Cross-cultural Adaptation and Validation of the Persian Version of Voice Disability Coping Questionnaire (P-VDCQ): Introducing a New Instrument

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Summary: Objectives: Coping is one of the important concepts in psychology, which is pertinent to how persons with illness manage the stress of that condition. Voice Disability Coping Questionnaire (VDCQ) is an assessment tool for quantifying coping strategies in those with voice disability. The purpose of the present study was to investigate reliability and validity of the Persian version of VDCQ (P-VDCQ).

Method: Translation procedure was performed according to the World Health Organization guidelines, and then 138 persons (88 persons with voice disorders and 50 controls) completed the questionnaire. Psychometric properties of the P-VDCQ were investigated.

Results: There was a significant difference between the mean value of patients with dysphonia and that of the control group. The results of test-result reliability indicated that there is a high correlation between repeated administration of the questionnaire (intraclass correlation coefficient = 89.7). Also, a high Cronbach's alpha coefficient ($\alpha = 0.94$) revealed a good internal consistency. Participants' scores in this instrument had a moderate correlation with their scores on Voice Activity Participation Profile—Persian version ($r = 0.41$, $P < 0.001$).

Conclusion: The P-VDCQ is a reliable and a valid instrument that can be used to investigate coping strategies of patients with dysphonia in clinical settings and for research purposes.

Key Words: Dysphonia−Psychometric properties−Voice Disability Coping Questionnaire−Persian version−Coping strategies.

INTRODUCTION

Voice disorders defined as a communication disorder in which voice cannot do its role in conveying the emotional and verbal message of person. Voice disorders are usually benign and temporary conditions; however, in some cases, these conditions become chronic and need accurate diagnosis and treatment.[1] Voice disorders may cause various effects on different dimensions of the quality of life (QoL).[2−4] Several studies have reported the economic and social consequences of dysphonia in the literature.[5−9] Many of the individuals who experience this condition report that dysphonia caused voice-related absenteeism from work[10,11] and income reduction.[12] The effect of voice disorder can be beyond voice restriction,[5] for instance, it can limit participation in social activities.[13] While it seems that there is a reciprocal relationship between voice and emotions,[14] many of voice disorders have one psychological component and may have negative effects on self-esteem, well-being, and personal identity.[14,15] If dysphonia course takes too long, such as the case in spasmodic dysphonia, patients may need certain approaches to adjust and to cope with this condition.[5] There are many studies on the effects of voice disorders on the subjective outcomes in the speech and language pathology field, but it seems that little has been done on the effects of beliefs and emotions on voice disorders. Coping defined as the cognitive and behavioral attempts to handle the stress caused by diseases or stressful situations.[5,14] This concept is a mediating factor between the manner which persons with voice disorders perceive their disorders and the outcome that will be obtained by therapeutic and interventional approaches. Considering the mediating role of the coping strategies helps to identify the best therapeutic approaches with regard to the psychological mechanisms of patients who experienced voice disorders.[14]

There are two dominant coping modes reported in the literature. The emotion-focused mode highlights the importance of dealing with emotions that are related to stressful situations, whereas in problem-focused mode, modification of environment is the most critical change to manage stressful situations. Epstein et al and Folkman et al classified strategies as problem focused.[5,16] These strategies are the attempts to modify the source of stress to manage that situation.[5,16]

The strategies selected by individuals with dysphonia to cope with this condition may influence on the intervention outcomes. Speech and language pathologist should help patients with voice disorder to identify coping strategies used by them to adapt to their illness and persuade them to change strategies that do not help them to manage their stress. Patients need to use problem-based strategies to control this condition.[14] These strategies are not fully

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understood. There is little information about how patients with dysphonia cope with voice disorders. The first study on coping strategies in patients with dysphonia was performed by Epstein et al in 2009. They studied coping strategies on patients with spasmodic dysphonia and muscle tension dysphonia.[5] Voice Disability Coping Questionnaire (VDCQ) was developed based on the findings of this study. In addition, Oliveira et al studied coping strategies in Brazilian population. They hypothesized that several factors like sex, age, sign and symptoms of voice, self-assessment of voice, and psychological attributes may influence coping strategies.[14] They developed the Brazilian version of Voice Disability Coping Questionnaire (B-VDCQ) based on that study.[1] There are also some studies on the development and adaptation of assessment tools for the measurement of the QoL in persons with dysphonia in Iran.[13,17,18] It seems that 10 items of the emotional subscale in Persian voice handicap index, 7 items in Voice Activity Participation Profile—Persian version (VAPPP), and 22 items in Iranian Voice Quality of Life Profile are more related to the effects of dysphonia on patients' emotions, yet they have not directly addressed the concept of coping. Thus, the present study was carried out to investigate cross-cultural adaption and validation of VDCQ for patients with dysphonia in Iran.

