

Quality of Life across Genders in Individuals with Vocal Hyperfunctional Voice Disorders

Jacqueline Fernandes, Nithin K. Alex, Zahara Rafeek

Abstract: *Hyperfunctional voice disorders are conditions of abuse and/ or misuse of the vocal mechanism due to excessive and/ or imbalanced muscular forces. In some cases, these excessive and/ or imbalanced muscular forces can produce vocal fold lesions such as nodules, contact ulcers, hemorrhages or polyps and in some cases can lead to excessive intrinsic and extrinsic laryngeal muscle contraction, producing a tight, strangled sound similar to adductor spasmodic dysphonia called muscle tension dysphonia. Hyperfunctional voice disorders are more common in occupational voice users. Medical, individual, psychological and emotional factors have also been reported to play a role in the development of voice disorders. Quality of life is one way to assess the overall outcome of the physical, mental, and social well-being of a patient following treatment for a health-related problem. Treatment usually relates to the physical well-being of a patient, and physical well-being usually takes priority in attempts to assess the success of a treatment. The measurement of outcomes following treatment for voice disorders is in its infancy. In this study, the outcome measures available for voice disorders are reviewed within a framework of perceived handicap and quality of life. At the outset, it should be noted that quality of life is a global measure of outcome. Although quality of life is comprehensive, encompassing social, psychosocial, mental, and physical treatments, it must not be substituted for the diagnostic assessment of physical symptoms that persist despite treatment. Moreover, global quality-of-life assessments may not reflect changes in a specific condition such as a voice disorder. The Voice-Related Quality of Life (V-RQOL) measure is a validated outcomes instrument specific for voice disorders. In a diverse population of voice disorders it has been shown to be valid, reliable, responsive to change, and of low burden. Ongoing investigation with this outcomes tool is designed to better understand the functional, social, and emotional consequences of hyperfunctional voice disorders and to help build a core of evidence-based outcomes literature for the treatment of voice disorders. The goals of the current study are therefore to (1) determine the V-RQOL of patients with hyperfunctional voice disorders, (2) enhance understanding of the utility of the V-RQOL measure.*

Keywords: voice, Hyperfunctional, voice quality, V-RQOL, Quality

1. Introduction

This paper explores the role of voice quality in the communication of emotions, moods and attitudes. Voice and voice quality is an essential part of life. The vocal folds, in combination with the articulators, are capable of producing highly intricate arrays of sound. The tone of voice may be modulated to suggest emotions such as anger, surprise, or happiness. The human voice consists of sound made by a human being using the vocal folds for talking, singing, laughing, crying, screaming, etc.

The minute we speak – our tone, pitch, quality of articulation inflexions – send out subtle messages about the kind of person we are – our mood and our feelings at that particular time. Being able to project the ‘right sound’ can make a vital difference to the way we are perceived and treated. Used properly the voice can work for us in our personal relationships also, of course, in our business and professional life. It can be said that the voice is the primary link between the mind and the body therefore if you have a positive mindset, an awareness of posture and a basic knowledge of how the voice works – you have the potential to exercise far more control thus speaking effectively, effortlessly and with confidence. Our voice is frequently the first impression.

It announces who we are. It expresses our personalities and defines us intellectually as well as culturally. It portrays our emotions. We identify ourselves by our voice, by the way we sound. But what happens when our voice fails us? What happens when illness, injury or fatigue result in an inability to vocalize or put constraints on vocalization? This instrument can't be exchanged for a new model. A variety of adverse consequences occur when the voice is compromised. These consequences vary

according to how dependent an individual is, professionally and personally, on consistent vocal behaviours. Regardless of training or use, the range of adversity varies in impact from person to person.

A singer's quality of life and overall wellbeing are profoundly affected by the way the voice functions. Conversely, the way a person sings profoundly affects their quality of life. A voice problem can cause emotional as well as occupational consequences for those who use their voice professionally. Their overall quality of life is also at risk. Quality of life is therefore multi-dimensional, affecting physical, mental, emotional and social well-being. It represents a person's relationship between the reality of the situation and the perception of that reality, and will ultimately test a person's resolve in all aspects of life. The amount of vocal use, compromised technique, fatigue, tension, stress, diet, sleep, lifestyle, performance venues, humidity and other environmental factors are all potential culprits. These issues need to be taken into consideration and discussed when making a diagnosis and designing a treatment plan.

