

Questionario di autovalutazione dei disturbi della voce in utilizzatori della voce normali e professionali

Self-Administered Questionnaires for the Assessment of Voice Disorders in Normal and Professional Users

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ABSTRACT

Self-administered questionnaires are important instruments for the evaluation of the impact of a voice problem on the quality of life of the patients. Their utilization is recommended by the Guideline of the Committee on Phoniatics of the European Laryngological Society (ELS) for 'the functional assessment of voice pathology'. In this chapter will be presented the characteristics of more utilized self-assessment questionnaires for voice disorders. The last part of the chapter will describe the peculiar perception of the voice problems in singers, with a description of the self-administered questionnaires created and validated for this particular category of patients.

TEXT

Self-administered questionnaires are used to assess the impact of the health problems on the quality of life of the patients. The World Health Organization [23] defined the disability as "a restriction or lack of ability manifested in the performance of daily tasks" and the handicap as "a social, economic, or environmental disadvantage resulting from an impairment or disability". Measuring the quality of life in case of a health problem, in addition to the physical examination, allows physicians to understand better the point of view of the patient related to his individual experience of a certain disease. Showing an example of the different impacts produced by a voice problem, the vocal disability could increase when a patient is not able to speak at a certain

pitch or loudness, and a vocal handicap when a patient loses money because of his voice that becomes ineffective in communicating or performing. There is not necessarily a correlation between the results of the evaluation of dysphonia obtained by means of perceptive evaluation, video-laryngostroboscopy, and acoustic/aerodynamic parameters and the severity of the subjective disturbance perceived by the patient in his daily life. Self perceived impairment largely depends on how a person uses his voice. A professional speaker will be stronger impaired by a breathy voice than a computer engineer, as a singer will face more serious consequences than a painter when his voice is hoarse. Self-assessment instruments, indeed, take into account the type of social activity, the environment where the voice is more utilized, the family habits, education, sex, gender, psychological traits, lifestyle. The impact on the quality of life of a dysphonic problem is an important factor for clinicians not only to obtain the global evaluation, but also to take the best therapeutic decision, in a field in which the prognosis is not **with respect to lifequoad vitam but with respect to health quoad valetudinem**. Moreover, questionnaires should be useful to provide a further element for measuring the outcomes of a voice treatment, be it surgical, pharmacological or rehabilitative.

List of self-assessment questionnaires utilized in practice

In the literature, the administration of different types of questionnaire, all validated by means of statistical methodology, has demonstrated satisfactory psychometric qualities, in terms of high internal consistency and test-retest reliability. Questionnaires are usually constituted by items, individually scored on an ordinal scale from 0 to N, on the basis of how often each statement is experienced from the patient in daily life. The total score gives an indication of how the voice disorder creates annoyance in the life of the patient. The majority of questionnaires are also divided into subscales that score some specific aspects of the perception of the voice disturbance,

such as the emotional, the physical or the social. The most well-known self-administration questionnaires include the Voice-Related Quality of Life (V-RQOL), the Voice Handicap Index (VHI), the Vocal Performance Questionnaire (VPQ), the Voice Activity and Participation Profile, and the Voice Symptom Scale. There follows a brief description of each of these instruments. The VPQ [1], developed in the 1992, consists of 12 items concerning the physical and psychosocial impacts of a general voice disturbance on daily life. It has the advantage of being easily and briefly administered, and demonstrates high internal consistency, but it does not investigate specific aspects of a voice problem. The VHI [11], validated by Jacobson et al in the 1997, is the only self-assessment questionnaire that meets the criteria established by the Agency for Healthcare Research and Quality for determining disability in speech-language disorders. The VHI (Table 1), translated into and validated in more than 20 languages, is a 30-item questionnaire, each one scored from 0 (never) to always (4), differentiated into three subscales about specific domains of the impact of voice problems (emotional, functional and physical). The functional subscale investigates the consequences of a voice disturbance on daily activities (disability); the physical subscale is related to the perception of the dysphonia in terms of physical symptoms (impairment); the emotional subscale measures the effects on the emotional life of a voice problem (handicap). The maximum score of the VHI is 120, a score between 0 -14 corresponds to no disturbance, between 15-28 to a slight disturbance, between 29 and 50 to a moderate disturbance, and over 51 to a severe disturbance. Jacobson et al found that VHI has good psychometric properties and correlation with patient judgment of the voice-disorder severity. Furthermore, VHI demonstrated a high correlation with the Dysphonia Severity Index [24] and it is a good index of the self-perception of the voice modification after vocal fold surgery. From 2013 has been available online the DigitalVHI [8], a free open-source software

