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The background biopsychosocial status of teachers with voice problems

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Abstract

Objective: The aim of the study was to explore the background biopsychosocial status of teachers with a relative voice handicap. The study also intended to investigate this biopsychosocial status in relation to behavior of not always reporting voice complaints. **Methods:** This research was a cross-sectional survey, performed using questionnaires: a general voice questionnaire, the Voice Handicap Index (VHI), and the Symptom Checklist-90 (SCL-90). The focus of the study is on those teachers who score the highest and the lowest on the SCL-90 as they report a higher or lower level of overall physical and psychosocial dysfunction. Fifty-five teachers score in the lowest quartile and 51 teachers score in the highest quartile of the total score of the SCL-90 (N=106 teachers). The upper quartiles of SCL-90 scores are mentioned as "high scores" and the lower quartile scores are mentioned as "low scores". VHI scores above the 75th percentile are referred to as "high voice handicap" and VHI scores below the 25th percentile are referred to as "low voice handicap". **Results:** Subjects who had a high voice handicap have a greater relative risk for a high score on all the subscales (ORs between 2.1 and 20.2) and total score (OR=12.5) of the SCL-90. Teachers who had a high voice handicap and who did not report voice complaints have a greater relative risk for a high score for all the subscales (ORs between 1.8 and 24.5) and total score (OR=22.4) of the SCL-90. **Conclusion:** The voice handicap and the behaviour of nonreporting of voice complaints when having a voice handicap appear to be in relation to the biopsychosocial status of the teachers.

Keywords: Teachers; Biopsychosocial; VHI; SCL-90; Voice complaints; Voice diagnostics; Voice therapy management

Introduction

Various studies have reported that voice problems are very common in professional voice users, especially in teachers [1–10]. Voice complaints have a multifactorial genesis. The influencing risk factors can be classified into four groups: vocal load (e.g., hours of voice use, number of communication partners), physical factors (e.g., physical condition, mucosal problems), psycho-emotional factors (e.g., stress, emotions, work pressure), and environmental factors (e.g., acoustics, humidity) [11–13]. Thomas et al. [14] also found a significant correlation between the number of perceived risk factors and the experienced voice handicap. The World Health Organization defined handicap as a restriction of participation in an activity that is normally performed by an individual [15,16]. With regard to voice disorders, handicap has been interpreted as a reduction or avoidance of voice activities by the individual, which results in an occupational or economic consequence [17]. It can be assumed that teachers who have voice problems would not be able to participate in teaching and would be handicapped. Voice problems influence the professional life, but also the social, psychological, communicative, and physical life [17,18].

Jacobson et al. [19] developed the Voice Handicap Index (VHI) to estimate the handicap that is experienced by an individual with a voice problem. This included functional, emotional, and physical domains of the voice. Results show that recovery from persistent voice problems is determined not only by somatic factors but also by psychosocial attitudes

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[20]. These findings highlighted the multidimensional nature of voice problems.

Engel [21,22] stressed that clinicians should focus simultaneously on the biological, psychological, and social dimensions while attending to the health problem. He showed that a biopsychosocial model of health helped to explain why certain individuals experienced health problems such as illness, while others regarded their condition as one of the problems of daily life [21,22]. The biopsychosocial model distinguished disease from illness. Engel [21,22] noticed that patients were ill, sometimes even in the absence of organic disease, and vice versa. The biopsychosocial experience of an individual involves somatic symptoms and psychological reactions to circumstances [21,23–25]. Additionally, it has been recognized that the working of the body could directly or indirectly affect the mind and vice versa [21,22,25]. Jacobson et al. [19] showed that the subjective judgment and outcome of voice problems were determined by physical as well as functional and emotional factors. Thomas et al. [14] concluded that teachers did not always report voice complaints when they were vocally handicapped. These findings raised questions as to whether the background biopsychosocial dimensions of teachers played a role in their subjective judgment of their voice and behavior.

The aim of the study was to explore the background biopsychosocial status of teachers with a relative voice handicap. These teachers experience some voice handicap, but their scores on the VHI do not indicate a severe voice problem. The study also wants to investigate this biopsychosocial status in relation to behavior of not always reporting voice complaints.

Methods

This research was a cross-sectional survey, performed using questionnaires, which included a general voice questionnaire (Appendix A), the VHI [19] (Appendix B), and the Symptom Checklist-90 (SCL-90) [26] (Appendix C).

The general voice questionnaire consists of 47 statements related to voice complaints and risks. Questions about vocal load, physical factors, environmental and psycho-emotional aspects of voice, and voice problems were included. This questionnaire was designed for several studies of the Department of Oto-Rhino-Laryngology of the Radboud University Nijmegen Medical Centre and the Division of Experimental Otorhinolaryngology of the Katholieke Universiteit Leuven [12–14,20,27–34]. Teachers who responded "yes" or "no" to the question (B6) are considered to have voice complaints or no voice complaints at the time of the investigation.

In order to estimate the subjective judgment and psychosocial impact of voice problems, the VHI was used [19]. It consists of 30 statements describing functional, emotional, and physical dimensions of the voice. The respondents are required to mark on an ordinal scale their agreement to the statements. The total score ranges from 0 to 120. The total score indicates the degree of handicap. People with a high VHI score experience a high psychosocial impact of their voice disorder. In this study, the Dutch version of the VHI was used [35].

The SCL-90 [26] has been used previously in the development of a biopsychosocial model in health care [36]. It was therefore included as a research tool for investigation into the voice of teachers. The SCL-90 was developed by Derogatis et al. [26]. In this study the Dutch translation of the SCL-90 was used [37]. Respondents were asked to rate on a Likert scale the extent to which they had been disturbed by certain complaints, proposed by the 90 items of the questionnaire. There are eight subscales in the SCL-90: "anxiety" (10 items), "agoraphobia" (7 items), "depression" (16 items), "somatic complaints" (12 items), "insufficiency in thinking and action" (9 items), "interpersonal sensitivity and mistrust" (18 items), "hostility" (6 items), and "sleep problems" (3 items). The remaining items were collectively termed "miscellaneous items" (9 items).

Subjects

The questionnaires were distributed to a group of female, Flemish teachers of primary education (n=457). Female subjects are the group of interest in this study as the majority of teachers in primary education are females. In addition, the prevalence of voice problems and voice-related behavior in females is essentially higher than in males [11,12,27]. Directors of primary schools in Flanders (Belgium) were approached by telephone to invite the teachers to participate in this study. After having received the exact number of female teachers in each school, the same number of questionnaires was sent to the school directors who distributed them. The questionnaires were accompanied by a postage-paid envelope and a covering

Table 1
Results of all teachers on the SCL-90

Subscales of SCL-90	n	Lowest quartile	Median	Upper quartile	Maximum score
Anxiety	201	10,50	12	14	50
Agoraphobia	202	7	7	8	35
Depression	202	17	19	24	80
Somatic complaints	202	14	16.50	21	60
Insufficient thinking and acting	202	10	12.50	16	45
Interpersonal sensitivity and mistrust	202	19	21.50	27	90
Hostility	202	6	7	8	30
Sleep problems	202	3	4	6	15
Miscellaneous items	202	9	10	12	45
Total symptom score	201	100	111	134	450

The table shows the score of the 25th (lowest quartile), 50th (median), and 75th percentile (upper quartile). The maximum score for each subscale is also indicated.