

# Effects of Voice Therapy: A Comparison Between Individual and Group Therapy

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**Summary: Objective.** The primary aim of this clinical evaluation project is to study the effect of voice therapy given in the speech-language pathology clinic, as individual and group therapy, as well as finding out some of the reasons for not attending the recommended therapy.

**Method.** All patients visiting the speech-language department during the study period were asked to participate in a clinical evaluation project. The project included filling out the questionnaire Swedish Voice Handicap Index (VHI-11) twice: at their first visit at the clinic, and approximately 1 year later. Depending on the degree of voice problems, the patients were offered either individual or group therapy.

**Result.** The study included 187 patients at their first visit to the clinic and 109 patients at follow-up. All participants completed self-evaluation of voice function with the VHI-11 and separate questions regarding overall voice problems, hoarseness, and vocal fatigue. For the patients who responded to the follow-up survey, statistically significant improvements of self-perceived voice function were demonstrated in individual and group therapy. The improvement between the first visit and the follow-up was found to be of moderate to large effect size, with statistically significant improvements for both patients who attended individual therapy and those who attended group therapy. The most common reason for not attending the recommended voice therapy was lack of time.

**Conclusion.** Individual and group therapy is effective, resulting in improved VHI-11 scores. The magnitude of improvement is similar when comparing individual and group therapy. Patients with higher scores of the VHI-11 were generally recommended individual voice therapy.

**Key Words:** Voice therapy–Group therapy–Individual therapy–Speech language pathology–Self-evaluation.

## INTRODUCTION

Voice disorders are characterized by abnormalities in pitch, loudness, or quality of the voice that can limit the effectiveness of oral communication.<sup>1</sup> Additionally, the problems may be experienced as vocal fatigue or pain or discomfort in the throat.<sup>2</sup> Voice disorders may occur because of functional problems, that is, that the voice is used in an inappropriate way. They can also occur because of organic lesions such as vocal nodules, polyps, or tumors.<sup>3</sup>

Great voice load, in work or leisure, contributes to the occurrence of voice disorders.<sup>4,5</sup> Several occupations are documented as having great voice load: teachers, singers, sales persons, therapists, engineers, office workers, computer scientists, service workers, social workers, priests, lawyers, and health-care professionals.<sup>5-7</sup> The prevalence of voice disorders in general has been reported between 5% and 29%.<sup>4,6</sup> Among teachers, voice problems are more prevalent, between 15% and 80%.<sup>8,9</sup>

Voice function and quality can be measured in many ways; perceptually, acoustically, with videostroboscopy and self-perceived,<sup>10</sup> with questionnaires such as the Voice-Related Quality of Life<sup>11</sup> and the Voice Performance Questionnaire.<sup>12</sup> The

most commonly used voice questionnaire is the Voice Handicap Index (VHI).<sup>13</sup> A short version of the VHI has been developed and validated, the VHI-10.<sup>14</sup> Rosen et al performed an analysis comparing the VHI with the shortened version, VHI-10, and found that the VHI-10 performed similar to the longer version of the questionnaire, and that the VHI-10 could replace the VHI.<sup>14</sup> In Sweden, the VHI has been translated and validated.<sup>15</sup> Additionally, the short version has been translated and validated in a master thesis, which resulted in the VHI-11, a questionnaire consisting of the original 10 items from the VHI-10, with the addition of one item regarding throat discomfort.<sup>16</sup>

Voice therapy aims to restore a person's voice, to be functional in his or her everyday life, work, and, in general communication.<sup>17</sup> A review on the effectiveness of voice therapy for functional dysphonia concluded that voice therapy may include direct or indirect approaches.<sup>18</sup> The direct approaches focus on the voice production, for example, laryngeal relaxation, diaphragmatic breathing, and coordination of breathing with phonation. The indirect approaches refer to therapy focused on factors that influence voice production, such as patient information, general relaxation, vocal hygiene, and environmental awareness. The direct and indirect approaches are often combined, and have been found effective, such as in improving the person's own perception of voice function.<sup>18</sup> Several studies conclude that the patient's self-perceived voice function improves after voice therapy.<sup>19-26</sup> Most commonly, voice therapy is given as individual therapy, but group therapy is also available.<sup>18,23,27,28</sup> Both therapy types have been shown to be effective in improving the voice function; however, few studies exist addressing the effect of group therapy in comparison with individual therapy.

The primary aim of the present clinical evaluation study is to evaluate the effect of voice therapy given in our department, in individual and group therapy, respectively, and to compare

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the outcomes. Additionally, we also aim to survey patients coming to the speech-language pathology department with voice problems regarding their self-perceived voice handicap and overall voice problems, and possibly find out the most common reasons for not attending therapy.