application for obtaining Voice Handicap Index (VHI) and other questionnaire data, which can be used when filling in the information. The software makes the VHI scores directly available for analysis in a digital form. Reduced versions of the VHI have also been validated, such as the VHI-10 [18] and the VHI-9i [15], constituted respectively by 10 and 9 items extracted from the original version, that can be comfortably utilized for their brevity and ease of administration. Another questionnaire that obtained similar results to those of the VHI-10 in terms of psychometric properties, is the Voice-Related Quality of Life (V-RQOL) [9], developed and validated in 1999, comprising 10 items, divided into socio-emotional and functional-physical subscales. The Voice Symptom Scale (VoiSS) [22] is a 30-item questionnaire developed in 2004, and able to assess communication problems, psychological impact, perception of voice characteristics and other respiratory symptoms. The Voice Activity and Participation Profile (VAPP) [13] is a 28-item questionnaire consisting of five subscales focused on the self-perception of the severity of voice disturbances, impact on job activity and daily communication, impact on social relationships and emotional life. The answers are provided by the patient on a visual analogue scale (VAS).

The self-assessment instruments can play an important role in creating, in a brief time, an empathic relationship between dysphonic patients and clinicians, helping the latter to understand the real effect of a voice problem on daily living and functioning. Otherwise, it has to be taken into account that questionnaire answers are affected by several individual variables, such as family and community support, cultural background and so on. It is necessary to include the self-assessment evaluation in a multi-step evaluation of voice, as recommended by ELS Guidelines [5]. Self-administered questionnaire results must be considered as an aspect of the multi-dimensional evaluation of a voice disorder, also including perceptual, videostroboscopic,

acoustic and aerodynamic assessments. The utilities of the self-administration questionnaires must be considered in the diagnostic phase, when the idea of how the patient perceives the voice disorder can improve the clinician's choice on the best treatment. Moreover, by analyzing the results the clinician can help the patient to become aware of his problem and manage it. Comparison of the answers pre- and post-treatment, rehabilitative or surgical, indicates the level of satisfaction of the patient with the results of therapy.

Questionnaires for special kinds of voice disorders

Self-assessment protocols must be specific for special categories of patients with voice disorders. This is the reason that some special instruments have been created and validated for particular groups of dysphonic people. It has already been reported that self-evaluation questionnaires are influenced by several factors such as age, sex, specific disease patterns, occupation and others. Considering the age factor, it can not be neglected that children's voice disorders must be evaluated with specific self-assessment instruments able to take in account the impact of dysphonia on daily pediatric life. The Pediatric Voice Handicap Index (pVHI) [25], comparable to adult VHI, is characterized by high internal consistency and high test-retest reliability. It is able to measure the impact of child's voice quality on overall communication, development, education, social and family life. It is composed of 21 items divided into three subscales, functional, physical and emotional, concerning how much the parents perceive the impact of their child's voice disturbance on his or her daily life. In this case, indeed, the questionnaire must be filled in by the child's parents. Ricci-Maccarini et al [17] validated a self-assessment questionnaire in Italian specific for children from 8 to 14 years of age, in which each child fills in the interview autonomously. It demonstrated good clinical validity and responsiveness to treatment in case of pediatric dysphonia. In 2012 Ingrid et al [10] created and validated a new

self-assessment questionnaire for pediatric use, capable of measuring in parallel the impact of children's voice disorders by themselves and their parents, the Pediatric Voice Symptom Questionnaire (PVSQ). It is valid, reliable and easy to administer in children from six years of age, when they are conscious of their vocal symptoms [21]. Another category of people usually affected by voice disorders in terms of low satisfaction with their voice parameters comprises transgenders, who often perceive their pitch too low and their voice disorder as a problematic factor in social life. In 2013 Dacakis et al [4] validated the Transgender Self-Evaluation Questionnaire able to provide a reliable self-report measure of vocal functioning in male-to-female transsexuals. It is structured as a self-administered interview composed of 30 items scored from 1 to 4 concerning voice problems in daily use experienced when living as a female. Another factor that must be taken in account is the awareness of the patient about his voice problem and his availability to modify his vocal strategies through a voice therapy. Some self-assessing instruments were created to be particularly useful in evaluating some variables important for the therapeutic choices. In particular, in 2009 Epstein and al [6] created and validated the Voice Disability Coping Questionnaire (VDCQ), able to measure the coping processes in different patient groups. It is constituted by four coping subscales: "social support," "passive coping," "avoidance," and "information seeking" measured over 15 items. Coping in psychological medicine refers to the way in which people deal with the stress of illness. In case of voice disorders this instrument helps to understand how people cope with voice problems. The questionnaire should be administered before the voice therapy in order to address modification of coping and put it in relation to the outcomes.