The voice qualities included harsh voice, tense voice, modal voice, breathy voice, whispery voice, creaky voice and lax-creaky voice. The human voice frequency is specifically a part of human sound production in which the vocal folds (vocal cords) are the primary sound source. The vocal folds, in combination with the articulators, are capable of producing highly intricate arrays of sound.

2. Review of Literature

1. Risk factors for hyper functional voice disorders in teachers.

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(Sebastian S, Suresh BA, Simon S, Ballraj A)

The study was to assess the prevalence of voice problems among teachers. In this study we evaluated 448 teachers (400 females and 48 males) between the age range of 25 to 55 years, from primary school as well as secondary school which were selected randomly to identify risk factors for voice pathology. In this study we evaluated 448 teachers (400 females and 48 males) between the age range of 25-55 years, from primary school as well as secondary school which were selected randomly. All the teachers selected for the study had an average teaching duration of 5 hours per day.

The study revealed that females had more prevalence of having voice problem though males varied in a small range. Study concluded that Apart from the overuse of voice, medical factors like respiratory illness, hyperthyroidism, gastro esophageal reflux, and hearing loss can be associated factor for hyper functional voice disorder.

2. Pediatric Voice Handicap Index (pVHI): A new tool for evaluating pediatric dysphonia.

(Karen B. Zur, Stephanie Cotton, Lisa Kelchner, Susan Baker, Barbara Weinrich, Linda Lee.)

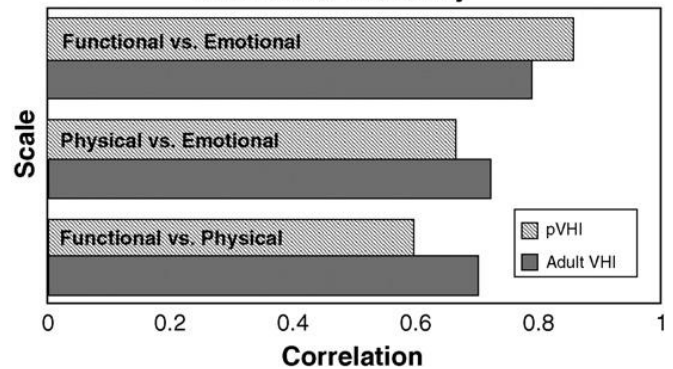
The Voice Handicap Index (VHI) is widely used and accepted into adult clinical practice. The present study was initiated to adapt the VHI to the pediatric population and to validate it in the form of a parental proxy.

The initial modification of the adult VHI involved changing the language of the statements to reflect a parent's responses about their child and eliminating questions that would not relate to children. It was administered in conjunction with 10 open-ended questions regarding the impact of the child's voice quality on overall communication, development, education, social and family life.

The pVHI was then modified in content and language, and the final 23-item parental proxy product was used for the validation process. The modified pVHI was administered to two groups of patients following IRB approval from Cincinnati Children's Hospital Medical Center. Results: Normative data was obtained from 45 parents of healthy children. The group consisted of 21 males, age ranges 3—12 years old. The mean scores of the total pVHI and its subscales are: functional (F) 1.47, physical (P) 0.20, emotional (E) 0.18 and total (T) 1.84.

The statistical results reveal that the adult VHI and pVHI scores are highly comparable. We found that the pVHI provided a high internal consistency and test—retest reliability. This tool will be utilized to follow the emotional, physical and functional aspects of a child's development following surgical, medical and behavioral interventions.

Test-Retest Reliability



A correlation matrix for pVHI sub score and total score. The functional and emotional subsets had the highest correlation of 0.86. These correlations are similar to those reported by Jacobson et al

3. Stress, Anxiety, Somatic Complaints, and Voice Use in Women With Vocal Nodules.

(Susan Goldman, Joan Hargrave, Robert E. Hillman, Eva Holmberg and Carla Gress)

The present study represents a preliminary examination of some psychosocial factors for 3 groups of adult female subjects: 27 with vocal nodules, 17 with hyper functionally related voice disorders other than nodules (pathological control), and 33 with no history of voice disorders (normal control). Four psychosocial factors were studied: stress (measured by the Social Readjustment Rating Questionnaire), anxiety (measured by the State-Trait Anxiety Inventory), voice use, and somatic complaints (both measured by our own instruments). Relative to the normal control group, the patients with nodules showed significantly increased scores on all factors except stress. The pathological control group showed significantly increased scores on all factors except voice use. No significant differences were found between the group with nodules and the pathological control group on any factor

4. Voice handicap index change following treatment of voice.

(Clark A Rosen, Thomas Murry, Anna Zinn, Thomas Zullo, Mirian sunbolian.)

