Patient Versus Partner Perception of Voice Handicap

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Summary: The primary purpose of this study was to compare patient’s and communication partner’s perceptions of handicap secondary to dysphonia. A secondary purpose was to compare patient health-related quality of life (HRQOL) to that of speakers with normal voice. Participants were 20 adults (mean age = 69.15 years) with dysphonia and their communication partners. Patients completed the Voice Handicap Index (VHI), a questionnaire of self-perceived voice handicap, and the Short-Form 36 (SF-36), a general health questionnaire. Partners completed the Voice Handicap Index-Partner (VHI-P), a questionnaire derived from the VHI for this pilot study, to gauge partner perception of voice handicap. Patients in this study viewed themselves as only moderately handicapped by their dysphonia and their partners were in close agreement. Patients and their partners were also in close agreement on each of three VHI subscales (physical, functional, and emotional), and in all cases the physical domain was perceived by both patients and their partners to be most handicapped. Patients had lower SF-36 mean scores than those of persons with normal voice from the general U.S. population on scales assessing physical functioning, physical role, general health, vitality, social functioning, emotional role, and mental health. The results of this study are consistent with previous studies examining patient-partner agreement, which consider proxy ratings to be a useful alternative or collaborative source of patient’s self-perception. Further research regarding the reliability of patient and partner agreement is necessary to most effectively assess and manage patients with dysphonia.

Key Words: Dysphonia—Voice disorder—Voice handicap—Quality of life—VHI—SF-36.

INTRODUCTION

The health-related quality of life (HRQOL) of patients with dysphonia is increasingly being used as a gauge by which success of voice therapy is measured.\textsuperscript{1,2} While obtaining objective measures of vocal performance can be an important part of the clinician’s diagnostic process, such measures cannot assess the level of perceived handicap a person experiences as a result of their dysphonia. As Ma and Yui\textsuperscript{3} state, “...Obtaining information about a client’s perceptions of their own voices is
important because it gives clinicians an indication of discrepancies between the client’s perception of his/her voice problem as compared with measures of severity of the voice impairment by some objective means." (p. 540).

A number of instruments have been developed to facilitate qualitative and quantitative information gathering about how a person is affected by dysphonia. These include the Voice Handicap Index (VHI), the Voice Handicap Index-10 (VHI-10), the Vocal Performance Questionnaire (VPQ), the Voice Symptom Scale (VosS), the Voice-Related Quality of Life (VRQOL) questionnaire, the Voice Activity and Participation Profile (VAPP), and the Voice Outcome Survey (VOS). Of the aforementioned instruments, the VHI is probably the most widely used in the United States and is cited more frequently than the others in the scientific literature.

Introduced by Jacobson et al in 1997, the VHI is a patient-based self-assessment tool consisting of 30 items equally distributed and designed to elicit information about three domains of voice handicap: functional, physical, and emotional. The VHI is designed to assess all types of voice disorders. The overall aim of the VHI is to quantify the patient’s perception of handicap because of his or her vocal function. The VHI has been shown to be a psychometrically sound instrument.

The Short-Form 36 (SF-36) is a general health status questionnaire completed by the patient. The SF-36 was developed to survey health status and satisfaction with care as part of the Medical Outcomes Study. As described by DeVon and Ferrans, the SF-36 contains 36 items, takes about 10 minutes to complete, and measures eight dimensions of health including (1) physical limitations due to health problems, (2) social limitations due to physical or emotional problems, (3) role limitations due to physical problems, (4) bodily pain, (5) mental health, (6) role limitations due to emotional problems, (7) vitality, and (8) general health perceptions. A score for each of the eight domains is obtained by summing unweighted scores on each item and transforming to a score from 0 to 100. A summary score for the instrument is not computed. Higher scores indicate better health. Items were chosen to represent the content of the full-length Medical Outcomes Study form. The SF-36 was specifically designed for use in diverse groups to facilitate comparisons of the relative burden of different diseases and the benefits of different treatment.

