The use of the URICA-VOICE questionnaire to identify the stages of adherence to voice treatment

Escala URICA-VOZ para identificação de estágios de adesão ao tratamento de voz

Letícia Caldas Teixeira[1]
Ana Luíza Vilar Rodrigues[2]
Áudrea Fernanda Girundi da Silva[2]
Renata Azevedo[3]
Ana Cristina Côrtes Gama[1]
Mara Behlau[4]

ABSTRACT

Purpose: To adapt the URICA questionnaire to assess the motivational stages of patients undergoing voice treatment, and to determine the association between these stages with age, type of dysphonia, level of education, profession, and number of voice therapy sessions. **Methods:** A cross-sectional study design was employed, using a convenience sample composed of 66 dysphonic patients – 58 women and eight men – aged from 18 to 68 years, who were enrolled in outpatient care at two federal universities. As an exploratory tool, the URICA questionnaire was adapted to the area of voice, based on specific situations related to vocal behaviors. This questionnaire was named URICA-VOICE. It was administered individually and subjected to analyses. **Results:** Most patients, 38 (57.6%), were in the contemplation stage, 20 (30.3%) were in the pre-contemplation, and only eight (12.1%) in the action stage, which is ideal to voice therapy. There was no association between adherence stages and the variables age, type of dysphonia, level of education, and number of voice therapy sessions. The variable profession was associated with the action stage of the URICA-VOICE. **Conclusion:** The URICA-VOICE showed that most dysphonic patients undergoing treatment are still in the contemplation stage, which may limit therapy outcomes. There was no relationship between the other variables and the adherence stages of the URICA-VOICE questionnaire.

RESUMO

Objetivos: Adaptar a escala URICA à avaliação dos estágios de mudança para a adesão de pacientes em tratamentos de voz; e verificar a relação destes com a idade do paciente, o tipo de disfonia, a escolaridade, a profissão e o número de sessões de fonoterapia. **Métodos:** Estudo transversal, com amostra de conveniência, composta por 66 pacientes com disfonia, sendo 58 mulheres e oito homens, com idade entre 18 e 65 anos, atendidos em dois ambulatórios de instituições de ensino de Fonoaudiologia. Como instrumento exploratório, procedeu-se à adaptação brasileira da escala URICA para a área de voz, tendo como base situações específicas relacionadas ao comportamento vocal, denominada URICA-VOZ. O instrumento foi aplicado individualmente e as variáveis foram relacionadas. **Resultados:** A maioria dos pacientes, 38 (57,6%), concentrou-se no estágio de contemplação, 20 (30,3%) no de pré-contemplação e apenas oito (12,1%) no de ação, ideal para a terapia fonoaudiológica. Não houve associação entre os estágios de adesão com as variáveis idade, tipo de disfonia, escolaridade e número de sessões de fonoterapia. A variável profissão apresentou associação com o estágio de ação URICA-VOZ. **Conclusão:** O uso da escala URICA-VOZ revelou que a maioria dos pacientes com disfonia em tratamento ainda se encontra no estágio de contemplação, o que pode restringir os resultados da terapia. Não houve relação entre as demais variáveis estudadas e os estágios de adesão do protocolo URICA-VOZ.

Correspondence address:
Letícia Caldas Teixeira
R. Grão Mogol, 689, Carmo
Belo Horizonte (MG), Brazil
CEP: 30310-010.
E-mail: lcaldas4@gmail.com

INTRODUCTION

Within medicine, research on adherence across disciplines is evolving. There are diverse studies and protocols developed to assess adherence in health care, such as Physical Therapy[1], Nutrition[2] and Clinical Medicine[3]. In Speech-Language Pathology, however, especially with regard to the treatment of voice disorders, there is a lack of these types of studies[4,5], potentially related to voice therapy as a longitudinal treatment that facilitates changes and/or the elimination of harmful or abusive vocal behaviours, with active participation from the patient. It is, therefore, critical to create and refine investigative tools to elucidate the relevant components of related to adherence in voice therapy.

A recent study that evaluated two methods of voice therapy to treat patients with vocal nodules reinforced this concept by determining that adherence to treatment had a greater impact on the outcome of therapy than the actual type of therapy employed. Furthermore, these results suggested that patients who were considered adherent to therapy benefited to a greater extent than non-adherent patients[6].