## MATERIALS AND METHODS

### Participants

All patients with voice problems who visited the Speech-language pathology (SLP) department at the Otorhinolaryngology clinic, Sahlgrenska University hospital, during January 2014 to January 2015 were asked to participate in a clinical evaluation project. The project included filling out a questionnaire twice: once at their first visit, and once approximately 1 year later.

### Design

The study is a clinical evaluation project performed to investigate the degree of voice problems of patients referred to the department as well as evaluate the effects of given intervention. Patients are referred to the SLP department mostly from other caregivers in the Otorhinolaryngology field. Some patients come to the SLP department through self-referral. All patients are offered a first visit where the voice problems are surveyed, and intervention alternatives are discussed and determined. Additionally, the patients receive general vocal hygiene advice. The SLP determine in coalition with the patient whether the most suitable treatment is group or individual voice therapy.

### Intervention

The group therapy given at our SLP department is called basic voice awareness (BVA). BVA is an open group where patients book their appointment themselves, choosing from three different sessions each week. Each BVA session is led by an experienced SLP. A maximum of four patients are allowed at each group session. The patients are recommended to participate in the group three to five times; however, if the SLP in coalition with the patient believe that the patient needs more sessions, this is offered. Consultation regarding the continuation of the treatment, and home exercises is discussed with each patient at each session. Mostly, patients with mild to moderate voice problems are recommended to participate in the BVA.

Patients with more extensive vocal problems, often with structural changes to the vocal folds, are commonly referred to individual therapy. The patients are told that they will receive approximately three to five voice therapy sessions, but that individual differences occur depending on the patient needs.

Both therapy approaches include direct and indirect approaches, including vocal hygiene, general relaxation, and focus on diaphragmatic breathing.<sup>18</sup> In the BVA, the therapy is a bit more general, whereas in the individual therapy, more focus can be given to more specifically adapt the therapy for each patient. In both therapy approaches, focus is set to generalize the vocal techniques learned to everyday life. The patients are encouraged to exercise daily at home.

### Patient-reported outcomes

The VHI-11 is a shortened version of the VHI, Swedish version. It consists of 11 items answered on a 5-point Likert scale. All items are assertions regarding different aspects of voice use, answered on a scale ranging from never (0) to always (4). Total maximum score is 44 points. The original version, VHI-10,<sup>14</sup> has a cutoff point of 11 points; however, this cutoff score has not been calculated for the Swedish version.

Rating of voice function was also performed using 3 questions answered on a 10-cm visual analog scale. The questions were regarding Overall voice problems, Hoarseness, and Vocal fatigue, where 10 represents maximum problems, and 0 represents no problem at all.

### Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki. No ethical review was needed because this is a quality evaluation of given care; thus, this does not fall under the Swedish law on ethical review of research.

### Statistical methods

*SPSS Statistics v 22* for Mac was used for the statistical analysis (SPSS Inc, Chicago, IL). Nonparametric, two-sided tests were used. For categorical variables such as smoking habits and occupation, the chi-square test was used. For continuous variables such as age, time between first visit and follow-up, and all questionnaire data, the Mann-Whitney *U* test was used. The level of significance was set at 5% throughout. The magnitude of group differences was analyzed using effect sizes (ES). ES of within-group change was calculated as mean change between assessments divided by the pooled standard deviation of change divided by two. ES was interpreted according to Cohen standard criteria, where size is classified as trivial (0 to <0.2), small (0.2 to <0.5), moderate (0.5 to <0.8), or large ( $\geq 0.8$ ).<sup>29</sup>

## RESULTS

A total of 187 patients chose to enroll in the study at their first visit. Of these, 81 patients were recommended to participate in individual therapy, and 105 in BVA. One patient was not recommended any therapy and is hereafter excluded from the analysis. Patient characteristics are listed in [Table 1](#). Calculations to identify differences between the groups (individual therapy vs. BVA) were performed. Statistically significant differences were found regarding age (43.7 vs. 48.9,  $P < 0.05$ ) and time between the first visit and the follow-up (10.9 months vs. 11.9 months,  $P < 0.05$ ). Retired, teacher or child care, student, and health-care professional were the most common occupations, listed in [Table 1](#).

The result of the VHI-11 from the first visit is demonstrated in [Figure 1](#). A statistically significant difference was found when comparing the patients who were recommended individual therapy and patients who were recommended to participate in group therapy (24.5 vs. 20.6,  $P < 0.05$ , [Figure 1](#)). The patients who were recommended individual voice therapy demonstrated higher, that is, inferior scores in the VHI-11. The result for the ratings of voice function is found in [Figure 2](#). Overall rating of voice problems and hoarseness demonstrated statistically significant

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