Reliability and Validity of the Turkish Version of the Voice-Related Quality of Life Measure

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Summary: Objectives. This study aims to test the validity and reliability of the Turkish version of the Voice-Related Quality of Life (V-RQOL) questionnaire.

Study Design. This is a nonrandomized, prospective study with control group.

Methods. The questionnaire was administered to 249 individuals—130 with vocal complaint and 119 without—with a mean age of 37.8 ± 12.3 years. The Turkish version of the Voice Handicap Index (VHI) and perceptual voice evaluation measures were also administered at 2–14 days for retest reliability. The instrument was submitted to validity and reliability evaluation.

Results. The V-RQOL measure showed a strong internal consistency and test–retest reliability; the Cronbach's alpha coefficient for the overall V-RQOL was 0.969, the physical functioning domain was 0.949, and the social-emotional domain was 0.940. In the test–retest reliability test, the overall V-RQOL was found to be 0.989. The construct validity of the V-RQOL was determined based on the strength and direction of its relation to the VHI and the perceptual voice evaluation measure. The higher the VHI level, the lower the physical functioning, social-emotional, and overall score levels of the V-RQOL (r = –0.927, r = –0.912, r = –0.944, respectively; $P < 0.001$). Following the perceptual voice self-assessment, a statistically significant difference was found between the V-RQOL scores of individuals who defined their voices as good, very good, and perfect, and those who defined their voices as bad and very bad ($P < 0.001$).

Conclusions. The results suggest that the Turkish version of the V-RQOL measure has reliability and validity and may play a crucial role in evaluating Turkish-speaking patients with voice disorders.

Key Words: voice–voice disorders–quality of life–validity–reliability.

INTRODUCTION

Currently, there is no standardized measurement method available for voice perception, which is a subjective perception. Disease history, visual evaluation of the larynx, and acoustic analyses are considered the most basic evaluation methods for the assessment of patients with voice disorders. However, none of these assessments suffice to explain the physical, functional, or social problems encountered by patients with voice disorders.[1] Studies show that social communication problems occurring because of voice disorders impact the quality of life of patients.[2,3] More recently, subjective parameters have become a part of voice evaluation. Self-report measures are particularly important for patients with voice-related complaints, as treatment is often based on how the problem affects patients' daily life.[4]

Jacobson et al[5] relatively recently made a big contribution in this field by publishing a 30-item Voice Handicap Index (VHI) in 1997. Rosen et al[6] suggested a shorter version of the VHI (VHI-10) with 10 items with reliability and validity. In 2008, the Turkish version of the VHI was tested for reliability and validity by Kılıç et al[7] as a short 10-item measure. The concept of voice-related quality of life was first introduced in the Voice-Related Quality of Life (V-RQOL) measure developed by Hogikyan and Sethuraman[4] in 1999. Four items out of 10 relate to social-emotional impact, and six relate to physical function. This measure also assesses overall voice-related quality of life.[4] The V-RQOL measure has been translated into many languages and has been tested for reliability and validity to be used for various voice disorders.[8,9]

These questionnaires were originally developed in English and applied to the English-speaking population. Thus, these instruments can be used in other languages only if they are translated and adapted based on international guidelines; their measuring properties must also be demonstrated in a specific cultural context.[10]

The purpose of this study was to develop the Turkish version of the internationally used V-RQOL measure and to demonstrate the reliability and validity properties of the Turkish version.

METHODS

Translation

The procedures suggested by Guillemin et al were performed in the translation of this measure into Turkish.[10] The text of the English V-RQOL measure was translated into Turkish by two translators who were informed about the importance of this study; one of the translators was bilingual. Two specialists who were informed about this study merged the translated measures, and this merged text was prepared as the measure. This translation was back-translated into English by a translator who had not worked on the initial translation. Phrases whose original versions were obtained through back translation were adopted, and those that were not in compliance with the original version were processed again and again until the original version was reached. The final measure that was translated into Turkish and controlled

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through back translation was applied to 20 people initially; it was rearranged after typographical errors, readability, and understandability were checked. It was then applied to the participants. The final measure was used on 249 adults with and without voice complaints after obtaining their informed consent.