Outcome measurements of voice disorders are an important new area for both the evaluation of voice-disordered patients and evaluation of treatment efficacy. The Voice Handicap Index (VHI) measures the patient's perception of the impact of his or her voice-disorder. The VHI was used in this study to measure the changes of the patient's perception following treatment for four different voice disorders. The VHI showed a significant change following treatment for unilateral vocal fold paralysis, vocal cyst/polyp, and muscle tension dysphonia. Results of this paper indicate that the VHI is a useful instrument to monitor the treatment efficacy for voice disorders.

5. Outcome Measurements and Quality of Life in Voice Disorders.

(Thomas Murry, Clark A. Rosen.)

The World Health Organization considers health as a multidimensional concept encompassing physical, mental, and social states of being.²¹ A change in any one of these states as a result of treatment is considered to be an outcome of treatment. Treatment usually relates to the physical well-being of a patient, and physical well-being usually takes priority in attempts to assess the success of a treatment.

In this article, the outcome measures available for voice disorders are reviewed within a framework of perceived handicap and quality of life.

6. Effect of voice disorders on quality of life.

(Elaine Smith, Katherine Verdolini, Steven Gray, Sara Nichols, Jon Lemke, Julie Barkmeier, Heather Dove, Henry Hoffman)

Quality of life is a global measure of outcome. Although quality of life is comprehensive, encompassing social, psychosocial, mental, and physical treatments, it must not be substituted for the diagnostic assessment of physical symptoms that persist despite treatment. Moreover, global quality-of-life assessments may not reflect changes in a specific condition such as a voice disorder.

In this study a group of adult patients (N= 174) and nonpatients (N= 173) were solicited from two university hospital voice disorder clinic to complete a questionnaire designed to elicit information about the frequency and effects of voice impairments on quality of life: work, social, psychological, physical, and communication problems related to a voice disorder. The findings indicated that the patient group was significantly ($p < .05$) more likely to report (a) a higher frequency of IO specific voice symptoms and (b) adverse quality of life effects. Voice disorders were perceived by the majority of patients as adversely affecting past (53%), current (49%), and future (76%) job functions.

The nonpatient comparison group reported only 2-4% of adverse effects on past and current jobs and 19% on future jobs. Only 11% of nonpatients but almost 75% of patients felt that social interactions were adversely affected by voice problems, with participation in social activities limited whenever possible. Psychological problems related to voice functions were reported by a larger portion of patients than nonpatients as well, particularly depression (65% vs. 4%) and adverse professional self-esteem (61% vs. 5%). Only 4-5% of the comparison group but the majority of the patient group noted physical discomfort as the result of a voice disorder, with phonatory effort being the most common complaint in patients (68%).

The most commonly reported communication problems in both the patient and comparison groups involved conversations with background noise (65% vs. 8%), difficulty with telephone conversations (58% vs. 5%), and the necessity to repeat statements because of being poorly understood (58% vs. 5%). The elderly were the most commonly affected by these quality of life impairments; however, age may have been confounded with diagnostic

category in this study. The results suggest that quality of life may be adversely affected in a large proportion of persons with voice disorders and that more research is needed for improving quality of life for these persons.

7. Quality of Life and Voice: Study of a Brazilian Population Using the Voice-Related Quality of Life Measure.

(Behlau M. · Hogikyan N.D · Gasparini)

This study indicates that the worse the self-assessment of the voice, the lower the V-RQOL scores, with higher significance in the group with vocal complaints. The total V-RQOL score was 97 for excellent voices, 92 for very good, 84 for good, 65 for fair, and 45 for poor voices.

Main correlations for both groups were: total and physical scores (0.96), total and social-emotional scores (0.82); physical and social-emotional scores (0.69); self-assessment of the voice and total score (0.61); self-assessment of the voice and physical score (0.58), and self-assessment of the voice and social-emotional score (0.52). Two interesting negative correlations were found between age and self-assessment of the voice (-0.271), and age and social-emotional score (-0.184). Group 1, with vocal complaints, presented lower scores than group 2.