Adherence, however, is multi-factorial and may be related to both internal and external patient factors[7,8], such as age, sex, duration of therapy and the need for changes in patient lifestyle as a component of treatment[9,10].

To explore aspects related to adherence, some theoretical models have been proposed, including the Theory of Reasoned Action, Health Belief Model, Health applications of Social Cognitive Theory[5], and the Transtheoretical Model (MTT), developed by Prochaska and DiClemente in 1982 to explain the self-perception of the stage of readiness of patients for health treatment[11]. The MTT has been employed as a guide for the development of interventions that involve behavioral changes in health that occur in stages, and not acutely or as a single event[11].

The empirically-defined stages are referred to as: pre-contemplation – the subject does not realize that there is a problem to be faced; contemplation – the subject seriously considers the possibility of addressing the problem, but no effective effort has been made to that end; action – attempts to change are evident; and maintenance – no relapses have been noted and ongoing effort by the subject[11-13].

With the support of MTT, the University of Rhode Island Change Assessment- (URICA) was developed and to measure the dimensions of readiness for change in individuals undergoing health treatments[8]. We hypothesize that the transtheoretical model of behavioral change (MTT) could be quite useful in voice, since most voice problems depend on the patient's ability to perform behavioral change, and require their readiness to initiate this process. Although this model has not yet been applied in the area of voice, the authors highlight that it can be quite useful for voice therapy[5].

The possibility to employing the MTT for vocal therapy prompted adjustments the scale specific to voice. However, in the current study, we do not propose to validate this instrument. Instead, we seek to employ the URICA-VOICE to map the stages of self-perceived adherence by patients in treatment. Furthermore, we seek to confirm the utility of such an instrument for patients undergoing treatment for voice disorders. Specifically, we sought to adapt the URICA scale to assess the stages of readiness of patients for adherence in voice treatment, accounting for other variables including patient age, type of dysphonia, education, profession and number of speech therapy sessions.

METHODS

Subjects were invited to participate in the current study; all invitees (n=80) were patients who were receiving voice therapy at the University Hospitals of two institutions in the Departments of Speech-Language Pathology and Audiology: Speech-Language Pathology and Audiology Outpatient Clinic of the Hospital of the Universidade Federal de Minas Gerais (UFMG), and Speech-Language Pathology and Audiology Outpatient Clinic of the Hospital São Paulo, Universidade Federal de São Paulo (UNIFESP), from March to June, 2010.

The final sample consisted of 66 patients; 14 (20%) refused to participate. A sampling error of 5% and a confidence level of 95% were established based on this sample size. Participants were between 18 and 68 years of age (mean=42.27, median=41.00). Regarding gender, 58 (87.9%) were women, while 8 (12.1%) were men. Education level varied; most were graduates (52, 78.8%). Regarding occupation, 48 (72.7%) were classified as professional voice users. The number of speech therapy sessions completed by the participants varied from 1 to 49 (mean=12.06, median=10.0). Sixty patients (90.9%) had behavioral dysphonia and 6 (9.1%) presented with non-behavioral dysphonia.

Regarding inclusion criteria, we considered all patients diagnosed with dysphonia who were initiating therapy at least one week after the initial assessment to be candidates. None of the participants in this study were receiving treatment from any of the authors of this study. Therefore, subjects had no direct contact with the researchers. Also, no patient reported any difficulties comprehending the questionnaire.

The experimental paradigm consisted of two phases. First, records were analyzed to determine sex, age, type of dysphonia, education, profession and the number of speech therapy sessions. Second, the scale was administered to map self-perception of the stages of adherence of the dysphonic patients to voice therapy.

Education was divided into: graduates – basic education complete; and non-graduates – incomplete elementary/high school. Subjects were further delineated as professional voice users or not, according to their professions and whether they used their voices as a tool for work[14,15]. Type of dysphonia was classified as: behavioral – based on the result of vocal behavior; and non-behavioral – based on a structural alteration independent of vocal behavior.