Participants

This study included individuals above 18 years of age who applied to the otorhinolaryngology department and to their relatives with or without any voice-related complaints. For some professional groups, the measure was applied in the relevant workplace (hospital, conservatory, mosque, school, etc.). Participants who raised voice-related complaints during the application of the measure went through examination and were diagnosed based on their disorder. These patients were not grouped based upon their voice disorders because this measure is not specific to the etiology of dysphonia; it has been validated across a wide variety of voice disorders.

To cover all professional groups nationwide and not make the measure specific to one single profession, the participants were grouped into five voice profession levels (VPL) based on their use of voice. Level 1 included elite voice professionals, such as singers or performing artists, who would face serious problems even with the slightest voice disorder. Level 2 included such professions as teachers, receptionists, and religious officials, who would face serious problems with moderate voice disorders. Level 3 included such professions as businesspersons, doctors, and lawyers, whose professional performance would be significantly impacted by severe voice disorders. Level 4 included such professions as shop assistants and civil servants, workers whose job performance would not be impacted even by the most serious voice disorder but who would face social and emotional problems because of such disorders. Level 5 included people who were not working, such as retired or unemployed people or housewives.

Perceptual voice self-assessment and Turkish VHI

The participants were asked to evaluate their own voices while filling in the form. The following question was asked for this purpose: "How do you describe your voice at the moment?: Excellent, very good, good, bad, very bad." Participants were asked to fill in the translated V-RQOL measure in Turkish as well as the Turkish version of the VHI.[7] All the measures were filled in again by all participants after 2–14 days for test–retest purposes in order to produce a consistent evaluation of the measure.

Statistical analysis

Data analysis was performed with the *SPSS* software package (SPSS Inc., Chicago, IL) for Windows 11.5. The internal consistency of the items in the measure was evaluated by calculating the Cronbach's alpha internal consistency coefficient. Along with this, item/total correlation coefficients and test–retest reliability coefficients were also calculated. The construct validity of the measure was evaluated by Pearson's correlation coefficient for the VHI and by one-way analysis of variance for perceptual voice self-assessment (PVSA) by identifying the strength and direction of the relation with the V-RQOL. The results were considered statistically significant at $P < 0.05$.

This study was approved by the Hacettepe University Ethics Committee. Each participant gave prior written consent to participate.

RESULTS

This study involved 249 participants, of whom 109 were male (43.8%) and 140 were female (56.2%). The average age was 37.8 ± 12.3 years (18–78), with the male average age being 39.7 ± 13.4 (18–78) and the female average age being 36.2 ± 11.1 (18–72). Out of 249, 130 participants (52.2%) had voice-related complaints, whereas 119 (47.8%) were in the control group having no voice-related complaints. Table 1 shows the diagnostic details of the voice patients' group and the VPL of all the participants.

The V-RQOL domain and total measure scores were compared based on the VPLs of participants (Table 2). A statistically significant difference was found in the V-RQOL scores of those with and without voice-related complaints at all VPLs (*$P < 0.001$). No statistically significant difference was found between the VPLs and V-RQOL scores of participants, regardless of whether or not they had a voice-related complaint (†$P > 0.05$) (Table 2).

Reliability data are shown in Tables 3 and 4. No matter which item of the measure was ignored, it was observed with the remaining items that the internal consistency coefficients (Cronbach's alpha) relating to the reliability analysis conducted on these remaining items were above 0.80. One of the reliability indicators of the measure was evaluated with a corrected item/total correlation coefficient, and a value above 0.50 was considered to be significant. The internal consistency coefficient of the 10-item V-RQOL was found to be 0.969. Internal consistency coefficients of the V-RQOL were 0.949 for the physical functioning domain and 0.940 for the social-emotional domain (Table 4).

In the test–retest reliability test, the overall V-RQOL was found to be 0.989, the physical functioning domain was 0.985, and the

TABLE 1.
Diagnostic Groups and Voice Profession Level

	Voice *N*: 130	Control *N*: 119
Diagnostic groups		
Mass lesions	74 (56.9%)	
Inflammatory lesions	39 (30%)	
Neurogenic	6 (4.6%)	
Functional	6 (4.6%)	
Malignant	5 (3.8%)	
Level		
I	21 (16.1%)	20 (16.8%)
II	26 (20%)	29 (24.3%)
III	27 (20.7%)	25 (21.08%)
IV	24 (18.4%)	5 (21.08%)
V	32 (24.6%)	20 (16.8%)