Cross-Cultural Adaptation and Validation of the Voice Handicap Index Into Croatian

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Summary: This article presents preliminary results of cultural adaptation and validation of the Croatian version of Voice Handicap Index (VHI). The translated version was completed by 38 subjects with voice disorders and 30 subjects without voice complaints. Compared with the subjects in the control group, subjects with voice disorders had significantly higher average total VHI score and scores in each of the three VHI domains (functional, physical, and emotional). Cronbach alpha for total VHI was .94, and coefficients obtained for the three VHI subscales were as follows: $\alpha = .87$ for functional, $\alpha = .88$ for physical, and $\alpha = .85$ for emotional subscales. Intraclass correlation coefficient estimation was also high, for both total VHI (0.92) and subscales (0.85 for functional subscale, 0.87 for physical subscale, and 0.81 for emotional subscale). The overall VHI score positively correlated with auditory perceived grade of dysphonia. In the group with voice disorders, age was not correlated to the total VHI or the subscales. Also, there was no significant difference between male and female voice subjects in total VHI or the subscales. Preliminary findings of this research indicate that the Croatian VHI could provide a reliable and clinically valid measure of patient's current perception of voice problem and its reflection on the quality of life.

Key Words: VHI–Quality of life–Croatian version.

INTRODUCTION

Contemporary clinical practice has advanced toward comprehensive understanding of treatment outcome as a complex interaction of disease and patients' well-being.[1] Such multidimensional view on the matter created the need to evaluate clinical intervention not only with physical or physiological variables but also by investigating quality-of-life variables, which represent personal experience of the disease and its impact on everyday life. Investigation of the quality of life may reveal information on genesis of the disease and its general and specific mental, social, or professional consequences,[2] thus contributing to the process of making clinical choices and decisions and to the assessment of their efficiency. This holistic concept of clinical evaluation is clearly useful in the field of voice disorders, where instrumental, aerodynamic, and perceptive measures, despite giving detailed description of voice quality, fail to describe handicap caused by its change.[3–9] In other words, because voice is the foundation of human communication and therefore incorporated in every aspect of life through interpersonal interactions, severity of voice disorder cannot be fully expressed just by defining the change in its quality, but only in combination with the description of magnitude of lifestyle changes from the individual perspective. For example, Murry et al[10] found that the nature of consequences of a voice disorder is different for vocal professionals and nonprofessionals.

Because the complete insight in individual rehabilitative needs cannot be accomplished without information about the impact of voice disorder on everyday activities, it is in the best interest of everyone involved in the process of voice rehabilitation to have at their disposal an instrument created for the purpose of measuring voice handicap. The results of voice handicap assessments help both the patient and clinician to determine priorities in rehabilitation, which creates the opportunity to tailor intervention's content and implementation in such a manner that the patient receives exactly what he or she needs, in a way that suits them best. Such an instrument, designed to measure quality of life after the occurrence of voice disorder, is not available in clinical practice in the field of voice disorders in Croatia. It therefore seemed reasonable to direct the efforts on investigation of the possibility to adapt one of the existing instruments created for that purpose in other language.

Quality of life is usually assessed by self-assessment questionnaires. Considering the fact that their administration in two or more points in time provides valuable information on handicap reduction (ie, efficiency of the treatment),[11–13] practical gain of their use is enormous because they are economic and very easy to administer, with excellent or satisfactory psychometric properties.[12] Among several self-assessment questionnaires (Voice-Related Quality of Life [V-RQOL], Voice Handicap Index [VHI], Vocal Performance Questionnaire [VPQ], Voice Activity and Participation Profile [VAPP], and Voice Symptom Scale [VoiSS]) designed to measure quality of life after the occurrence of voice disorder,[6–8,14] VHI stands out as the most widely used and with greatest psychometric potential.[8,9,14]

VHI is an ordinal self-assessment scale, which ultimately produces an unstandardized index representing the degree of patient's self-perceived problems that originated from voice disorder; the index expresses the severity of voice difficulties through their impact on everyday activities.[7] VHI consists of 30 items organized in three subscales: functional, physical, and emotional, respectively. Every item is scored on a five-point Likert-type scale with scores ranging from 0 (answer *never*) to 4 (answer *always*) and with the range of the overall score from 0 to 120, where increase in the overall score means greater