The URICA scale, widely used in research to evaluate the self-perception of adherence in health care[11,12,16] was adapted by five voice experts for the use in patients with voice disorders, taking into account aspects of both behavior and vocal use. Original versions of the URICA scale contained 12, 24 and 32 items. The version used for adaptation in the current study

contained 32 items and was selected; this version was thought to be the most complete and most appropriate for the initial studies on adherence to voice therapy. In this version, items are divided into four groups of eight states, corresponding to the four stages of change: pre-contemplation, contemplation, action, and maintenance[13]. The questions relating to each of these stages are as follows: pre-contemplation – 1, 5, 11, 13, 23, 26, 29 and 31; contemplation – 2, 4, 8, 12, 15, 19, 21 and 24; action – 3, 7, 10, 14, 17, 20, 25 and 30; and maintenance – 6, 9, 16, 18, 22, 27, 28 and 32. For each item, responses are presented in a Likert-type scale with five points in which the subject can choose from "strongly disagree", "disagree", "do not know", "agree" and "strongly agree".

The title, "URICA" was maintained and the term "VOICE" was added, since its construction was based on the URICA scale model and its objective was to verify aspects related to voice (Appendix 1). This adaptation was performed with the knowledge and permission of the authors of the original instrument.

Two audiologists, both fluent in English, independently translated the original scale into Portuguese. After discussing the translations, a single version was constructed and subjected to comparison with the original English version, enhanced with the relative aspects of voice. The Portuguese version was then subjected to separate analyses by a third speech pathologist to ensure comprehension of the document and subsequently making minor adjustments.

During the translation, the conceptual reference of each statement was maintained to ensure that their the adaptation did not compromise the integrity of the scale with regard to the specific stage to which it was originally referred. Thus, for example, Question 1, which in the original scale was "I do not have any problems that need changing" (corresponding to the stage of adherence of pre-contemplation), was translated and adapted the URICA-VOICE as "I believe I do not have to change my voice." Also, for example, Question 30, originally stated "I am actively working on my problem" (action), was translated as the URICA-VOICE: "I am working actively to solve my voice problem."

A pilot version was then administered by two authors of this study to ten patients with various types of dysphonia for validation of content of the statements. Beside each of the statements, it was possible to answer "Not Applicable" if the patient considered the statement inadequate in relation to their voice problem. No subject selected this possibility. Thus, all statements were considered applicable and no question needed to be reworded or eliminated. On average, patients spent 3-5 minutes to complete the questionnaire.

Regarding the calculation of URICA scores, the scale proposed by the Healthy and Addictive Behaviors: Investigating Transtheorical Solutions (HABITS), University of Maryland, Baltimore County[13] was employed. This analysis has been used in other publications[12,13], including the Brazilian adaptation of the scale for the analysis of users of illicit drugs[12]. According to the HABITS manual, a simple average of the scores for each statement corresponding to the stage of change, excluding questions 4, 9, 20, 1 and 31, which are not included in the calculations is described.

The score related to Readiness For Change has been shown to predict the outcome of treatment, at the initiation of which, it is identified whether or not the individual is in an appropriate stage to be subjected to the proposed intervention. Thus, each stage is represented by the average of seven questions. To obtain a score of Readiness For Change, the following formula is employed: (Average of C + Average of A + Average of M) - Average of PC. That is, the sum of the average of the results of the stages of contemplation (C), the action (A) and maintenance (M), minus the average value from the stage of pre-contemplation (PC). A descriptor of the numeric scores is presented below:
- 8 or less – pre-contemplation;
- 8-11 – contemplation;
- 11-14 – individuals who are prepared for an attitude of action before the problem[13].

Statistical analysis was performed using measures of central tendency and dispersion as well as tests of hypotheses at a significance level of 5%. For categorical variables, we applied the chi-square (x^2) test for continuous variables and the ANOVA analysis, using the statistic program SPSS 170.

The current study was approved by the Ethics Committee of the Universidade Federal de São Paulo (UNIFESP) and the Universidade Federal de Minas Gerais (UFMG) (0283/10 and ETIC 603/09). All subjects who agreed to participate in the study provided informed consent (ICF).