The relationship between self-assessment of voice quality and V-RQOL scores was very clear and statistically significant, especially when considering the group with a known voice disorder.

3. Materials and Methods

Methodology:

Study Design: Cross sectional study

Sampling Method: Non Random Sampling

Participants: Research is conducted on 60 individuals with voice disorders after which they are divided based on their disorders. It is mainly focused on how these disorders effect their physical social and emotional domains.

Inclusion Criteria:

- Hyperfunctional Voice Disorder is known as the impairment of voice quality through damage to associated structures
- Individuals from 18-65 years.
- Individuals diagnosed by a qualified ENT with vocal hyperfunctional disorder.

Exclusion Criteria:

- Individuals with associated conditions leading to vocal hyper function.
- Individuals with repeated episodes of vocal hyper function and any neurological conditions.

Procedure:

A total of 60 subjects will be recruited for the study based on the inclusion and exclusion criteria. All the participants will be counseled regarding the aim and the procedure of the study and an informed consent will be taken prior to the assessment. The individuals being considered for this study will be provided with a copy of the VRQOL questionnaire which contains questions related to physical and psychosocial abilities associated with voice disorders.

4. Results

The present study was carried out with an aim to account for quality of life related issues in individuals with hyperfunctional voice disorders.

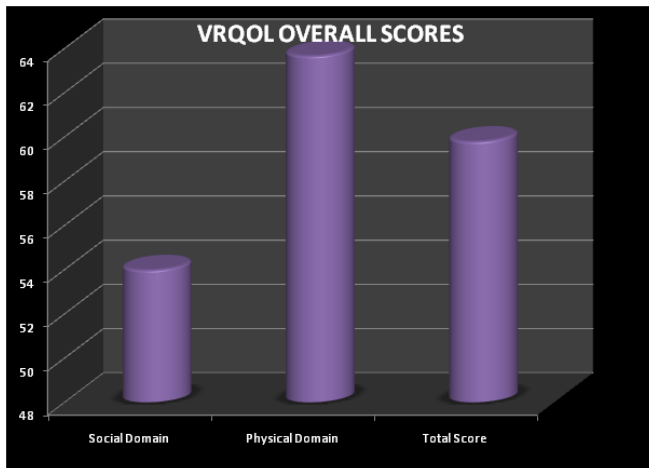


Figure 1: Mean values for the social, physical and the overall combined domain scores.

The above figure depicts that the physical domain which focuses on activities of professional functioning and day to day survival is reported to be more affected in individuals with hyper functional voice disorders. Though social domain is affected, the additive scores of both domain are lesser when compared to the physical domain alone. Thereby we can infer that the physical domain of VRQOL is more sensitive in accounting for deficits in Quality of Life especially in the Physical Domain.

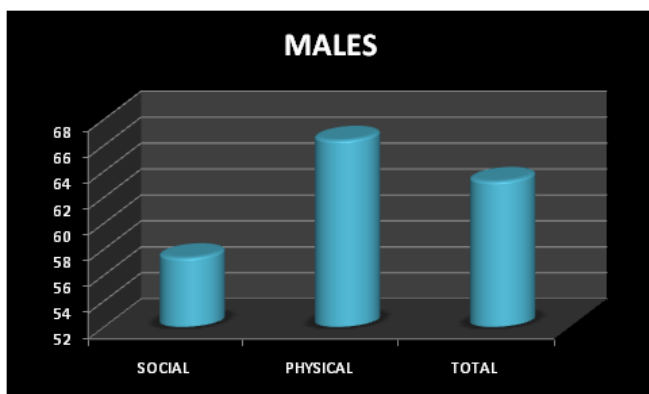


Figure 2: Mean values for the social, physical and the overall combined domain scores in the male subjects recruited for the study

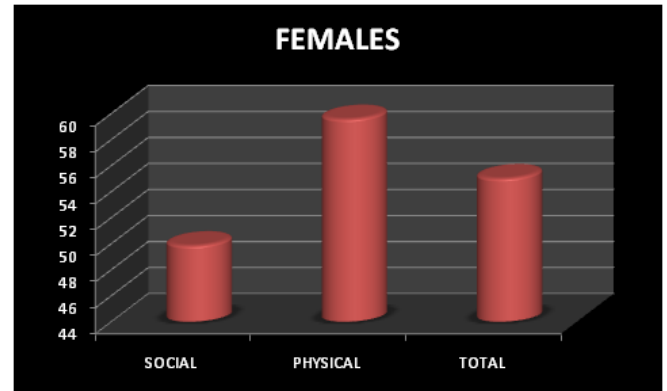


Figure 3: Mean values for the social, physical and the overall combined domain scores in the female subjects recruited for the study

The above figures depict the affect of the domains of VRQOL across genders. Here the physical domain which focuses on activities of professional functioning and day to day survival is reported to be more affected in both the male and female subjects that were recruited in our study. Thereby we can infer that the physical domain of VRQOL is more sensitive in accounting for deficits in Quality of Life across genders when compared to the social domain and the overall total domain scores.

