New Perspective on Psychosocial Distress in Patients With Dysphonia: The Moderating Role of Perceived Control

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Summary: Objectives. Although an association between psychosocial distress (depression, anxiety, somatization, and perceived stress) and voice disorders has been observed, little is known about the relationship between distress and patient-reported voice handicap. Furthermore, the psychological mechanisms underlying this relationship are poorly understood. Perceived control plays an important role in distress associated with other medical disorders. The objectives of this study were to (1) characterize the relationship between distress and patient-reported voice handicap and (2) examine the role of perceived control in this relationship.

Study Design. This is a cross-sectional study in a tertiary care academic voice clinic.

Methods. Distress, perceived stress, voice handicap, and perceived control were measured using established assessment scales. Association was measured with Pearson correlation coefficients; moderation was assessed using multiple hierarchical regression.

Results. A total of 533 patients enrolled. Thirty-four percent of the patients met criteria for clinically significant distress (ie, depression, anxiety, and/or somatization). A weak association ($r = 0.13$; $P = 0.003$) was observed between severity of psychosocial distress and vocal handicap. Present perceived control was inversely associated with distress ($r = -0.41$; $P < 0.0001$), stress ($r = -0.30$; $P < 0.0001$), and voice handicap ($r = -0.30$; $P < 0.0001$). The relationship between voice handicap and psychosocial distress was moderated by perceived control (b for interaction term, -0.15; $P < 0.001$); greater vocal handicap was associated with greater distress in patients with low perceived control.

Conclusions. Severity of distress and vocal handicap were positively related, and the relation between them was moderated by perceived control. Vocal handicap was more related to distress among those with low perceived control; targeting this potential mechanism may facilitate new approaches for improved care.

Key Words: Voice disorder–Psychosocial distress–Depression–Anxiety–Somatization–Stress–Perceived control–Voice handicap–Moderation.

INTRODUCTION

A number of studies have drawn attention to psychosocial distress in patients with dysphonia,[1–3] although subject samples from these investigations have mostly been small and limited to specific laryngeal diagnoses. More recent studies involving larger numbers of patients with broader voice-related diagnoses have observed a startlingly high prevalence of clinically significant distress in patients presenting for voice care.[1,4,5] Although this association has been consistently observed, limited data are available on the relationship between distress and degree of voice-related handicap. Presumably, greater distress and voice-related handicap would be correlated. However, in the study by Siupsinskiene et al,[4] which is to our knowledge, the only publication examining this issue, a weak relationship was observed between patient scores on the Hospital Anxiety and Depression Scale (HADS) and the voice handicap index ($r = 0.17$ for depression and 0.23 for anxiety). The relatively weak strength of this association was initially puzzling. One potential explanation was that the HADS does not assess somatic concerns; given our prior observation of a significant somatic component to distress among voice patients,[5] we speculated that including an assessment of somatization in addition to anxiety and depression could allow better detection of an association between severity of distress and vocal handicap.

When the correlation between two variables is unexpectedly low, it is also useful to look for variables that may be moderating the relationship. A moderator effect is an interaction "whereby the effect of one variable depends on the level of another."[6] This is distinct from a mediator, which explains the relationship between one variable and another rather than identifying when or for whom the relationship is meaningful. In the case of psychosocial distress and voice-related handicap, we speculated that a moderator might allow us to identify patients for whom there was a meaningful relationship between distress and voice-related handicap.

We thus turned our attention to one potential moderator, a psychological construct described in a temporal model of perceived control. Perceived control, an important psychological concept, is defined as "people's beliefs in their capability to exercise some measure of control over their own functioning and over environmental events."[7] In this context, it would describe the degree to which patients believed that they had control over the voice-related events that occurred in their lives and how they responded or adjusted to them. We were particularly interested in present (as opposed to past or future)

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perceived control (PPC), which is "control [over] some current aspect of the event,"[8] and has been shown to be more predictive of decreased distress than past or future perceived control. PPC is linked with better life outcomes and reported physical health in undergraduates with a history of distressing life events.[9] PPC has also been associated with less distress in patients with medical conditions such as tinnitus,[10] cardiac problems,[11] and breast cancer,[12,13] indicating that although the situation itself may or may not be controllable, the patient's response to the situation plays an important role in outcomes.

We examined these factors by concurrently assessing distress (including depression, anxiety, somatization, and stress), voice handicap, and degree of PPC in patients who presented with voice problems.