Self-administered questionnaires for professional users

Singers constitute a specific population of professionals particularly at risk for voice problems.

They are more likely to seek help and report problems related to their singing voice [19,16]. Singers represent 11.5% of all patients at voice consultations, while constituting only 0.02% of the general population [20]. Hoarseness frequently affects not only their speaking voice but also their singing voice, and consequently, their professional activity. This is partly due to the importance they give to their voice status, a critical social and occupational factor that can significantly affect their quality of life. The perception of a voice problem in singing is often related to specific symptoms, such as difficulty in the passaggio, vocal endurance and diminished range, aspects that are not assessed by the common self-assessment questionnaires. They are, indeed, more sensitive to vocal disabilities, which may have a higher impact on their quality of life than that of non-singers. Hence, to obtain a self-assessing instrument able to evaluate vocal disability in singers, in 2007, Cohen et al. [2] created and validated a specific questionnaire, the Singing Voice Handicap Index (SVHI), aimed at measuring the physical, social, emotional and economic impacts of voice problems on the lives of the singers. The SVHI (Table 2) is a 36-item self-administered questionnaire that is used to assess difficulties related to voice health status typical of the singing professional, as demonstrated by its psychometric properties of reliability and validity. The items address symptoms frequently reported to phoniaticians and speech pathologists by singers. Each item must be individually scored on a 5-point Likert scale [12] (ordinal scale) ranging from never (score of 0) to always (score of 4). The SVHI demonstrated higher sensitivity to clinical changes than the VHI in singers, proving the validity of the SVHI in measuring outcomes in the singing population. In fact, VHI may underestimate the level of handicap related to voice problems in performers, especially for certain pathologies able to produce severe consequences for the professional activity, as for example reflux or allergies. These disturbances affect the singing voice more severely than the speaking voice, so it is

necessary to have a specific tool able to measure the impact of any kind of voice problem peculiar of the singing activity. It is important for a self-assessment instrument to recognize changes in singing voice health status after surgical, pharmacological or rehabilitative treatments, and the SVHI demonstrates these properties in terms of clinical validity. The original English version of the SVHI has been translated into and validated in several languages, and it is utilized in different countries. Also developed and validated, is an abbreviated version of the SVHI, the SVHI-10 [3], composed of 10 items extracted from the 36 original, on the basis of the item-total correlation and better self-assessment of the voice disorders. SVHI-10 can be easily utilized to facilitate the assessment of the perceived handicap related to a singing voice problem, especially in the case of repeated administrations or multi-dimensional assessment when the time for the evaluation is reduced.

Of course singers constitute a peculiar population, but they are not so homogeneous: variables such as the singing styles performed, the amount of singing training and experience, the nature of singing demands and the performance environments can definitely affect the voice conditions of a singer and the perceived level of handicap. Voice disturbances, caused by vocal fold lesions, could in fact produce a different subjective disturbance depending on the number and duration of the performances, the amount of rehearsal needed and the characteristics of voice use during the performances. All these factors are influenced by the professional level and the singing style that a singer engages. Accordingly, singing style may be an important predictor of singing voice handicap requiring particular consideration. This evidence leads Fussi [7,14] to the development of more specific self-assessment instruments, on the model of the SVHI, for the modern and classical singing voice. The two questionnaires, called the Classical Singing Voice Handicap Index (CSVHI) (Table 3) and the Modern Singing Voice Handicap Index (MSVHI) (Table 4)