RESULTS

Regarding the stages described by the URICA-VOICE (Table 1), 38 patients (57.6%) were in the contemplation stage, 20 (30.3%) in the pre-contemplation stage, and eight (12.1%) in the action stage. No patient was on maintenance stage.

Table 1. Self-perception of adherence to voice treatment

Stage	n	%
PC	20	30.3
C	38	57.6
A	8	12.1
M	0	0
Total	66	100

Note: PC = pre-contemplation; C = contemplation; A = action; M = maintenance

In the pre-contemplation stage, 16 subjects (80.0%) were graduates and four (20.0%) were not. In the contemplation stage, 32 subjects (84.2%) were graduates and six (15.8%) were not. And in the action stage, four subjects (50.0%) were graduates and four (50%) were not (Table 2). No differences between education and the stages of adherence were observed.

In the pre-contemplation stage, 17 subjects (85%) were professional voice users and three (15.0%) were not. In the contemplation stage, 30 (78.9%) subjects were professional voice users and eight (21.1%) were not. In the action stage, one patient (12.5%) was a professional voice user and seven

Table 2. Association of URICA-VOICE with categorical variables

Categorical variables	PC n (%)	C n (%)	A n (%)	p-value
Education				
Graduates	16 (80)	32 (84.2)	4 (50)	0.098
Non-graduates	4 (20)	6 (15.8)	4 (50)	
Profession				
Voice professionals	17 (85)	30 (78.9)	1 (12.5)	0.001*
Non-professionals	3 (15)	8 (21.1)	7 (87.5)	
Speech-language pathology diagnosis				
Behavioral	20 (100)	34 (89.5)	6 (75)	0.224
Non-behavioral	0 (0)	4 (10.5)	2 (25)	

* Significant Values (p<0.05) – Chi-square test
Note: PC = pre-contemplation; C = contemplation; A = action

(87.5%) were not (Table 2). Profession was associated with the action stage of the URICA-VOICE (p<0.001). In the early stages of pre-contemplation and contemplation, most patients were voice professionals. In the action stage, only one patient was a professional voice user.

In the pre-contemplation stage, all 20 subjects (100.0%) had behavioral dysphonia. In the contemplation stage, 34 subjects (89.5%) had behavioral dysphonia and four (10.5%) had non behavioral dysphonia. In the action stage, six subjects (75.0%) had behavioral dysphonia and two (25.0%) had non behavioral dysphonia (Table 2). No differences between the type of dysphonia and the stages of the adherence of the URICA-VOICE (p=0.224) were observed.

In the pre-contemplation stage, the average was 10.10 sessions. In the contemplation stage, the average was 12.89. In the action stage, the average was 13.00 (Table 3). No differences between the number of therapy sessions and stages of adherence (p=0.058) were observed.

In the pre-contemplation stage, the mean age was 42.70 years (SD=11.992). In the contemplation stage, the mean age was 41.97 years (SD=10.729). In the action stage, the mean age was 42.63 years (SD=16.008) (Table 3). No differences between age and the stages of adherence (p=0.972) were observed.

DISCUSSION

Most patients in the current study were in the stages of contemplation and pre-contemplation (Table 1), which largely assumes an attitude of confrontation against the problem. These data suggest that they may not be ideal candidates for changed vocal behavior. Adherence to voice therapy is a challenge for most speech pathologists as the prognosis for success in therapy is largely related to actions of the patient. Thus, work must be done to improve adherence with the goal of enhanced therapeutic outcomes. Related to these findings, it appears that among patients undergoing voice treatment, two types of behavior exist: an awareness of the possibility for behavioral change and the associated benefits of this change and or the

Table 3. Association of URICA-VOICE with continuous variables

Stage	n	M	DP	p-value
Number of sessions				
PC	20	10.10	7.840	
C	38	12.89	10.790	0.0580
A	8	13.00	11.071	
Total	66	12.06	9.957	
Age				
PC	20	42.70	11.992	
C	38	41.97	10.729	0.972
A	8	42.63	16.008	
Total	66	42.27	11.631	

ANOVA (p<0.05)
Note: PC =pre-contemplation; C = contemplation; A = action; M = mean; SD = standard deviation

benefits of this change, and awareness of the possibility for change, but the conscious decision to not participate in that change potential due to dysphonia not being considered a serious illness, like cancer[5].

