



ASSESSING PRE- AND POST-TREATMENT QUALITY OF LIFE IN PATIENTS WITH DYSPHONIA USING THE VOICE HANDICAP INDEX (VHI)

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Abstract. *Background:* Dysphonia—manifested as impaired vocal quality, pitch, loudness, or increased vocal effort—affects social participation, work productivity, and psychological well-being. Patient-reported outcome measures (PROMs) are central to outcome-based voice care. The Voice Handicap Index (VHI) and its abbreviated form (VHI-10) quantify self-perceived voice disability across functional, physical, and emotional domains and are validated in multiple languages, including Russian [1–3,11–12].

Objective: To characterize pre- and post-treatment changes in self-perceived voice handicap using the VHI among adults with benign laryngeal disease—vocal fold papillomatosis, cysts, and polyps—and to interpret these changes against guideline recommendations and published minimal important difference (MID) thresholds [3,6].

Overview of Methods: Consecutive adults completed VHI at baseline and approximately three months after surgery or disease-directed therapy. We summarize the direction and magnitude of change and highlight the proportion who achieved or exceeded the 6-point MID on the VHI-10.

Overview of Results: Patients typically reported moderate-to-severe baseline handicap with substantial short-term improvement after treatment, often reaching mild ranges on VHI scales. The majority achieved or exceeded a 6-point VHI-10 MID, consistent with contemporary evidence for phonosurgery in benign lesions and for disease control in recurrent respiratory papillomatosis (RRP) [4–6,8–10].



Conclusions: Routine use of VHI/VHI-10 at baseline and early follow-up, aligned with evidence-based guidelines, offers a responsive, interpretable framework for patient-centered, outcome-driven dysphonia care [3].

Keywords: *Dysphonia; Voice Handicap Index; VHI; VHI-10; vocal fold papillomatosis; recurrent respiratory papillomatosis; vocal fold cyst; vocal fold polyp; patient-reported outcomes; quality of life; minimal important difference.*

Introduction

Epidemiology and Burden. Dysphonia is common across the lifespan and disproportionately affects people whose livelihoods depend on reliable voice—teachers, call-center staff, clergy, healthcare workers, and professional voice users. Lifetime prevalence estimates approach one-third in population studies, with notable recurrences in chronic conditions. Beyond audibility, dysphonia erodes self-efficacy, social confidence, and role performance, producing downstream effects on employment and mental health. Recognizing this multidimensional burden motivates the systematic capture of patient-reported outcomes to complement laryngoscopic findings [3].

PROMs and the VHI. PROMs translate subjective illness experience into reproducible metrics. The VHI (30 items) and VHI-10 (10 items) are among the most widely adopted voice PROMs. The VHI spans three domains—functional, physical, and emotional—thereby capturing the broad impact of dysphonia on daily life [1]. The VHI-10 retains construct validity and reliability in a briefer form, facilitating clinical adoption without sacrificing measurement quality [2]. Rasch analyses and factor studies corroborate internal structure and unidimensionality sufficient for total scores to summarize burden [5].

Cross-Cultural Validation (including Russian). For equitable care, PROMs must be both linguistically and culturally valid. Validated Russian versions of VHI-30 and VHI-10 demonstrate strong psychometrics and clinical utility in dysphonic adults, supporting their integration in Russian-speaking settings and multinational collaborations [11–12,16]. Such translations enable consistent benchmarking and shared learning across institutions and jurisdictions [18,21].



Mechanistic Links Between Lesions and Handicap. Benign laryngeal lesions share convergent biomechanical effects that map onto VHI domains. Polyps can create reactive edema and mass loading with phase asymmetry; cysts impose localized stiffness and disrupt mucosal wave propagation; papillomatosis adds irregular mass and stiffness with the added challenge of recurrence. These perturbations degrade glottic closure efficiency, increase phonatory effort, and destabilize pitch and loudness control, translating into the very difficulties patients endorse on VHI items—being heard, sustaining voice, avoiding social participation, and coping with frustration or anxiety [1–4,8–10].

Interventions and Time Course. For polyps and cysts, phonomicrosurgery (e.g., microflap excision) prioritizes meticulous preservation of the vibratory lamina propria while removing pathology. For papillomatosis, serial disease control with microdebrider or laser techniques balances airway safety and voice restoration. Across etiologies, short-term follow-up at ≈ 1 –3 months typically reveals substantial reductions in VHI, which may consolidate with voice therapy, anti-reflux measures, and behavioral modification [4,8–10,14–15].

Interpreting Change: The MID. Anchor-based analyses estimate a ≈ 6 -point minimal important difference (MID) for VHI-10—useful for patient-centered counseling and for classifying responders in clinical studies [6]. An improvement ≥ 6 points can be described to patients as likely noticeable and meaningful in daily communication. Sub-MID changes prompt re-assessment for residual edema, scarring risk, suboptimal technique, or ongoing irritants (e.g., reflux, vocal overuse), and may guide adjunctive therapy [3,6,15].

Integration and Equity. Operationally, clinics can embed VHI/VHI-10 at intake, at early postoperative follow-up (≈ 1 –3 months), and at symptom change. Digital capture displays longitudinal trajectories for shared decision-making. Validated non-English versions—including Russian—ensure patient-centered assessment is equitable and comparable across languages, an imperative for diverse health systems [11–12,16,18].



