

Prevalence of Vocal Tract Discomfort in the Flemish Population Without Self-Perceived Voice Disorders

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Summary: Objectives. The main aim of this study was to assess the prevalence of Vocal Tract Discomfort (VTD) in the Flemish population without self-perceived voice disorders using the VTD scale and to examine the relationship between vocal load and VTD symptoms. In addition, consistency between the VTD scale and the Voice Handicap Index (VHI) and the Corporal Pain scale was evaluated.

Methods. A total of 333 participants completed the VTD scale, the VHI, and the Corporal Pain scale. Patient information about study and voice-related hobbies (for students), state of (non)professional voice user (for employees), smoking, shouting, allergy, and voice therapy was taken into account.

Results. A median number of three VTD symptoms was reported, and 88% of the participants showed at least one symptom of VTD. Dryness (70%), tickling (62%), and lump in the throat (54%) were the most frequently occurring symptoms. The frequency and severity of VTD were significantly higher in participants who followed voice-related studies, played a team sport, were part of a youth movement, shouted frequently, and received voice therapy in the past ($P < 0.05$). Finally, low correlations were obtained between frequency and severity of the VTD scale and total VHI score ($r = 0.226-0.411$) or frequency and intensity of the Corporal Pain scale ($r = 0.016-0.408$).

Conclusions. The prevalence of VTD is relatively high in the Flemish population without self-perceived voice disorders, although the frequency and severity of the symptoms are rather low. Vocal load seems to influence the frequency and severity of VTD. Finally, the VTD scale seems to reveal clinically important information that cannot be gathered from any other protocol.

Key Words: Voice–Vocal Tract Discomfort–Vocal load.

INTRODUCTION

Quality of life is considered to be of paramount importance in clinical practice. To assess patients' quality of life, health care providers should not only focus on functional status, but the assessment should cover physical, psychological, social, as well as spiritual domains of life.¹ One of the parameters that should be included in the assessment of quality of life according to The World Health Organization Quality of Life (WHOQOL) Group¹ is "pain and discomfort." Pain can be defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage,"² whereas discomfort is a subjective experience of "something that causes one to feel uncomfortable."³

Pain and discomfort at the vocal tract are frequently heard complaints of voice patients, but they are not always properly considered when assessing the patient. The most used instrument for self-assessment of vocal problems, the Voice Handicap Index (VHI),⁴ does not evaluate pain and discomfort itself. Even if discomfort may not be one of the most common symptoms of a voice problem, it may cause several maladjustments on the process of voice production. Therefore, specific evaluation of these

symptoms can reveal important information about the patient's current status of and the influence of therapy on the patient's quality of life. To quantify the severity and frequency of an individual's throat discomfort by means of qualitative descriptors, Mathieson et al⁵ developed a self-rating Vocal Tract Discomfort (VTD) scale. This scale has been demonstrated to be a very reliable tool with good sensitivity, specificity, and efficiency.⁶

Few studies have reported on the usefulness of the VTD scale in diagnosing voice patients. Mathieson et al⁵ used the VTD scale to evaluate the effects of laryngeal manual therapy in patients with muscle tension dysphonia. According to the authors, this scale is a useful perceptual indicator of sensory changes. Similarly, Woznicka et al⁷ concluded that the VTD scale can successfully be used to monitor the progress in treatment of occupational voice disorders. Furthermore, Rodrigues et al⁶ verified the VTD in teachers with and without vocal complaints and found a correlation between the self-perceived voice and VTD. Teachers with self-reported voice problems presented with higher frequencies and greater severity scores of all VTD symptoms than teachers without complaints. Finally, Lopes et al⁸ observed differences in VTD on the basis of the type of voice disorder. Patients with lesions in the membranous portion of the vocal folds and voice disorders caused by gastroesophageal reflux showed a higher number of VTD symptoms, particularly in comparison with disorders of neurologic etiology. The results of these few studies indicate that the importance of pain and particularly discomfort may have been underestimated in the voice clinic.

Hitherto, all studies were conducted in a Britain, Polish, or Brazilian population, and little information is yet available on the prevalence of VTD in a nonclinical population.

Accepted for publication April 29, 2015.