that are currently under validation on a large number of singers, are composed of 30 items grouped into three areas (impairment, disability, handicap). Each item is scored from 0 to 4 on the basis of how often it is experienced in the singing activity. The items are consistent with the peculiar use of the voice, depending on the singing style engaged. They investigate aspects of singing that could be perceived only in the case of a high level of self-confidence with their own voice. The two different instruments, for the classical and modern singers, take into consideration the environments where singers perform, the theatre in the case of the classical style; open-spaces, restaurant or pubs in the case of modern style, the level of background noise that is minimum during the opera performance and could be very loud during parties or other situations where modern singers often perform. Furthermore, the environments of the classical concerts have similar acoustic characteristics, whereas modern music is performed in several different types of situations to which modern singers must adapt their voices each time. There are also some technical aspects in the use of voice that should be investigated differently for classical and modern singing: for the modern style there is no definite vocal register as in classical, so the vocal texture is more adaptable to the repertoire. Singers in this case have the possibility of varying the timbre according to the songs, several times within the same performance and to look for different vocal solutions. Classical style, conversely, needs homogeneous vocal emission and more rigour in the execution. It follows that performers can feel a different level of discomfort caused by a voice difficulty according to the singing style. CSVHI and MSVHI are two specific instruments able to measure the level of handicap related to the singing voice differently for classical and modern styles, and to evaluate peculiar aspects of the singing activity related to the singing style engaged.

In conclusion, the most utilized self-assessment questionnaires are the VHI for common

dysphonic diseases, the PVHI for pediatric voice disorders and the SVHI for dysphonia in voice professional users.

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Table 1. Voice Handicap Index (VHI).

		0	1	2	3	4
1	My voice makes it difficult for people to hear me.					
2	I run out of air when I talk.					
3	People have difficulty understanding me in a noisy room.					
4	The sound of my voice varies throughout the day.					
5	My family has difficulty hearing me when I call them throughout the house.					

6	I use the phone less often than I would like.					
7	I'm tense when talking with others because of my voice.					
8	I tend to avoid groups of people because of my voice.					
9	People seem irritated with my voice.					
10	People ask, "what's wrong with your voice?"					
11	I speak with friends, neighbours, or relatives less often because of my voice.					
12	People ask me to repeat myself when speaking face-to-face.					
13	My voice sounds creaky and dry.					
14	I feel as though I have to strain to produce voice.					
15	I find other people do not understand my voice problem.					
16	My voice difficulties restrict my personal and social life.					
17	The clarity of my voice is unpredictable.					
18	I try to change my voice to sound different.					
19	I feel left out of conversations because of my voice.					
20	I use a great deal of effort to speak.					
21	My voice is worse in the evening.					
22	My voice problem causes me to lose income.					
23	My voice problem upsets me.					
24	I am less outgoing because of my voice problem.					
25	My voice makes me feel handicapped.					
26	My voice "gives out" on me in the middle of speaking.					
27	I feel annoyed when people ask me to repeat.					
28	I feel embarrassed when people ask me to repeat.					
29	My voice makes me to feel incompetent.					

30	I'm ashamed of my voice problem.						
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Legend: 0= never 1=almost never 2=sometimes 3=almost always 4=always

Table 2. Singing Voice Handicap Index (SVHI).

		0	1	2	3	4
1	It takes a lot of effort to sing.					
2	My voice cracks and breaks.					
3	I am frustrated by my singing.					
4	People ask “What is wrong with your voice?” when I sing.					
5	My ability to sing varies day to day.					
6	My voice “gives out” on me while I am singing.					
7	My singing voice upsets me.					
8	My singing problems make me not want to sing/perform.					
9	I am embarrassed by my singing.					
10	I am unable to use my “high voice”.					
11	I get nervous before I sing because of my singing problems.					
12	My speaking voice is not normal.					
13	My throat is dry when I sing.					
14	I’ve had to eliminate certain songs from my singing/performance.					
15	I have no confidence in my singing voice.					
16	My singing voice is never normal.					
17	I have trouble making my voice do what I want it to.					
18	I have to “push it” to produce my voice when singing.					
19	I have trouble controlling the breathiness in my voice.					
20	I have trouble controlling the raspiness in my voice.					
21	I have trouble singing loudly.					
22	I have difficulty staying on pitch when I sing.					

