O	0.134	0.100
VoiSS-T	0.197	0.016*
VoiSS-L	0.177	0.030*
VoiSS-E	0.162	0.048*
VoiSS-F	0.037	0.650

*Significant values ($p < 0.05$) - Pearson Correlation test

Caption: V-RQOL = Quality of Life in Voice; VHI = Vocal Handicap Index; VoiSS = Voice Symptom Scale; T = total; P = Physical; E = emotional; O = organic; L = limitation; FN = functional

Table 3. Comparison of average score in each domain of V-RQOL, VHI and VoiSS compared to the stage of readiness to change in the URICA-VOICE

Variables	Pre-contemplation		Contemplation		Action		P-value
	Average	SD	Average	SD	Average	SD	
V-RQOL-T	72.68	±20.39	63.45	±24.12	57.71	±29.30	0.145
V-RQOL-F	66.41	±24.15	57.97	±26.63	61.07	±28.13	0.363
V-RQOL-SE	85.68	±14.62	69.23	±25.93	61.21	±30	0.007*
VHI-T	32.5	±17.64	44.6	±29.12	50.71	±33.19	0.527
VHI-E	9	±7.6	13.09	±10.90	16.07	±11.85	0.121
VHI-FN	8.05	±5.71	12.18	±10.56	14	±11.57	0.143
VHI-O	15.64	±8.5	19.72	±10.46	19.36	±11.029	0.219
VoiSS-T	35.05	±20.15	44.99	±24.76	49	±27.50	0.127
VoiSS-L	20.09	±15.21	23.88	±15.87	27.71	±18.58	0.370
VoiSS-E	14.68	±13.23	19.32	±18.93	17.29	±16.749	0.020*
VoiSS-P	14.68	±13.24	19.32	±18.93	17.29	±16.74	0.527

*Significant values ($p < 0.05$) – ANOVA

Caption: V-RQOL = Quality of Life in Voice; VHI = Vocal Handicap Index; VoiSS = Voice Symptom Scale; T = total; P = Physical; E = emotional; O = organic; L = limitation; FN = functional

DISCUSSION

Vocal therapy requires the patient's adherence to the procedures and guidelines and indicated readiness to modify the vocal behaviors associated with speech disorder. Some studies^(5,6,23) revealed that there is a high number of abandoned vocal therapy adherence difficulties.

Whereas readiness to change is one of the main determinants of adherence to treatment, this research, which was proposed to analyze whether there was an association between vocal self-assessment and readiness to change in dysphonic patients, noted that most of the patients were in the contemplation stage (76.2%), followed by the pre-contemplation stage (14.6%) and action (9.3%), highlighting none of them was in the maintenance stage (Table 1).

The absence of patients in maintenance stage found in this study can be justified by the cross characteristic of research and the fact that patients are addressed in vocal screening section, prior to any therapeutic procedure itself. Considering that the maintenance stage, patients already have modified and stabilized the generator vocal behavior or maintainer of vocal disorder⁽¹⁶⁾, prevent the absence of patients at this stage the design collection of the survey, which addressed patients at the time of screening.

A recent study of 68 subjects, found that the majority (38%) of patients in vocal therapy research participants also was in the contemplation stage⁽¹⁹⁾. Possibly, patients come to the clinic at this stage of motivation does not realize the need to change your voice related to behavior. As the indication for vocal therapy is recommended, often by the doctor, the patient only suits your recommendations, or is driven by external motivation, without necessarily understand the process that caused his vocal and without understanding this process change, not recognizing also the need to change.

In the contemplation stage, the individual has some knowledge about your issue, consider the possibility of change, reflecting on the implications of their behavior the origin and persistence of the problem, which creates an ambivalent situation between the

internal gains from change and the effort and discipline employed in it^(15,16). Overall, this is the stage in which patients spend more time, either linearly or stepwise regression⁽¹⁶⁾. So it's common to find most people at this stage in cross-sectional surveys⁽¹⁶⁾.