Wilson et al compared SF-36 scores of dysphonic patients and speakers with normal voice and reported that patients with dysphonia had significantly poorer self-reported health on physical activities such as walking and bathing, work-related and daily activities, bodily pain, perceptions of health, energy level, social activity, emotional well-being, and mental health. Krischke et al administered the SF-36 to 108 patients with dysphonia and compared their responses to those of speakers with normal voice from the SF-36 database (1998) in an effort to determine if etiology (functional or organic) or gender influenced HRQOL outcomes. Krischke et al reported that patients with dysphonia reported significantly poorer HRQOL than speakers with normal voice. However, the differences between the two speaker groups were not attributed to etiology or gender, but rather were attributed possibly to cultural factors. Krischke et al concluded that the overall diagnosis of voice disorders should encompass both objective and subjective measures to evaluate the handicap and impact of dysphonia on HRQOL and VRQOL (p. 5). Cohen et al explored the relationship between non-neoplastic voice disorders and patients’ quality of life in a meta-analysis of VHI and SF-36 literature, and reported that patients with neurologic laryngeal disease had worse SF-36 scores than did controls in most subdomains. Additionally, it was reported that both patients with neurologic laryngeal disease and patients with inflammatory or traumatic laryngeal disorders had changes in SF-36 subdomains similar to those of patients with other chronic disease states. While the SF-36 has been standardized on persons with voice disorders, it does not ask questions specifically related to the voice and the resulting level of perceived handicap. Therefore, it may not be particularly sensitive to specific issues facing persons with voice disorders.

**Patient versus partner perception of HRQOL**

HRQOL studies sometimes rely, in part, on proxy information obtained from patients’ significant others (spouse or close companion) or health care
providers. Sneeuw et al. reviewed 23 studies, published between 1991 and 2000, which described patient-proxy agreement for a number of well-known multidimensional HRQOL instruments. In general, moderate to high levels of patient-proxy agreement were reported. Lower levels of agreement were found predominantly in studies using a small sample size (approximately 50 patient-proxy pairs or less). In larger studies comparing patients and their significant others, median correlations were between 0.60 and 0.70 for physical HRQOL domains and about 0.50 for psychosocial HRQOL domains. Mixed results were reported in studies comparing patients and their health care providers, but most of these studies used a relatively small sample size. Proxy raters tended to report more HRQOL problems than patients themselves, but the magnitude of observed differences was modest. Based on their analysis of the literature, Sneeuw et al. concluded that judgments made by significant others and health care providers about several aspects of patients’ HRQOL can be considered to be reasonably accurate.

Comparisons between patient perceptions and caregiver perceptions are important because caregivers play a decisive role in rehabilitation as well as the patient’s psychosocial adjustment. Congruence between patients and their confidants, and patients and professional health care providers, should result in the most appropriate treatment for patients. Clinically, professionals may be able to ask family members about a patient’s functioning to corroborate the patient’s opinions, and provide a more accurate account in instances where a patient is cognitively impaired or unable to accurately communicate their level of functioning.

**Patient versus partner perception of voice handicap**

There is a paucity of literature reporting patient-proxy agreement about the HRQOL of patients with communication disorders. Even more pointedly, no literature has been identified reporting patient-partner agreement about the handicapping and/or disabling effect of dysphonia. If the patient’s assessment of voice handicap is congruent with that of their communication partner, then that partner may be of use in providing or corroborating patient information. If a patient reports perceived handicap lower than that of their communication partner, or vice versa, then counseling about the impact of the voice disorder may be appropriate.

Information about partner-perceived voice handicap may be a useful addition for determination of severity, planning of treatment goals and objectives, and in quantifying voice treatment outcomes. With this in mind, the primary purpose of this study is twofold: (1) to develop a voice-specific assessment instrument that is appropriate for the communication partner of the speaker with dysphonia and (2) to determine if congruency exists between the patient’s and his/her communication partner’s perception of voice handicap. The specific research questions are the following:

1. How do patient and partner VHI total and subscale scores compare; and
2. How do patients’ SF-36 scores compare to gender-matched speakers whose voice is normal.

The primary null hypothesis is that there will be no statistically significant difference between patient’s and partner’s perception of voice handicap. The primary research hypothesis is that there will be a statistically significant difference ($P < 0.05$) between patient’s and partner’s perception of voice handicap. If the null hypothesis is not rejected (that is, there is good agreement) then a communication partner can be considered a useful collaborator in reporting patient assessment information. Alternatively, if the research hypothesis is accepted (that is, patients and their communication partners disagree), voice researchers and clinicians may want to reevaluate the effect of dysphonia on both speakers and their significant others, in hopes of establishing a broader view of voice handicap.