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handicap. VHI has been translated to many languages,[12,13,15–26] and international comparisons focused on identifying the differences between translated versions due to linguistic or cultural reasons proved that VHI is "… consistent tool for assessing the validity and reliability of self-perceived voice handicap."[15,19] Past researches documented good internal consistency and test-retest reliability of the VHI,[7] its correlation with patient impressions of voice disorder severity,[7,15] sensitivity to different etiology,[7,16] and its usefulness in treatment evaluation.[27–31] And although significant correlation was reported between VHI and dysphonia severity index (objective multidimensional measure of voice quality),[32] VHI generally does not correlate with objective voice measures.[18,33–35] This indicates that the assessment of voice disorder needs to encompass different approaches to evaluate specific dimensions of vocal dysfunction—subjective symptoms and personal impressions of difficulties, voice quality after the occurrence of voice disorder, and functional aspect of the disorder.[21]

Considering numerous confirmations of its clinical usefulness and wide acceptance of its use for self-rating of voice handicap as well as the fact that Croatian clinical practice in the field of voice disorders has not got similar instruments at the disposal, this article examines the possibility of adaptation of the VHI to the Croatian language by preliminary investigation of psychometric features of Croatian translation of the VHI and comparison of the results of its administration in the group of dysphonic and control subjects.

METHODS

Subjects

Translated VHI was administrated on 38 subjects with dysphonia (eight males and 30 females) aged between 20 and 64 years (mean age, 40.29 years). Their voice disorders were diagnosed and categorized by an ear, nose, and throat (ENT) specialist as mass lesions (19 subjects), inflammation (14 subjects), or neurogenic (five subjects).

Selection was made considering the following: (1) chronological age 18+ years, (2) the presence of dysphonia at the time the Croatian translation of the VHI was administered, confirmed by an ENT or a speech-language pathologist (SLP), resulting from different etiology, except of transient vocal difficulties like the ones connected with upper respiratory tract infections and allergies, and (3) the absence of any other factors (eg, mental or sensory), which could interfere with data collection.

Control group consisted of 30 subjects (five males and 25 females) aged between 22 and 56 years (mean age, 35 years). Basic demographic characteristics of these subjects were as closely as possible matched with the ones in dysphonic group, to eliminate the influence of general variables on VHI scores.[36] These subjects were selected considering the following: (1) chronological age 18+ years, (2) no history of voice disorders, except of transient vocal difficulties like the ones connected with upper respiratory tract infections and allergies, (3) good vocal health at the time the Croatian translation of the VHI was administered, confirmed by perceptive voice quality evaluation by two SLPs, and (4) the absence of any other factors, which could interfere with data collection.

Procedure

Original VHI[7] was translated independently by two SLPs experienced in the field of voice disorders and an English professor. Afterward, consultations were carried out to adjust the original items to Croatian cultural and linguistic habits and, the first Croatian version of the VHI was ready for back translation to English by a professional translator. Again the comparisons were made between original and retranslated versions of the VHI by an ENT specialist and SLP, both experienced in the field of voice disorders and fluent in English. After minor interventions, final version of the Croatian translation of the VHI was produced (see Appendix), which was administered individually to each subject. The voice subjects completed the translated questionnaire in the ENT clinic, where they entered medical treatment, after the written approval to conduct the research was obtained from the head of the clinic. Nonvoice subjects completed the questionnaire at the Faculty of Education and Rehabilitation Sciences, University of Zagreb. Because the number of successfully completed questionnaires increases if the subjects are well informed about the items and possible answers,[37] every subject received directions on how to complete the questionnaire. Because personal and medical data were collected, a written approval for their analysis was obtained from every subject.

To assess the validity of the Croatian translation of the VHI, the perceptive voice evaluation was also carried out by the same SLPs enrolled in the translation of the original VHI. They independently graded dysphonia on a five-point scale during the sustained phonation task, carried out as a part of evaluation of subjects with voice disorders, with 0 representing normal voice quality and grades from 1 to 4 representing mildly, moderately, severely, and profoundly disordered voice quality, respectively. Individual grades from the two judges were averaged to get a single grade for every subject with dysphonia, which was then used as a part of validity assessment of the Croatian translation of the VHI.

Statistical analysis

Statistical analysis was conducted by using *SPSS Statistics* 17.0 (IBM Corporation). Demographic and voice-related data were analyzed descriptively for dysphonic and control groups as well as for dysphonic subgroups (mass lesions, inflammation, and neurogenic). Cronbach alpha coefficient was generated to determine internal consistency of the Croatian version of the VHI and its subscales; a value greater than .9 was considered excellent, a value between .9 and .8 was considered good, and a value less than .8 was considered satisfactory.[38] An intraclass correlation coefficient (ICC) was used as a measure of repeatability of the questionnaire or the reproducibility[15] of four summary VHI variables: functional VHI (F), physical VHI (P), emotional VHI (E), and total VHI (T). The ICC is the ratio of variance between subjects and total variance,[15] and was considered to be an indicator of test-retest reliability, or consistency of voice handicap evaluation.