METHOD

A descriptive study was conducted to investigate the psychometric properties of the Persian version of VDCQ (P-VDCQ). VDCQ is a 15-item questionnaire that measures coping strategies in persons with dysphonia. Items are rated on a six-point Likert scale. *Never* is when patients have never used any coping strategies and *always* is the point that patients always use coping strategies. The minimum score is 0 and the maximum score is 90.

VDCQ was translated according to the World Health Organization (WHO) guidelines. It is usually recommended to follow a multistep process for adaptation of questionnaires.[19] This process includes four steps: forward translation, back translation, committee review, and a pretesting step.[19,20]

Translation procedure

At first, permission was obtained from the developers of the original questionnaire. Then, two native translators performed standard translation of the 15-item questionnaire independently based on WHO guidelines.[21] Initial translations were integrated into one document. An expert panel including three speech and language pathologists, who worked in the field of voice therapy for at least 5 years, assisted us to select the best phrases. Then, a bilingual translator, who had not participated in the prior stages of translation in the present study, translated the Persian version of the questionnaire into English. We asked experts to compare the original and the back-translated version of VDCQ. We mailed the back-translated version of the questionnaire to the questionnaire developer (Dr. Ruth Epstein) for confirmation of translation. After reviewing of the back-translated version of VDCQ by the developer, VDCQ was revised by the translators and some semantic modifications were made and finally, the P-VDCQ for assessment of coping strategies was developed.

TABLE 1.
Videostroboscopic Findings in Participants with Voice Disorders

Pathology	Number (%)
Polyps	18 (20.5)
Nodules	13 (14.8)
TVF cysts	4 (4.5)
TVF paralysis	11 (12.5)
MTD	6 (6.8)
Laryngitis	3 (3.4)
ADSD	3 (3.4)
Cancer	30 (34.1)

Abbreviations: ADSD, adductor spasmodic dysphonia; MTD, muscle tension dysphonia; TVF, true vocal fold.

Participants

A total of 88 patients with dysphonia and 50 persons without any voice complaints participated in the present study. The patients were recruited from two otolaryngology clinics in Tehran and Shiraz. Inclusion criteria of control group were having no voice complaints. Exclusion criteria were upper respiratory infection, neurologic and physiologic conditions, diagnosis of any oral communication disorder, history of voice rehabilitation, and hoarseness caused by phonotrauma. Participants in the patient group had at least one of the following voice complaints: breathy voice, vocal fatigue, lack of frequency and volume control, and vocal tract discomfort. All individuals in the patient group were examined by a speech and language pathologist, who had worked in the field of voice disorders, and an otolaryngologist. All the participants signed and completed the consent form. The current research was approved by the ethics committee of Shiraz University of Medical Sciences.

Videostroboscopic findings of participants with dysphonia are provided in Table 1.

Psychometric properties of the P-VDCQ

Face validity

We determined the face validity using a qualitative method. A total of 15 individuals with dysphonia, completed the P-VDCQ (eight men and seven women). All of them were native Persian speakers. Then, we asked them which items were difficult to understand.

Item analyses

The correlation between total scores and each individual item is called "discrimination coefficient": the higher the

value for item discrimination coefficient, the more distinctive the item. Also, using internal consistency, the role of each item in the questionnaire was evaluated.

Internal consistency

Internal consistency was computed using Cronbach's alpha coefficient. Values equal to or higher than 0.7 were considered as good reliability.

Test-retest reliability

Test-retest reliability was evaluated by administering the questionnaire among 30 participants of the patient group with a 2-week interval. Intraclass correlation coefficient (ICC) was examined for the reproducibility of the questionnaire.

Discriminant validity

The mean values of the two groups were compared for discriminant validity using independent *t* test.