**METHOD**

**Participants**

Study participants were medically stable patients with dysphonia ($n = 20$) and their significant communication partners ($n = 20$). Table 1 summarizes the demography of the study participants, who were recruited from the Voice and Swallowing
Center at the University of Arkansas for Medical Sciences (Little Rock, AR). To take part in this study, patients met the following inclusion criteria: (1) were at least 18 years of age, (2) exhibited chronic dysphonia, ie, began at least 1 month before their visit, (3) exhibited English preference skills at a level which allowed study participation, and (4) gave informed consent to participate. Patient exclusion criteria included the following: (1) presence of a concomitant speech and/or cognitive-language disorder, or (2) diagnoses of alaryngeal voice or psychogenic dysphonia. Communication partners met the following inclusion criteria: (1) were at least 18 years of age, (2) listen to the patient speak at least 2 hours per day, (3) exhibited English preference skills at a level which allowed study participation, and (4) gave informed consent to participate.

### Materials and procedures

Patients first underwent a medical evaluation performed by an otolaryngologist who is fellowship trained in care of the professional voice (author FJ). This evaluation included rigid laryngostroboscopy recorded on a KayPENTAX computer-based system (KayPENTAX Corp., Lincoln Park, NJ). During this examination, the patient was asked to perform the following vocal tasks at their most comfortable speaking pitch and loudness: (a) sustain the vowel /a/ for 3 seconds, (2) read aloud select sentences, and (3) read aloud the first paragraph of the Rainbow Passage.23

Immediately before their laryngeal exam, patients completed the VHI independently of their communication partner. Patients also independently completed the SF-36 following completion of the VHI. Communication partners accompanying the patient to the voice exam completed the Voice Handicap Index-Partner (VHI-P) independently of the patient. The VHI-P (see Appendix A) is a pilot instrument developed for this study and is derived from the VHI.

### RESULTS

Table 2 presents the raw data as well as the mean, standard deviation, and range as reported by
patients and their partners on the VHI and VHI-P, respectively. With a maximum subscale score of 40 and total score of 120 on both instruments, review of Table 2 indicates that patients viewed themselves as only moderately handicapped and that their partners were in close agreement. Patients and their partners also were in close agreement on each of the three subscales, and in all cases the physical domain was judged by both patients and their partners to be most handicapped.

An independent $t$ test was used to compare the mean VHI total score and subscale scores of the patients versus their communication partners. An $a$ priori significance value of $P < 0.05$ was chosen. Results of the $t$ tests indicated no statistically significant differences for the VHI total score ($t = 0.815$, $df = 38$, $P = 0.420$) or any subscale: physical ($t = 0.423$, $df = 38$, $P = 0.675$); emotional ($t = 0.679$, $df = 38$, $P = 0.501$); and functional ($t = 1.074$, $df = 38$, $P = 0.289$).

The correlation between the patient and communication partner groups on the VHI and VHI-P was calculated using Pearson’s $r$ statistic. For the VHI total $r = 0.673$ ($P < 0.01$); for the physical subscale $r = 0.682$ ($P < 0.01$); for the emotional subscale $r = 0.377$ ($P > 0.05$); and for the functional subscale $r = 0.530$ ($P < 0.05$). Thus, with the exception of the emotional domain, all other domains were statistically significantly correlated and were of moderate strength.

Table 3 and Figure 1 present the patients’ SF-36 scores and compare them to the scores of the speakers with presumably normal voice (obtained from the SF-36 1998 U.S. normative database). SF-36 subscale scores were derived by normalizing the raw scores on each subscale to a range of 0 (worst) to 100 (best). As can be seen, patients had statistically significantly ($P < 0.01$) lower SF-36 mean scores than persons with normal voice on all scales except bodily pain.

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Additional correlations between the VHI and VHI-P total scores were calculated for female patients and their husbands, and male patients and their wives. While female patients and their husbands were weakly positively correlated ($r = 0.215$), male patients and their wives were weakly negatively correlated ($r = -0.245$).