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Journal of Voice, Vol. 30, No. 3, pp. 308-314

0892-1997/\$36.00

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<http://dx.doi.org/10.1016/j.jvoice.2015.04.017>

Nevertheless, mapping the prevalence of VTD in a nonclinical population in relation to vocal load activities would provide a framework to which the symptoms of VTD in patients with voice disorders could be weighted. Moreover, the consistency between the VTD scale and other questionnaires frequently used in diagnosing voice problems is still uncertain. Therefore, the main aim of the present study was to assess the presence of VTD in the Flemish population without self-perceived voice disorders. The relationship with activities that demand heavy vocal use and/or vocal abuse will be verified. In addition, the consistency between the VTD scale and the VHI and the Corporal Pain scale will be evaluated.

MATERIALS AND METHODS

The present study was approved by the Ethics Committee of the Ghent University Hospital, Belgium (EC2013/1067). All subjects signed an informed consent before participation.

Participants

Students of the Speech-Language Therapy education of the Ghent University, Belgium, recruited 333 participants without self-perceived voice problems by convenience sampling between October 2013 and September 2014. Friends, family, and acquaintances were contacted either face-to-face or by

phone or e-mail to ask if they wanted to participate. In addition, snowball sampling was used to raise the number of participants. No material incentive for participation was offered.

The sample consisted of 207 women (62%) and 126 men (38%) with a mean age of 30 years (range, 18–81 years). An equal number of students ($n = 170$) and employees/job seekers/pensioners ($n = 163$) were included. Students were particularly recruited at the Ghent University, whereas employees/job seekers/pensioners were sought in the researchers' circle of acquaintances. Within this last category, 14% (47/333) were professional voice users. Overall, 8% (28/333) of the participants were smokers, 16% (54/333) reported to shout frequently, 23% (78/333) had at least one allergy, and 3% (11/333) received voice therapy. An overview of the participants' details and their exposure to vocal risk factors is presented in [Table 1](#).

Methods

The participants were asked to complete the Dutch translation of the VTD scale⁵ to assess the prevalence of VTD symptoms in the current Flemish sample ([Appendix 1](#)). This scale consisted of eight symptoms or sensations that can be felt in the throat (ie, burning, tight, dry, aching, tickling, sore, irritable, and lump in the throat). For all items, the participants were asked to indicate the frequency (never, seldom, sometimes, more than sometimes, often, very often, always) and severity

TABLE 1.
Overview of the Participants' Details and Their Exposure to Vocal Risk Factors

Parameters	Students	Employees, Job Seekers, Pensioners	All
n	170 (51%)	163 (49%)	333 (100%)
Mean age (range)	21 y (18–28 y)	46 y (21–81 y)	30 y (18–81 y)
Gender	122 ♀, 48 ♂	85 ♀, 78 ♂	207 ♀, 126 ♂
Study	44 (26%) Speech-Language Therapy 4 (2%) Teacher 19 (11%) Physical Therapy 15 (9%) Psychology 13 (8%) Communication Sciences 12 (7%) Chemistry 5 (3%) Law 58 (34%) Other	Not applicable	Not applicable
Vocal load	43 (25%) member of youth movement 38 (22%) team sport 35 (21%) member of student's union 13 (8%) music school	47 (14%) professional voice users 185 (56%) nonprofessional voice users 101 (30%) missing	Not applicable
Smoking	9 (5%) yes 92 (54%) no 69 (41%) missing	19 (12%) yes 144 (88%) no	28 (8%) yes 236 (71%) no 69 (21%) missing
Shouting	24 (14%) frequently 77 (45%) not frequently 69 (41%) missing	30 (18%) frequently 133 (82%) not frequently	54 (16%) frequently 210 (63%) not frequently 69 (21%) missing
Allergy	36 (21%) yes 65 (38%) no 69 (41%) missing	42 (26%) yes 121 (74%) no	78 (23%) yes 186 (56%) no 69 (21%) missing
Voice therapy	3 (2%) yes 88 (52%) no 79 (46%) missing	8 (5%) yes 149 (91%) no 6 (4%) missing	11 (3%) yes 237 (71%) no 85 (26%) missing

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