5. Discussion

This study explores the role of voice quality in the communication of emotions, moods and attitudes. Voice and voice quality is an essential part of life. The vocal folds, in combination with the articulators, are capable of producing highly intricate arrays of sound.

The tone of voice may be modulated to suggest emotions such as anger, surprise, or happiness. The human voice consists of sound made by a human being using the vocal folds for talking, singing, laughing, crying, screaming, etc.

Our voices and its mechanism can't be exchanged for a new model. A variety of adverse consequences occur when the voice is compromised. These consequences vary according to how dependent an individual is, professionally and personally, on consistent vocal behaviours. Regardless of training or use, the range of adversity varies in impact from person to person.

Quality of life is therefore multi-dimensional, affecting physical, mental, emotional and social well-being. It represents a person's relationship between the reality of the situation and the perception of that reality, and will ultimately test a person's resolve in all aspects of life.

The amount of vocal use, compromised technique, fatigue, tension, stress, diet, sleep, lifestyle, performance venues, humidity and other environmental factors are all potential culprits. These issues need to be taken into consideration and discussed when making a diagnosis and designing a treatment plan.

Quality of life is comprehensive, encompassing social, psychosocial, mental, and physical treatments; it must not be substituted for the diagnostic assessment of physical symptoms that persist despite treatment. Moreover, global quality-of-life assessments may not reflect changes in a specific condition such as a voice disorder.

In the present study, VRQOL was utilised to account for the difficulties that individuals with voice disorders encounter in the course of their day to day living. A 10 question questionnaire it has questions categorised into social and physical domains. Each of these domains describes the areas of either emotional or professional functioning that is affected due to the presence of the voice problem.

Results of our study revealed that amidst the two domains, the physical domain seems to be more severely affected across the subject population recruited for the study as well as across genders. Moreover the documenting of this questionnaire ensured the clients follow up visits to decrease in number indicating that the treatment protocol suggested to these clients based on the Voice Analysis and the VRQOL results proved to be more effective and beneficial to the clients.

Gasparini et al reported the similar results as our study stating that use of VRQOL along with traditional voice assessment measures produced better treatment outcomes in individuals with voice disorders.

Goldman et al also reported that in women diagnosed with vocal nodules the complaints were more psychological in nature and on administering VRQOL reported that the subjects were affected in both social and physical domains. The social domain revealed stress, anxiety and somatic complaints in association with the voice disorder. The pathological control group showed significantly increased scores on all factors except voice use.

In this study, VRQOL – Voice Related Quality Of Life Questionnaire which is an outcome measure available for voice disorders has been reviewed within a framework of perceived handicap and quality of life.

At the outset, it should be noted that quality of life is a global measure of outcome. Although quality of life is comprehensive, encompassing social, psychosocial, mental, and physical treatments, it must not be substituted for the diagnostic assessment of physical symptoms that persist despite treatment.

Moreover, global quality-of-life assessments may not reflect changes in a specific condition such as a voice disorder. Thus, it can be considered as useful tool in the assessment of voice. However, it cannot replace the existing voice analysis techniques available to the voice clinician. Yet, it may add to the battery of voice assessment procedures.

6. Conclusion

The application of VRQOL – Voice Related Quality Of Life Questionnaire in the assessment of voice is a venture that must be considered. With ethical issues and patient perspective treatment methods coming into use in the rehabilitation scenario, accounting for the affect of a voice disorder and the impact of the disorder on the functioning of the individual in their day to day living becomes very crucial.

Questionnaires like these help us to gauge and understand the depth of the problem from the patient's point of view and thereby will ensure a holistic rehabilitation procedure from our end. More and more SLP's and Voice Therapists must focus on such measures and derive the benefits of utilising these measures in helping them understand their patients and treat them better.

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