The objectives of this study were to assess the strength of association between voice handicap and distress in a sample of heterogeneous voice clinic patients, determine whether PPC was associated with distress and voice handicap, and determine whether present control moderated the relationship between psychosocial distress and voice handicap.

We hypothesized that

(1) Voice handicap and distress would have a small to moderate correlation.[4]
(2) PPC would be negatively associated with distress[10–13] and voice handicap.

On an exploratory basis, we also hypothesized that PPC would moderate the relationship between distress and voice handicap such that vocal handicap would be more strongly related to distress for those with lower perceived control. This hypothesis, in contrast to those presented above, was based on clinical impressions rather than on existing literature, as there is no prior literature describing the role of perceived control in this context.

MATERIALS AND METHODS

Participants

Consecutive patients presenting to the Voice Clinic at an academic otolaryngology clinic were invited to participate by research staff and were prospectively enrolled for this study. Inclusion criteria included patient report of voice concern(s), age of at least 18 years, and ability to complete questionnaires independently. Patients completed the instruments before being seen by a provider. Participants were included in the sample regardless of specific voice-related diagnosis to increase sample heterogeneity and the generalizability of the findings. The first 192 patients of the sample presented here were also included in an earlier study of this population.[5] Information on demographic and medical characteristics, past medical history, and voice diagnosis was abstracted from the participants' medical records. All diagnoses were abstracted from the clinic charts as documented by one of two laryngologists, with no independent or separate review, as in previous studies.[1,4] In cases where multiple possible diagnostic categories were invoked, an inclusive approach was taken and all potential or definitive diagnoses from the clinical encounter were recorded. The study was approved by the University of Minnesota institutional review board (IRB# 1201M9533).

Instruments

Overall psychosocial distress, including depression, anxiety, and somatic symptoms, was assessed using the Brief Symptom Inventory-18 (BSI-18).[14] The BSI-18 has been used in a variety of patient populations[15–17] and has demonstrated strong reliability (0.74–0.89 across subscales).[18] Patients with T scores of at least 63, which are approximately equivalent to a 90th percentile on community norms, were considered to have met case criteria.[18] To identify "high risk" patients who did not meet the strict criteria for caseness, a cutoff at the 75th percentile (equivalent to a T score of 57) was used.[14] The BSI-18 can also be interpreted at the subscale level for depression, anxiety, and somatic concerns. The Cronbach α coefficient for the BSI-18 scale in this sample was 0.92.

The Perceived Stress Scale (PSS)[19] was used to evaluate perceived stress (eg, "In the past month, how often have you felt nervous or stressed?"). The PSS is the most commonly used measure to evaluate perceptions of stress and has several different versions, including 14 items, 10 items, and 4 items, which are designed to be contextually nonspecific. Scores on all versions have been demonstrated to have strong internal reliability (ranging from 0.72 to 0.86), and population norms have been established.[19–21] The PSS-4 is derived from the four most predictive items from the longer scales and has been shown to have comparable reliability to the 10-item version.[19] To minimize participant burden, we used the four-item scale to assess perceived stress. The Cronbach α coefficient for the PSS-4 scale in this sample was 0.79.

A scale that measures perceived control (Perceived Control over Stressful Events Scale) has been developed by Frazier et al[8] and has strong content validity, factor structure, internal consistency, and test-retest reliability. For this study, we used the PPC subscale, as it is most strongly associated with outcomes.[8] The present control subscale is an eight-item measure designed to assess perceptions of present control over specific stressors and was adapted for use in the context of a voice problem. Individuals rated each of the eight items (eg, "How I deal with this voice problem now is under my control") on a four-point scale (1 = strongly disagree to 4 = strongly agree). Higher mean scores indicate greater levels of perceived control. In previous research, Cronbach α coefficients for the present control scale have ranged from 0.77 to 0.86 and 3-week test-retest reliability was 0.59.[8] The Cronbach α coefficient for the present control scale (PPC-8) in this sample was 0.79.

Patient-reported vocal handicap was used as the primary measure of vocal function. The 10-item version of the voice handicap index (VHI-10)[22,23] was used in this study. The VHI-10 has excellent reliability (ranging from 0.88 to 0.97 in voice-disordered patients and in nonclinical samples),[23] and normative values have been established.[24] Patients were asked to rate their agreement with statements such as "People seem irritated with my voice" and "I tend to avoid groups of people