**DISCUSSION**

This study primarily examined if patients and communication partners were in agreement about the degree of perceived voice handicap resulting from dysphonia. Results were that VHI total and VHI subscale scores (physical, functional, emotional) were not statistically significant ($P > 0.05$) for the two groups, and that patient and partner VHI scores were positively correlated. These results indicate that the 20 patients and their partners in this study agreed on the handicapping effect of dysphonia, regardless of etiology and severity. This primary finding is consistent with that of broader studies in the disability literature examining patient-partner congruence about the effects of disability on HRQOL. Such studies typically report moderate to high levels of patient-partner agreement. In contrast to the broader disability literature which indicates that partners routinely overestimate the effect of disability on HRQOL, partners in this study slightly underestimated the handicapping effect of dysphonia (Table 2).

Looking more closely at VHI subscale scores, it was discovered that both patients and partners reported lower scores on the emotional subscale than the other two subscales (Table 2); furthermore, the emotional subscale scores were more weakly correlated across the two groups than the other two subscales. The latter of these two findings suggests that the emotional handicap perceived by a patient may not be as readily apparent to the partner as their physical and functional handicap. It is possible that patients did not report true emotional handicap because of concerns about social acceptability or personal vulnerability. Additionally,

<table>
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<th>Scale</th>
<th>Standardized Means of Current Study (SD)</th>
<th>95% Confidence Intervals</th>
<th>Normative Population Mean (SD)</th>
<th>$t$ Test Statistic</th>
<th>$P$-Value</th>
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<td>29.88 (10.03)</td>
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<td>-8.97</td>
<td>&lt;0.001</td>
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<td>31.58 (9.34)</td>
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<td>50 (10)</td>
<td>-8.82</td>
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<td>BP</td>
<td>58.40 (10.15)</td>
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<td>50 (10)</td>
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<td>SF</td>
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<td>&lt;0.001</td>
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<td>RE</td>
<td>36.29 (9.94)</td>
<td>31.63, 40.94</td>
<td>50 (10)</td>
<td>-6.17</td>
<td>&lt;0.001</td>
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<td>MH</td>
<td>40.07 (8.98)</td>
<td>35.87, 44.27</td>
<td>50 (10)</td>
<td>-4.95</td>
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Abbreviations: PF, physical functioning; RP, role-physical; BP, bodily pain; GH, general health; VT, vitality; SF, social functioning; RE, role-emotional; MH, mental health.


Additional correlations between the VHI and VHI-P total scores were calculated for female patients and their husbands, and male patients and their wives. While female patients and their husbands were weakly positively correlated ($r = 0.215$), male patients and their wives were weakly negatively correlated ($r = -0.245$).
Table 2 reveals that, across all VHI subscales, patients reported slightly higher scores than their partners, a finding which is consistent with findings from the broader disability literature.21

There appears to be a gender effect for the primary finding. VHI total scores of female patients and their husbands were positively correlated, while scores of male patients and their wives were negatively correlated. This is inconsistent with disability literature reporting greater agreement between dyads when the patient was male and poorer agreement when the patient was female.26 It has been suggested that female spouses may overstate their partner’s disability27,28 or that they may perceive the disability more inaccurately.29

A secondary focus of this study was on the nature of the patients’ scores on the SF-36 (Table 3). Patients reported relatively poor HRQOL in regard to physical functioning, physical role, general health, vitality, social functioning, emotional role, and mental health. This finding is consistent with a limited voice literature reporting significantly poorer HRQOL in patients with dysphonia versus speakers with normal voice.16–18 The relatively poor HRQOL reported by patients in this study is striking given that the mean VHI total score was 63, reflecting perception of only moderate voice handicap. One has to wonder how much poorer their HRQOL might have been reported to be had their perceived voice handicap been greater.

