

# Reduction of Risk Factors in Patients with Behavioral Dysphonia After Vocal Group Therapy

\*Wégina Jordâna Nascimento da Silva, †Leonardo Wanderley Lopes, ‡Anny Elizabety Ramalho de Macedo, §Denise Batista da Costa, and †Anna Alice Figueiredo de Almeida, \*Pirpirituba, Paraíba, Brazil and †‡§João Pessoa, Paraíba, Brazil

**Summary: Objectives.** The origin and development of dysphonia, particularly behavioral dysphonia, is associated with several risk factors. Here, we verified the effectiveness of group therapy in reducing the risk factors, and established the association between risk factors and sex, age, profession, and diagnosis of laryngeal disorders in patients with behavioral dysphonia.

**Study Design.** This is a descriptive, quantitative, field intervention study.

**Methods.** Participants (n = 26, adult patients of both sexes), with a diagnosis of behavioral dysphonia, received group therapy intervention. Data for risk factors were collected pre- and posttherapy using the Vocal Screening Protocol. The data were analyzed using descriptive and inferential statistics (Student *t* test, chi-squared test or Spearman correlation test).

**Results.** The majority (80.8%, n = 21) of patients were female, 65.4% (n = 17) were not in a vocal profession, and 42.3% (n = 11) presented with a lesion in the membranous portion of the vocal fold. The number of personal risk factors decreased after group therapy ( $P = 0.04$ ). In addition, age was correlated with total ( $P = 0.001$ ), environmental ( $P = 0.002$ ), and personal ( $P = 0.003$ ) vocal risk factors posttherapy.

**Conclusions.** This study revealed an association between the reduction of personal risk factors and vocal group therapy, and a correlation between age and total, environmental, and personal vocal risk factors posttherapy. Thus, maintenance and origins of the behaviors that modify the behavioral aspects of the participants directly influence the production of individual vocal habits.

**Key Words:** Dysphonia—Group process—Voice disorders—Risk factor—Speech therapy.

## INTRODUCTION

Dysphonia refers to voice disorders<sup>1</sup> of multifactorial origin,<sup>2</sup> which are characterized by changes in pitch, volume, and/or vocal quality.<sup>3</sup> These changes can prevent the expression of emotions in a professional performance and can impede an individual's social interactions.<sup>4</sup>

Dysphonia can be classified as either behavioral, when it is related to how the individual uses their voice, or organic, when there are changes in the tissues of the vocal folds, phonarticulatory system (whether of a genetic or a mechanical etiology).<sup>2</sup>

The genesis and development of dysphonia, particularly behavioral dysphonia, is associated with several risk factors.<sup>5</sup> These risk factors can be classified in two ways. These are (1) endogenous risk factors (ie, related to the subject itself, such as upper airway disease or smoking<sup>6,7</sup>) or exogenous risk factors (ie, related to external factors, such as dust or air conditioning,<sup>3</sup>) and (2)

organizational risk factors that pertain to working conditions as well as to the environment depends on the environment where the individual is located.<sup>8</sup> Exposure to these risk factors increases the chance of developing dysphonia. However, studies have shown that speech therapy is an effective treatment for minimizing behavioral dysphonia.<sup>9,10</sup>

Speech therapy offers three types of intervention approaches for behavioral dysphonia: (1) direct therapy, which is composed of vocal exercises;<sup>11</sup> (2) indirect therapy, which focuses on advice and guidance regarding vocal care;<sup>12</sup> and (3) an eclectic approach, which combines the direct and indirect strategies.<sup>13</sup>

Historically, the use of individual, therapeutic practices was discarded in favor of the medical model; in addition to that, due to a large demand for speech therapy and the resulting long waiting lists, therapists began using group therapy in the 1980s.<sup>14,15</sup>

Currently, group speech therapy has another focus. It has helped to increase awareness about risk factors; promoted the elimination and modification of abusive behaviors;<sup>16</sup> facilitated vocal exercises and practice of vocal modeling; and facilitated the sharing of problems, information, and advice among patients, thereby enhancing quality of life.<sup>17</sup> These notes are essential especially for the improvement of behavioral dysphonia. Furthermore, group speech therapy favors the acquisition of new knowledge about the relationship between the body and the voice, vocal production, harmful and beneficial habits, and direct and indirect vocal exercises.<sup>18,19</sup>

Previous studies have shown that group therapy also improves the distribution of health-care resources and results in a shortened waiting list, better time management, and reduction in cost, as compared with individualized therapy.<sup>17,20,21</sup>

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From the \*Prefeitura Municipal de Pirpirituba, Pirpirituba, Paraíba, Brazil; †Department of Speech and Language, Universidade Federal da Paraíba (UFPB), João Pessoa, Paraíba, Brazil; ‡Hospital Universitário Lauro Wanderley, Universidade Federal da Paraíba (UFPB), João Pessoa, Paraíba, Brazil; and the §Graduate Program in Modelos de Decisão e Saúde, Centro de Ciências Exatas e da Natureza, Universidade Federal da Paraíba—UFPB, João Pessoa, Paraíba, Brazil.