Criterion-related validity

Criterion-related validity was evaluated by computing the correlation between participants' mean scores in P-VDCQ and VAPPP.[13] This assessment tool is a reliable and a valid instrument for assessing the QoL in patients with dysphonia in Iran.

Statistics

We used the *Statistical Package for the Social Sciences*, version 20.0 (IBM Corp., Armonk, NY) for descriptive analysis of the data, Cronbach's alpha coefficient for internal consistency and item analysis, the ICC for test-retest reliability, Spearman's correlation test for criterion-related validity, and the independent *t* test for discriminative validity.

RESULTS

Participants

Of the 138 participants, 88 persons were with dysphonia (36 women and 52 men; mean age: 41.93 ± 12.69) and 50 persons were in control group (25 women and 25 men; mean age: 36.52 ± 13.42). Videostroboscopic findings of the patient group are provided in Table 1.

Content and face validity

All the 15 participants could easily answer the questions and, according to them, all the questions were easy to respond to. Indeed, they did not require further explanations or help to answer the items.

TABLE 2.
Item Analyses Results

Number of the Items	Cronbach's Alpha
1	0.94
2	0.94
3	0.94
4	0.94
5	0.94
6	0.94
7	0.94
8	0.94
9	0.94
10	0.94
11	0.94
12	0.94
13	0.94
14	0.94
15	0.94

Item analysis

The variation of Cronbach's alpha coefficient was used for item analysis The Cronbach's alpha value ($\alpha > 0.94$) did not increase after eliminating any item (Table 2).

Test-retest

Test-retest was measured using ICC. The value obtained for the test-retest was 0.897 (95% confidence interval, lower band 0.762; upper band 0.955) for the P-VDCQ.

Discriminant validity

The mean score in the patient group was significantly more than that in the control group, thus P-VDCQ was shown to discriminate between patient and control groups. Table 3 presents the statistical findings.

Criterion-related validity

Spearman's correlation score showed that the scores in P-VDCQ and VAPPP were significantly, but moderately, correlated ($r = 0.417$, $P < 0.001$).

DISCUSSION

The purpose of the present study was to investigate the psychometric properties of the P-VDCQ to develop an

TABLE 3.
Total P-VDCQ Differences Between Voice Disorder and Nonvoice Disorder Groups

Group	N	Mean	Standard Deviation	Standard Error Mean	*P*-value
Voice disorder	88	42.2841	13.02954	1.3889	$P < 0.001$
Nonvoice disorder	50	4.5400	4.31991	.61093	

assessment tool for measuring coping strategies in persons with dysphonia. We followed WHO guideline for translation process of P-VDCQ. This procedure includes forward translation, expert panel, backward translation, and pretesting the questionnaire before using the final version of the questionnaire. Oliveira et al used the similar procedures for the translation of the B-VDCQ. Face validity was evaluated by assessment of coping strategies in 15 patients with dysphonia. This guideline is widely used for cross-cultural adaptation and validation of questionnaires in the healthcare field and QoL.[22–26] The evidence of construct validity was shown by the ability to discriminate between patients and control group. The mean score of patients group was significantly higher than that of the control group. There are similar findings for B-VDCQ. This finding is pertinent to the development of coping strategies in patients with dysphonia.[5,14] Poor physical conditions that last for a while can cause different psychological reactions to sickness.[16] Variable course for the voice disorders may cause development of some adaptations with this condition like developing coping strategies to increase the balance between stressors, demands, and capacities in patients. This instrument mainly addressed coping strategies.[1] Developers of the original version of VDCQ reported strong discriminant validity of this instrument because mean values obtained from patients with spasmodic dysphonia differed significantly from muscle tension dysphonia. With regard to this finding, it seems that various groups of patients with voice disorders probably experience different degrees of stress and use different coping strategies. We need to conduct some longitudinal research on degrees of stress and coping strategies in heterogeneous groups of voice disorders in the future.[5]

High values reported for test-retest and internal consistency of this tool indicates that P-VDCQ measures coping strategies stably and consistently. This finding is in line with Epstein et al[5] and Oliveira et al, who reported high values for Cronbach's alpha of all the items (higher than 0.65 for all the items of the questionnaire). Oliveira et al reported satisfactory values also for the internal consistency and test-retest for B-VDCQ.[1]

پرسشنامه سازگاری با مشکل صدا-نسخهٔ فارسی

دوست عزیز

		میزان هر رفتار همیشه — خیلی اوقات — اغلب — گاهی اوقات — تقریباً هرگز — هرگز

پرسشنامه مذکور به منظور بررسی سازگاری با اختلال صدا به فارسی برگردانده شده و در حال ساخت است . سپاسگزار خواهیم بود در صورت تمایل با تکمیل پرسشنامه، ما را همراهی فرمایید.