Only eight subjects in this study perceived themselves to be in the action stage, in which the patient acts to do something to change behaviors related to voice. In this stage, patients employ therapy sessions to review vocal exercises and discuss with the therapist the difficulties they find in the adaptation of new behaviors beneficial for the voice[5]. The current data confirm that most patients did not initiate an action to truly change behavior.

None of the subjects were in the maintenance stage, characterized by the existence of all efforts to prevent a relapse to previous patterns and consolidate therapeutic gains[12]. In this category, patients should be able to habituate vocal health and behaviors favorable to vocal health. Being able to control an

episode of dysphonia and protect the voice, in this case, are actions that are part of the success of this stage[5].

Regarding education, no significant relationship with regard to the stages of adherence was observed, contrary to previous literature. In this regard, one previous study suggested that subjects with higher education were more adherent to antiretroviral therapy than non-educated patients[17]. Similarly, low literacy has been associated with decreased adherence to therapy[18]. Several remain adamant that lower education increases the possibility of non-adherence by the patient[19,20]. A recent survey showed that high educational level in parents positively influenced speech therapy performed for their children. These data suggest that education may be correlated with treatment adherence, in that low education may hinder the understanding of what is proposed and serve as an impediment to treatment[21]. In the current study, there was no relationship between education and adherence; this contrary findings warrants further investigation.

We evaluated the significance of patient profession with regard to adherence (Table 2), since the large percentage of professional voice patients may have influenced the results. Future studies that control this variable in the sample population are necessary to further understand the true impact on adherence. However, it should be noted that profession must be analyzed carefully in such studies involving voice therapy since voice professionals rely on voice as a work instrument[14,15]. Current data suggest that the requirements of behavioral changes are most evident among professional voice users, because they may have a different relationship with the voice when compared to non-professionals. In this population, a relatively small vocal problem can yield a great impact on their lives[22,23] and, therefore, the stages of adherence may shift significantly.

Regarding the type of dysphonia, there was no difference with regard to the stages of the adherence (Table 2). The literature suggest that change of behavior recommended for cases of behavioral dysphonia may compromise the effectiveness of voice therapy, because the result is dependent on adherence to treatment recommendations, and not necessarily the method applied[14]. Another issue worth mentioning is that outpatient public services are currently experiencing a shortage of material resources, and voice recordings are often done only at the time of assessment or on patient demand, which may affect the perception of improvement by the patient during the therapy process. Motivation may be limited due to the lack of incentives, which would be, under ideal conditions, a valuable resource to encourage the patient. In a study on factors that affect adherence to voice therapy, it was found that better adherence occurs in patients who perceive effectiveness of treatment. However, even the patients in the current study reported that voice therapy is a process that requires commitment, a self-regulatory attitude and a good relationship between the therapist and the patient[4].

Research on two treatment methods for vocal nodules showed that adherence to treatment has greater impact on results than the actual type of therapy employed[6]. These data suggest that treatment of voice requires effort from the patient to change behaviors and to maintain new vocal patterns acquired during

therapy, which may be a factor limiting adherence to vocal therapy much more than the type of dysphonia.

Data in Table 3 show no relationship between the number of therapy sessions and stages of adherence. According to the literature, the duration of therapy for dysphonia ranged four and a half months to twelve months[24]. In university clinics, voice therapy sessions vary, with an average of six months, approximately 15 sessions. In the Speech-Language Pathology Outpatient Clinic of the UFMG, the duration of vocal therapy is six months, with an average of nineteen sessions[25].

Under the restrictions of the current experimental paradigm, it is unclear if patients evolve to advanced stages of adherence without alterations to their general attitudes regarding treatment. Future research should focus on the utility of the URICA-VOICE longitudinally, with the application of the scale in the beginning, middle and end of therapy, in order to trace the stages of behavioral change of the patient. The authors of the URICA scale point out that, in a course of treatment, subscales of action and maintenance should be used to investigate the involvement of the individual and not the full score of readiness for change, because in this situation the scale is no longer appropriate. The action and maintenance subscales indicate attitudes and activities related to the stages of change, and not the state (status) of the change cycle. Changes in the subscores of the scale are associated with progress in the treatment process and are not linear. Maintenance is directly measured by the questions that comprise this subscale[13].