Measurement Considerations. While total scores provide a practical summary, domain scores can be instructive. For example, patients in voice-dependent occupations may show disproportionate functional domain burden even when physical symptoms abate. Ceiling and floor effects are generally modest but should be monitored in specialized cohorts (e.g., elite voice users). Consistent administration conditions—quiet environment, pre-laryngoscopy or pre-therapy to avoid priming—improve reliability [1–2,5].

Why VHI over Alternatives? Multiple instruments (e.g., Voice-Related Quality of Life, Singing Voice Handicap Index) exist. The VHI's widespread validation, robust responsiveness, and availability of MID estimates make it attractive for routine clinics with mixed etiologies. Furthermore, its recognition in guidelines facilitates quality improvement initiatives and payer communication [3–6].

Subgroup Nuances. In polyps and cysts, early large VHI reductions are typical after phonosurgery when microarchitecture is preserved. In papillomatosis, improvements may be stepwise with each disease-control procedure; counseling should anticipate possible recurrence while affirming that each intervention can deliver meaningful, functionally valuable relief. Voice therapy can amplify gains by optimizing breath support, resonance, and efficient phonation patterns [4,8–10,14–15].

Health-System and Research Implications. Routine VHI capture enables registry science—linking outcomes to procedure type, perioperative voice therapy, recurrence intervals in RRP, and occupational voice demands. With validated translations, consortia can perform cross-cultural comparisons and establish benchmarks that meaningfully reflect patient experience rather than solely anatomic change [11–12,18,21].

Limitations of PROM-Based Assessment. PROMs are subjective by design and can be influenced by mood, expectations, and context. Mitigations include triangulation with stroboscopic, acoustic, and aerodynamic measures; consistent timing; and use of MID thresholds to define clinically salient change. Importantly,



subjective improvement remains the central target of therapy—patients seek better function, not merely cleaner laryngoscopic images—and the VHI is designed to capture that target [3–6].

Practical Workflow Example. A feasible pathway is: (1) baseline VHI/VHI-10 before intervention; (2) early follow-up administration at ≈ 6 –12 weeks; (3) interpret change against the 6-point MID; (4) if sub-MID, add targeted voice therapy and address irritants; (5) repeat VHI-10 at subsequent visits to confirm consolidation. This cycle operationalizes guideline recommendations and keeps counseling grounded in numbers patients understand [3,6,15].

Study Framing. The present article synthesizes cohort patterns of pre-/post-treatment VHI change in adults with benign lesions—vocal fold papillomatosis, cysts, and polyps—at ≈ 3 months. Emphasis is placed on clinical interpretability and integration with the contemporary literature, including Russian-language validation studies and regional practice recommendations [1–6,11–12,16].

Conclusion

Summary. In benign laryngeal disease, treatment is associated with marked reductions in self-perceived voice handicap in the short term. Across papillomatosis, cysts, and polyps, most patients transition from moderate-to-severe baseline handicap to mild levels by ≈ 1 –3 months. These trajectories mirror contemporary evidence and are readily captured by VHI/VHI-10 measurements [4–6,8–10].

Clinical Practice Recommendations. (i) Administer VHI or VHI-10 at baseline and early follow-up. (ii) Use the ≈ 6 -point VHI-10 MID as a clinically grounded threshold for patient counseling and for defining response. (iii) When improvements are sub-MID, evaluate for persistent biomechanical issues or behavioral contributors and add targeted voice therapy and medical optimization. (iv) For papillomatosis, plan for iterative care and counsel regarding recurrence while emphasizing achievable, meaningful improvements per intervention [3,6,14–15].



Integration with Visualization and Objective Metrics. PROMs should complement—not replace—endoscopic/stroboscopic examination and, when available, acoustic and aerodynamic metrics. Together, these modalities provide convergent validity: anatomical restoration, physiologic efficiency, and patient-perceived function. Discordances (e.g., good stroboscopy but high VHI) warrant exploration of technique, occupational demands, or psychosocial stressors; conversely, poor visualization with low handicap may indicate adaptive strategies worth reinforcing.

Equity and Multilingual Care. Validated Russian versions of VHI enable inclusive assessment across linguistic communities, promoting equitable care and facilitating multicenter registries and quality programs that fairly represent diverse populations [11–12,16,18,21].

Health-System and Research Directions. Health systems should embed digital PROM capture, automate score-change flags (e.g., MID achieved/not achieved), and incorporate dashboards for panel management. Research priorities include: (a) refining MID by subgroup and baseline severity; (b) evaluating combined surgical-rehabilitative pathways; (c) linking PROM trajectories with acoustic/aerodynamic markers; and (d) leveraging cross-cultural datasets to understand contextual moderators of recovery.

Patient-Centered Ending. Ultimately, the goal is not merely a better laryngoscopic picture but a voice that patients can rely on at work, at home, and in community life. The VHI/VHI-10 offers a concise, validated, and interpretable lens on that goal—one that aligns clinical success with lived experience and supports shared decision-making grounded in outcomes that matter to patients [1–6,11–12,16].

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