لطفا در صورت رضایت جهت شرکت در مطالعه، این فرم را با ذکر مشخصات خود تکمیل فرمایید. لازم به توضیح است اطلاعات شخصی شما محرمانه باقی خواهد ماند .

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(واکنش‌های افراد به مشکل صدایشان موضوع مهمی است).راه‌های مختلفی جهت کنار آمدن با این شرایط وجود دارد.این پرسشنامه از شما می‌خواهد تا رفتارها و احساسات خود را در چنین شرایطی مشخص نمایید. مشخص است که، اتفاقات مختلف، موجب بروز پاسخ های مختلف می‌شوند. اما فکر کنید زمانی که صدایتان در موقعیت نامطلوب است، معمولا چه‌کار می‌کنید. مواردی که توصیف کننده پاسخ‌های احتمالی هستند، در جدول پایین نوشته شده است.دور عدد مناسبی که بطور غالب احساس یا رفتار شما را توصیف می‌کند دایره بکشیدیا آن مورد را علامت بزنید.

1	همدردی و دلسوزی مردم به من کمک میکند تا با مشکل صدایم سازگار شوم	1 2 3 4 5
2	تلاش میکنم از موقعیتهایی که مشکل صدایم را بروز میدهند، اجتناب کنم	
3	آرزومیکنم هیچوقت مشکل صدا نداشتم.	
4	تلاش میکنم تا در مورد مشکل صدایم تا حد ممکن اطلاعات کسب کنم	
5	با بیان احساساتم راحت تر با مشکل صدایم سازگار میشوم	
6	وقتی به خودم میگویم که به مشکل صدا فکر نکن ؛ راحت تر میتوانم با آن سازگار شوم	
7	احساس می کنم که صحبت کردن با دوستان و خانواده درباره مشکل صدایم، کمک کننده است	
8	احساس میکنم که هرچه درباره مشکل صدایم بیشتر بدانم تا آنجا که میتوانم ،راحت تر می توانم با آن سازگار شوم	
9	نگرانی های خودم درباره مشکل صدایم را با کسی در میان نمیگذارم	
10	از دید من کار زیادی نمیتوانم برای مشکل صدایم انجام دهم	
11	اگر از صدایم استفاده نکنم، زندگی کردن با مشکل صدا راحت تر است	
12	داشتن مشکل صدا به من کمک کرده تا به برخی حقیقت های مهم درمورد زندگیم پی ببرم.	
13	اگر از پزشک درباره مشکل صدایم سوالاتی بپرسم، راحت تر می توانم با آن سازگار شوم	
14	بطورکلی اجتناب از معاشرت با مردم باعث می شود راحت تر با مشکل صدا سازگار شوم.	
15	با این فکر که بالاخره این شرایط تمام میشود، راحت تر با مشکل صدا سازگار می شوم.	

ش

All the 15 items of the final version of the English version of the VDCQ were necessary for measuring coping strategies in our patients, but we need to include all of the 27 items from original version of the VDCQ and investigate patients' responses to items other than these 15, so as to have a more in-depth study of coping strategies in future studies. Voice therapy may cause persons with voice disorders to change their coping strategies; thus, it is suggested that the changes in P-VDCQ scores be studied before and after intervention. In this case, we can learn more about the qualification of different treatment methods and the time required so that the changes begin to appear. We also need to conduct studies to better understand the influence of different factors, like personality type, Persian culture, subtypes of dysphonia, and their chronicity on coping strategies.[14]

CONCLUSION

The P-VDCQ is a valid and a reliable assessment tool to measure coping strategies in Persian speaking patients with dysphonia. This questionnaire can be used to evaluate the output of different treatment approaches for individuals with dysphonia.

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