With regard to age, no statistical differences were observed with regard to adherence (Table 3). In the literature, data regarding the relationship between age and adherence are controversial. In adherence to drug therapy for diabetic patients, it was found that adherence was greater in elderly subjects[26]. Conversely, adherence to antiretroviral therapy was higher in younger subjects[17]. However, data regarding adherence of the elderly to health treatments suggest that age has not been consistently associated with adherence[27].

With regard to voice, one study showed no relation between age and adherence to voice therapy[28]. There are contradictions in the literature about the relation between age and adherence. Cumulatively, these data suggest that children and the elderly may have greater difficulty adhering to treatment as they rely on other people, for example, for transportation to therapy[27]. In adults, greater independence is expected, and must be considered when investigating adherence to treatment.

Several have suggested that motivation is critical for adherence to health treatment. In a recently study of adherence to pharmacological treatment of diabetes mellitus, it was found that motivation has a positive correlation with treatment adherence[29]. Adherence of adolescents in drug addiction treatment emphasizes the importance of motivation for a satisfactory result of the treatment[30]. Therefore, we suggest that further studies should specifically investigate the role of motivation in adherence.

With regard to the instrument, the URICA-VOICE scale was simple to administer. Study participants answered the questions easily. Although the current study did not specifically focus on administration of the scale, subjects took less than five minutes

to complete the instrument. The instrument can be employed clinically in order to track the stages of behavioral change; the URICA-VOICE administered during treatment allows the clinician to address awareness and motivation as a component of vocal treatment. The current study is not without limitations. A larger sample size may provide additional data for the increased understanding of aspects related to adherence in voice therapy. Further research may identify other factors that may be related to adherence to voice therapy, such as the etiology of the voice disorder, degree of dysphonia, perception of disease severity, patient-therapist relationship, type of treatment approach, as well as more subjective factors such as motivation and readiness for behavioral change. We also hope that other studies will advance and validate the URICA-VOICE scale.

CONCLUSION

The URICA-VOICE scale revealed that most patients undergoing treatment for dysphonia were in the contemplation stage, which can restrict the efficacy of therapy. There was no relationship between the variables studied and the stages of the adherence as quantified by the URICA-VOICE.