Thus, in the contemplation stage, the therapist must be ready to help the patient solve the ambivalence between behavioral factors contributing to the genesis and maintenance of voice disorder and the need for adherence to guidelines and implementation of exercises outside the therapeutic environment, leading to reflection on the reasons for not performing the requested behavior, including reflection on the employee effort and gains in the use of voice in their different purposes.

The knowledge stage of readiness to change the patient at the start of therapy can help the therapist in the direction of approaches, procedures and strategies to be taken, according to the needs of each patient. Many treatments can fail because they are designed for patients who are in the action stage, which is not the reality of most patients in the early stages of treatment⁽¹²⁾.

Data vocal evaluation, including information on the characteristics and prognosis of laryngeal condition, the intensity and the type of vocal quality deviation as well as the patient's perception as the disadvantages of voice disorder and for their impact on quality of life can be used to make them aware about the need for their effective participation in the therapeutic process, to change the habits related to the use of voice and perform the exercises in the environment outside the clinical setting.

In particular, study the association between vocal self-assessment and the stages of readiness to change in patients with voice disorders may contribute to understanding the relationship between the perception that the patient has of your problem and its adherence to voice therapy⁽¹⁾.

Vocal self-assessment tools can be used to quantify the impact of voice disorder in the patient's life, contributing to the clinical decision making and for monitoring the progress of patients during treatment⁽²¹⁾. Considering that the perception of the intensity of the disease is considered the main cause of abandonment of therapy⁽⁶⁾, the hypothesis in this study is that

the data from the self-assessment can be considered strong predictors of the patient's motivation for voice therapy.

In this research, it was observed that there is a weak correlation between the data from self-assessment tools (V-RQOL, VHI and VoiSS) and the score URICA-VOICE (Table 2). However, when it carried out the comparison of the mean scores of self-assessment tools in patients allocated to different motivational stages, it was observed that patients in the contemplation stage have worse quality of life in voice in the social-emotional domain and more vocal symptoms in the emotional domain compared to patients in the pre-contemplation stage (Table 3).

Other studies^(5,6,24) investigated the relationship between the scores of the VHI and adherence to voice therapy, noting that the VHI average score was not predictive of patient compliance. However, these studies did not use any instrument to investigate the stage of readiness to change, but analyzed the abandonment of therapy and the causes of this abandonment, inferring patient compliance from this information.

In the present study, we found a weak correlation between the scores of the VHI and the readiness to change (Table 2), with no differences in average scores in these patients located in different stages of readiness (Table 3).

A study including teachers⁽⁷⁾ showed opposite results, noting that the higher the score of quality of life, less adherent to voice therapy was in the patient. It may be noted that the quality of life involves multiple factors, including the type of work and social life of the individual⁽²³⁾. Thus, the relationship found between assessment and treatment compliance among teachers permeates aspects directly related to other conditions that affect the quality of life of these professionals, including organizational factors and working conditions.

In this research, the variable "professional use of voice" was not considered for analysis, since the focus of the work was the association between vocal self-assessment and readiness to change in dysphonic patients. However, in the original work of URICA-VOICE validation in Brazil⁽¹⁹⁾, the authors found an association between the variable profession and stages of readiness, with the most professional users of voice patients in the stages of pre-contemplation and contemplation. These authors point out that this finding should be evaluated with caution since, for the professional voice, the voice problem can produce different impact and influence on their readiness to change.

Thus, we suggested carrying out new studies comparing the relationship between vocal self-assessment and stage of readiness to change of patients who make professional use of voice to those who do not, checking the existence of differences in the relationship between the two groups.

As for the relationship between the VoiSS and the stage of readiness to change (Table 2), it must be assumed that the patient's complaint is that guide for the entire therapeutic process. Generally, the patient's complaint is manifested by the presence of vocal symptoms, either sensory and / or alteration of phonation. Most of the time is the perception of this problem that leads patients to seek specialized care.