23	I feel anxious about my singing.						
24	My singing sounds forced.						
25	My speaking voice is hoarse after I sing.						
26	My voice quality is inconsistent.						
27	My singing voice makes it difficult for the audience to hear me.						
28	My singing makes me feel handicapped.						
29	My singing voice tires easily.						
30	I feel pain, tickling, or choking when I sing.						
31	I am unsure of what will come out when I sing.						
32	I feel something is missing in my life because of my inability to sing.						
33	I am worried my singing problems will cause me to lose money.						
34	I feel left out of the music scene because of my voice.						
35	My singing makes me feel incompetent.						
36	I have to cancel performances, singing engagements, rehearsals, or practices because of my singing.						

Legend: 0= never 1=almost never 2=sometimes 3=almost always 4=always

Table 3. Classical Singing Voice Handicap Index (CSVHI).

		0	1	2	3	4
1	I have difficulties during the performance in the theatre with modification of my vocal efficiency					
2	My vocal warm up has to be prolonged					
3	I am forced to modify my vocal technique because my voice problem influences my usual technical control.					
4	My singing problem forces me to modify or limit my repertoire					
5	My singing problem forces me to limit my usual study time					
6	I have difficulties during my performance with modification of my vocal efficiency					
7	I have to prolong the vocal rest between two performances					
8	I have to avoid changes in the vocal intensity during the pianissimo execution to mask my voice problem					
9	To mask my singing problem, I am forced to undergo continuous medical therapy.					
10	My singing problem forces me to limit the use of my voice in my social life.					
11	I feel more anxious than usual before performances.					
12	People around me do not recognise my singing voice problem.					
13	I am subjected to justified criticism from people around me.					
14	I get nervous and less sociable because of my singing problems.					
15	I get worried when someone asks me to repeat a vocalism or a sung phrase.					
16	I feel that my career is in danger because of my singing difficulties.					
17	My colleagues, managers, critics have noticed my singing difficulties.					

18	I have to cancel performances and other professional commitments.					
19	I avoid planning my next professional commitments.					
20	I avoid speaking to people.					
21	I have trouble managing my breathing.					
22	I feel my sung emission breathy and weak.					
23	I feel my sung emission is rough, with noise.					
24	I have difficulties in controlling the intensity of the sound (vocal breaks).					
25	My vocal range is reduced.					
26	I have difficulties in balancing vocal registers and resonances.					
27	I feel I have to force to produce my voice.					
28	The voice quality goes down during the performance.					
29	My speaking voice is tired and worse after the performance.					
30	The vocal efficiency is reduced at certain times of the day.					

Legend: 0= never 1=almost never 2=sometimes 3=almost always 4=always

Table 4. Modern Singing Voice Handicap Index (MSVHI).

		0	1	2	3	4
1	I feel vocal fatigue from the beginning of the performance.					
2	My speaking voice is hoarse and tired during a performance.					
3	I am forced to modify my vocal technique because my voice problem influences my usual technical control.					
4	My singing problem forces me to eliminate or limit certain songs from my repertoire, also with transposition of tonality.					
5	My singing problem forces me to limit my usual study time.					
6	I have difficulties during my performance with modification of my vocal efficiency.					
7	I cannot stand for more than two consecutive performances.					
8	I have to ask help to ask for help the phonic to mask my voice problem.					
9	To mask my singing problem, I am forced to undergo continuous medical therapy.					
10	My singing problem forces me to limit the use of my voice in my social life.					
11	I feel more anxious than usual before performances.					
12	People around me do not recognise my singing voice problem.					
13	I am subjected to justified criticism from people around me.					
14	I get nervous and less sociable because of my singing problems.					
15	I get worried when someone asks me to repeat a vocalism or a sung phrase.					
16	I feel that my career is in danger because of my singing difficulties.					
17	My colleagues, managers, critics have noticed my singing difficulties.					
18	I have to cancel performances and other professional commitments.					

19	I avoid planning my next professional commitments.					
20	I avoid speaking to people.					
21	I have trouble managing my breathing.					
22	My vocal performance changes throughout the day.					
23	I feel that my voice is breathy and weak.					
24	I feel that my voice is rough.					
25	I have to strain to produce my voice.					
26	My vocal efficiency varies in an unpredictable manner during the performance.					
27	I try to modify my voice to make it better.					
28	It takes a lot of effort to sing.					
29	My voice is worse in the evening.					
30	My voice tires easily during a performance.					

Legend: 0= never 1=almost never 2=sometimes 3=almost always 4=always