REFERÊNCIAS

1. Guimarães CQ, Teixeira-Salmela LF, Rocha IC, Bicalho LI, Sabino GS. Fatores associados à adesão ao uso de palmilhas biomecânicas. Rev Bras Fisioter. 2006 Jul-Set;10(3):271-77.
2. Nalin T, Perry IDS, Refosco LF, Oliveira Netto CB, Souza CFM, Vieira TA, et al. Fenilcetonúria no Sistema Único de Saúde: avaliação de adesão ao tratamento em um centro de atendimento no Rio Grande do Sul. Rev HCPA. 2010;30(3):225-32
3. Lunelli RP, Portal VL, Esmério FG, Moraes MA, Souza EN. Patients' with coronary disease' adherence to pharmacological and non-pharmacological therapy. ACTA Paul Enferm. 2009;22(4):367-73
4. Van Leer EV, Connor NP. Patient perceptions of voice therapy adherence. J Voice. 2010 Jul;24(4):458-69.
5. Van Leer EV, Hapner ER, Connor NP. Transtheoretical model of health behavior change applied to voice therapy. J Voice. 2008 Nov;22(6):688-98.
6. Verdolini-Marston K, Burke MK, Lessac A, Glaze L, Caldwell E. Preliminary study of two methods of treatment for laryngeal nodules. J Voice. 1995 Mar;9(1):74-85.
7. Dodd KJ, Taylor NF, Denisenko S, Prasad D. A qualitative analysis of a progressive resistance exercise programme for people with multiple sclerosis. Disabil Rehabil. 2006 Sep 30;28(18):1127-34.
8. McConnaughy EA, Prochaska JO, Velicer WF. Stages of change in psychotherapy: measurement and sample profiles. Psychotherapy: Theory, Research and Pratice. 1983;20(3):368-375.
9. Berhman A, Rutledge J, Hembree A, Sheridan S. Vocal hygiene education, voice production therapy, and the role of patient adherence: a treatment effectiveness study in women with phonotrauma. J Speech Lang and Hear Res. 2008 Apr;51(2):350-66.
10. Silveira LMC, Ribeiro VMB. Grupo de adesão ao tratamento: espaço de "ensinagem" para profissionais de saúde e pacientes. Interface – Comunic, Saúde, Educ. 2004 Set/2005 Fev;9(16):91-104.
11. DiClement CC, Schlundt BSD, Gemmell L. Readiness and stages of change in addiction treatment. Am J Addict. 2004 Mar-Apr;13(2):103-19.
12. Szupszynski KPDR, Oliveira MS. Adaptação brasileira da University of Rhode Island Change Assessment (URICA) para usuários de substâncias ilícitas. Psico-USF. 2008 Jun;13(1):31-9.
13. The HABITS Lab at UMBC. University of Rhode Island Change Assessment Scale: URICA. [Internet]. [cited 2011 may 11]. Available from: http://www.umbc.edu/psyc/habits/content/ttm_measures/urica/index.html
14. Araújo TM, Reis EJFB, Carvalho FM, Porto LA, Reis IC, Andrade JM. Fatores associados a alterações vocais em professoras. Cad Saúde Pública. 2008 Jun;24(6):1229-38.
15. Behlau M, Feijó D, Madazio G, Rehder MI, Azevedo R, Ferreira AE. Voz profissional: aspectos gerais e atuação fonoaudiológica. In: Behlau M (Org.). Voz: O livro do especialista. Rio de Janeiro: Revinter; 2005. vol 2. p.287.
16. Szupszynski KPDR, Oliveira MS. O Modelo Transteórico no tratamento da dependência química. Psicol Teor Prat. 2008 Jun;10(1):162-73.
17. Colombrini MRC, Dela Coleta MF, Lopes MHBM. Fatores de risco para a não adesão ao tratamento com terapia antiretroviral altamente eficaz. Rev Esc Enferm USP. 2008 Set;42(3):490-5.
18. Maragno CAD. Associação entre letramento em saúde e adesão ao tratamento medicamentoso [dissertação]. Rio Grande do Sul: Faculdade de Farmácia da Universidade Federal do Rio Grande do Sul; 2009.
19. Bagattoli RM, Vaisman M, Lima JS, Ward LS. Estudo de adesão ao tratamento do hipotiroidismo. Arq Bras Endocrinol Metab. 2000 Dez;44(6):483-7.
20. Bonolo PF, Ceccato MGB, Acurcio FA, Rocha GM, Guimarães MDC. Compreensão de informações relativas ao tratamento anti-retroviral entre indivíduos infectados pelo HIV. Cad Saúde Pública. 2004 Out;20(5):1388-97.
21. Nascimento IT, Teixeira LC, Zarzar PMPA. Bioética: esclarecimento e Fonoaudiologia. Rev CEFAC. 2009 Mar;11(1):158-65.
22. Murry T, Zschommler A, Prokop J. Voice handicap in singers. J Voice. 2009 May;23(3):376-9.
23. Rosen CA, Murry T, Zinn A, Zullo T, Sonbolian M. Voice handicap index change following treatment of voice disorders. J Voice. 2000 Dec;14(4):619-23.
24. Behlau M, Madazio G, Feijó D, Azevedo R, Gielow I, Rehder MI. Aperfeiçoamento vocal e tratamento fonoaudiológico das disfonias. In: Behlau M (Org). Voz: O livro do especialista. Rio de Janeiro: Revinter; 2005. vol 2. p.409-37.
25. Bassi IB, Assunção AA, Medeiros AM, Menezes LN, Teixeira LC, Gama ACC. Quality of life, self-perceived dysphonia and diagnosed dysphonia through clinical tests in teachers. J Voice. 2011 Mar;25(2):192-201.
26. Gimenes HT, Zanetti ML, Haas VJ. Fatores relacionados à adesão do paciente diabético à terapêutica medicamentosa. Rev Lat Am Enfermagem. 2009 Jan-Fev;17(1):46-51.
27. Almeida HO, Versiani ER, Dias AR, Novaes MRCG, Trindade LMV. Adesão a tratamentos entre idosos. Comun ciên saúde. 2007 Jan-Mar;18(1):57-67.
28. Hapner E, Portone-Maira C, Johns III MM. A study of voice therapy dropout. J Voice. 2009 May;23(3):337-40.
29. Assunção TS, Ursine PGS. Estudo de fatores associados à adesão ao tratamento não farmacológico em portadores de *diabete mellitus* assistidos pelo Programa Saúde da Família, Ventosa, Belo Horizonte. Cien Saude Colet. 2008 Dez;13(2):2189-97.
30. Scaduto AA, Barbieri V. O discurso sobre a adesão de adolescentes ao tratamento de dependência química em uma instituição de saúde pública. Ciênc Saúde Colet. 2009 Abr;14(2):605-14.