Address correspondence and reprint requests to Anna Alice Figueiredo de Almeida, Departamento de Fonoaudiologia, Cidade Universitária—Campus I, Centro de Ciências da Saúde—Campus I, Universidade Federal da Paraíba, Castelo Branco—João Pessoa, Paraíba 58051-900, Brazil. E-mail address: [anna\\_alice@uol.com.br](mailto:anna_alice@uol.com.br)

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The selection of individuals to participate in a therapeutic group takes into account both homogeneity and heterogeneity of the hypothetical diagnosis, age, and sex<sup>22</sup> of the participants.<sup>17,20</sup> Studies have shown that differences between participants can be regarded as positive for the success of the intervention.<sup>17,20</sup> The number of individuals in a group therapy session can range from 6 to 42 participants, over 8–12 sessions, with an average duration of 90 minutes per session.<sup>21–24</sup>

Several studies have shown evidence of the effectiveness of group speech therapy.<sup>15,19,21,23</sup> Therefore, it has been hypothesized that group therapy may be effective in reducing the number of risk factors that can contribute to the genesis or maintenance of behavioral or organic dysphonia. Unless these behaviors are eliminated, the effects of the therapy may be diminished.

The effectiveness of group therapy is verified by the reduction of vocal symptoms, clinical improvement of the patient, in addition to gains in their professional and social life. In addition, in group therapy, the therapist observes the individual's motivation and vocal social behavior, whereas in individual therapy, this is not possible.

Thus, this study aimed to verify the effectiveness of group speech therapy in reducing the risk factors of behavioral dysphonia, as well as verifying the association between such risk factors and the sex, age, profession, and diagnosis of laryngeal patients with behavioral dysphonia.

## METHODS

### Study design

This was a qualitative, field intervention study. This study was evaluated and approved by the Research Ethics Committee of the institution of origin (Protocol 383.061/2013).

### Participants

The study population was 62 patients who complained of voice problems and sought voluntary speech intervention at an institute of higher education. Patients were allocated to group therapy and sessions occurred between August 2013 and December 2014. Of the 62 patients, 47 were female and 15 were male. A total of 11 groups with an average of 6 participants were formed. During the intervention, 15 patients withdrew, leaving 47 individuals in the target population. After applying the inclusion and exclusion criteria, 26 participants, 21 women and 5 men, were included in the study sample.

Participants were eligible for inclusion if they were adults with a diagnosis of behavioral dysphonia (regardless of whether they were professional vocalists) and were on the waiting list for vocal speech therapy. Patients were excluded if they were less than 18 years old, had organic dysphonia, quit group therapy, had more than two absences during the therapeutic process, were missing pre- or postintervention risk factor data, had undergone previous voice therapy, had a genetic disease, or had any other comorbidity that affects cognition, communication, or voice.

### Instruments

Data were collected using the Vocal Screening Protocol.<sup>25</sup> This protocol collects information on patient demographic charac-

teristics, vocal complaints, the early history of dysphonia, vocal auditory and sensory symptoms, and risk factors, as well as the laryngeal diagnosis. In this study, we analyzed the patient characteristics, the laryngeal diagnosis, and the vocal risk factors.

Risk factors were categorized as personal, environmental, or organizational for the analysis.<sup>8</sup> The Vocal Screening Protocol-collected risk factors were categorized as follows:

- (1) Organizational: workday length, large audience, multiple voice-related activities, length of voice use, excessive vocal demand.
- (2) Environmental: background noise, low air humidity, ergonomic factors, poor acoustics, pollution, stressful environment, distance between speakers, dust, mold, and inadequate speech-assistive equipment.
- (3) Personal: smoking, frequent talking on the phone, talking above noise level, screaming, having an active social life, self-medication, elevated alcohol intake, speaking loudly, speaking with effort, speaking in public, frequent twisting in sports matches, having a constant cough, inadequate resting, taking drugs, talking fast, mimicking others' voices (singers, actors), insufficient hydration, inadequate diet.<sup>25</sup>

### Data collection procedure

The patients were invited to participate in this research study and received an explanation of the objectives. Patients agreed to participate by signing the informed consent form.

Group therapy was guided by the principle of eclectic therapy, involving direct and indirect therapeutic activities.<sup>5,11,12</sup> Therapy sessions focused on improving vocal dysphonia through vocal education as well as by the reduction of symptoms and risk factors. In addition, the patients practiced vocal exercises, and the importance of carrying out the exercises at home and changing risky habits were reinforced at each session.

Each of the six groups participated in eight sessions over a period of approximately 2 months. Each session lasted for approximately 90 minutes. The first and last sessions were used for evaluation, and the remainder were dedicated to therapy (Table 1).

### Statistical analysis

Descriptive statistical analysis was conducted to examine the frequency and mean values (with standard deviation) of the variables studied. An inferential statistical analysis using the parametric Student *t* test for paired data was used to compare the averages in pretherapy and in posttherapy. A chi-squared test was used to verify the association between sex, profession, and laryngeal diagnosis with the total number of risk factors (at posttherapy) as well as the number of organizational, environmental, and personal risk factors (at posttherapy). Spearman correlation test was used to investigate the correlation between age and the number of risk factors (posttherapy; total, organizational, personal, and environmental).

The patients were allocated into four groups according to their diagnosis: those without laryngeal changes, those with incom-

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