Although the primary finding of this study indicates that there is a relationship between patients’ and partners’ perception of voice handicap, generalization to other dysphonic speaker populations and other patient/partner dyads is limited. First, the study population included a relatively limited number of dysphonic speakers. Second, the dysphonic speakers were drawn from a limited number of etiologic categories. Third, only a relatively small number of patient/partner dyads were compared. Last, patients and partners were not paired based on age, gender, race, or socioeconomic status, all variables which may potentially influence perception of voice handicap across raters. With a larger and more heterogenous study population, one might be able to ascertain if variables such as etiology, time postonset of dysphonia, activity level, work status, and voice usage might influence levels of patient-partner agreement. Also, because of the sometimes variable nature of dysphonia, patient’s and partner’s perceptions may have been different on another day. It is also possible that results may have been different had an assessment instrument other than the VHI been utilized. Given that the VHI-P was not standardized before use in this study, the primary finding should be viewed as preliminary, and suggestive of future investigation.

CONCLUSION

An emerging literature supports the clinical importance of understanding patients’ perceptions of voice handicap. The primary finding of this study suggests that patients’ communication partners also may provide additional congruent information about the handicapping effect of dysphonia. Given that persons with dysphonia presumably speak to others, establishing a broader view of voice handicap which encompasses communication partners may allow clinicians to better serve patients with dysphonia and all those affected by it.

Acknowledgments: This paper is based, in part, on a Masters thesis completed by the second author, under the direction of the first author.

REFERENCES


APPENDIX A

VOICE HANDICAP INDEX-PARTNER

I would rate my partner’s degree of talkativeness as the following: (circle response)

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<tr>
<td></td>
<td>Quiet listener</td>
<td>Average talker</td>
<td>Extremely talkative</td>
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These are statements that many people have used to describe their own voices and the effects of their voices on their lives. Circle the response that indicates how frequently you think your partner has the same experience.

0–never 1–almost never 2–sometimes 3–almost always 4–always

Part I-F:
1.) Their voice makes it difficult for people to hear them......................... 0 1 2 3 4
2.) People have difficulty understanding my partner in a noisy room......... 0 1 2 3 4
3.) Family has difficulty hearing them when they call throughout the house............................................................................... 0 1 2 3 4
4.) They use the phone less often than they would like to....................... 0 1 2 3 4
5.) They tend to avoid groups of people because of their voice.............. 0 1 2 3 4
6.) They speak with friends, neighbors, or relatives less often because of their voice........................................................................... 0 1 2 3 4
7.) People ask them to repeat themselves when speaking face-to-face..... 0 1 2 3 4
8.) Their voice difficulties restrict their personal and social life............ 0 1 2 3 4
9.) They feel left out of conversations because of their voice............... 0 1 2 3 4
10.) Their voice problem causes them to lose income........................... 0 1 2 3 4

Part II-P:
1.) They run out of air when they talk.................................................. 0 1 2 3 4
2.) The sound of their voice varies throughout the day......................... 0 1 2 3 4
3.) People ask, “What’s wrong with their voice?”................................. 0 1 2 3 4
4.) Their voice sounds creaky and dry.................................................... 0 1 2 3 4
5.) They feel as though they have to strain to produce a voice............. 0 1 2 3 4
6.) The clarity of their voice is unpredictable....................................... 0 1 2 3 4
7.) They try to change their voice to sound different.......................... 0 1 2 3 4
8.) They use a great deal of effort to speak........................................... 0 1 2 3 4
9.) Their voice is worse in the evening................................................... 0 1 2 3 4
10.) Their voice “gives out” on them in the middle of speaking............. 0 1 2 3 4

Part III-E:
1.) They are tense when talking to others because of their voice........... 0 1 2 3 4
2.) People seem irritated with their voice............................................ 0 1 2 3 4
3.) They find other people don’t understand their voice problem......... 0 1 2 3 4
4.) Their voice problem upsets them.................................................... 0 1 2 3 4
5.) They are less outgoing because of their voice problem………………. 0 1 2 3 4
6.) Their voice makes them feel handicapped…………………………. 0 1 2 3 4
7.) They feel annoyed when people ask them to repeat…………………. 0 1 2 3 4
8.) They feel embarrassed when people ask them to repeat…………… 0 1 2 3 4
9.) Their voice makes me feel incompetent…………………………….. 0 1 2 3 4
10.) They are ashamed of their voice problem………………………….. 0 1 2 3 4

Total Score (Range = 0 – 120): ___________________