Appendix 1. URICA-VOICE scale*

We would like to know your opinion on how you handle your voice. Below. there are 32 written sentences that people write about it. Please read carefully and check how much you agree or disagree with the statements. There is no right or wrong they just reflect different ways of acting.

1. I do not think I have to change my voice	SD	D	DK	A	SA
2. I feel I am ready to improve my voice.	SD	D	DK	A	SA
3. My voice problem bothers me and I am trying to solve it.	SD	D	DK	A	SA
4. I think it is worth taking care of my voice.	SD	D	DK	A	SA
5. I do not have a voice problem. It makes no sense to me to change it	SD	D	DK	A	SA
6. I am worrying about having a new voice problem. so I am looking for help.	SD	D	DK	A	SA
7. Finally I am treating my voice problem.	SD	D	DK	A	SA
8. I think I want to change my voice.	SD	D	DK	A	SA
9. I have had success in treating my voice. but I am not sure if I can maintain it without good help.	SD	D	DK	A	SA
10. Sometimes it is hard to treat my voice. but I am dedicating myself to this.	SD	D	DK	A	SA
11. Voice treatment is a waste of time for me because my voice does not bother me.	SD	D	DK	A	SA
12. I hope to understand better my voice.	SD	D	DK	A	SA
13. I know I have a voice problem.but I do not need to do anything to improve it.	SD	D	DK	A	SA
14. I am dedicated enough to improve my voice problem.	SD	D	DK	A	SA
15. I have a voice problem and I am sure I will solve it.	SD	D	DK	A	SA
16. I am not able to keep my voice good and I want to avoid a new problem .	SD	D	DK	A	SA
17. Even though my voice is not good all the time I am dedicating myself to improve it.	SD	D	DK	A	SA
18. I thought that I after I treated that problem I would get rid of it. but sometimes it still bothers me.	SD	D	DK	A	SA
19. I would like to learn more on how to improve my voice.	SD	D	DK	A	SA
20.I began to treat my voice. but I need more help.	SD	D	DK	A	SA
21. Maybe a speech therapist or a treatment can solve my problem.	SD	D	DK	A	SA
22. I need an incentive to maintain the change in my voice.	SD	D	DK	A	SA
23. Maybe I am responsible for part of my voice problem but not totally responsible.	SD	D	DK	A	SA
24. I am hoping that someone can help me to improve my voice.	SD	D	DK	A	SA
25. I am already doing my part to improve my voice.	SD	D	DK	A	SA
26. All this talk about voice is an annoyance. Why cannot people just forget the problem and live with the voice they have?	SD	D	DK	A	SA
27. I am trying hard not to have a relapse in my voice problem.	SD	D	DK	A	SA

28. It is frustrating. but I feel that my voice is getting worse again.	SD	D	DK	A	SA
29. I care about my voice like everyone else. Why waste time thinking about it?	SD	D	DK	A	SA
30. I'm actively working to solve my voice problem.	SD	D	DK	A	SA
31. I prefer to handle my voice problem than treating it.	SD	D	DK	A	SA
32. After all I did to improve my voice. it still bothers me.	SD	D	DK	A	SA

Note: SD = strongly disagree; D = disagree; DK = don't know ; A = agree; SA = strongly agree
* Translation and adaptation: Teixeira L. Gama AC. Vilar A. Girundi A. Azevedo R. Behlau M. 2010.