The emotional field of self-assessment instruments refers to the presence of negative feelings associated with vocal production, relating to conditions such as depression, stress, embarrassment, incompetence, among others, experienced by the patient according to their voice problem⁽²⁵⁾. Thus, based on the study findings, both within the VES as V-RQOL (Tables 2 and 3), it can be inferred that patients with voice disorder that self-report greater impact of voice problems in the emotional sphere show greater readiness to change than those who experience less emotional impact of voice problem.

The emotional score of the self-assessment protocols highlights the emotional responses of the patient in relation to his voice problem, assuming that this may result from physical, functional and emotional consequences for the individual^(1,2,25). Thus, this study observed that most reference negative feelings associated with voice production in patients with dysphonia seems to be one of the main factors associated with readiness to change in vocal therapy.

A study⁽²⁶⁾ found that emotional disorders can cause voice disorders such as acute or more breaks in the voice frequency, and shallow breathing, increased muscle tension, vocabulary restriction dysfluency, physical discomfort and tremors. In turn, oral problems can be both triggers as maintainers of emotional disorders.

Self-assessment measures that analyze the impact of voice disorder in the patient's life are used often to determine the type and effectiveness of treatment offered, since they are more useful than objective measures and the perceptual analysis to characterize the intensity of voice changes of the patient's point of view⁽¹⁾. With the data of this study, although it was found a weak relationship between the scores of self-assessment instruments and readiness to change, shown that the perception of the voice problem impact, affects the readiness to change. Studies investigating the association of pre longitudinally and post-intervention should be encouraged, increasing the understanding of this relationship in both situations.

The perception of the impact of vocal disorder seems independent factors as the perception of vocal deviation identified by the audiologist and laryngeal diagnosis made by the doctor. In turn, the perception seems to reflect more faithfully the patient's condition⁽²⁷⁾, which justifies the association between how the patient evaluates the impact of vocal disorders and their willingness to perform the treatment.

Thus, self-assessment tools, such as VHI, V-RQOL and VoiSS can be used in vocal therapy to drive the patient's reflection on the impact of voice disorder over their everyday communication, focused on socio-emotional aspects, and possible benefits of voice therapy to minimize this impact. The use of this information can contribute to improved patient adherence to recommendations made in vocal therapy, especially for those who are in the stages of pre-contemplation and contemplation, giving them the opportunity to resolve the ambivalence about the vocal behavior and facilitating their passage to the stage of action and maintenance.

Including, one of the premises of Transtheoretical Model, the theory underlying the URICA-VOICE to generate motivation and patient compliance is to make himself argued in favor of the benefits of change, since individuals have greater commitment to actions they will defend⁽¹²⁾. Thus, the information reported by patients in the self-assessment tools, in terms of impact on quality of life, disadvantage and / or frequency of vocal symptoms, can be used to generate reflections about the possible patient gains with adherence to treatment, which includes following the guidelines and the exercises.

Thus, besides the importance of VHI, V-RQOL and VoiSS in the decision-making process and monitoring the patient during treatment, they can be used as a therapeutic strategy, raising awareness and mobilizing the patient to change of vocal behavior. This strategy turn the patient more active in the vocal rehabilitation process to establish a relationship between the voice disorder, the benefits of treatment and the consequences of compliance with clinician recommendations and daily life.

Data from this study point to a relationship between vocal self-assessment and readiness to change. However, it is suggested to perform longitudinal studies to understand the relationship between the impact of voice disorders and stages of readiness along the vocal therapy.

CONCLUSION

There was an association between vocal self-assessment and stage of readiness to change of dysphonic patients. Patients who have a worse quality of life in the social-emotional domain voice and higher frequency of vocal symptoms in the emotional score show greater readiness to change in vocal therapy.

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Author contributions

All authors (LWL and EGV) contributed in the elaboration and development of this study. LWL participated in the data collection, statistical analysis and results, and final revision of the manuscript; EGV participated in the collection and tabulation of data and analysis of results.