



Voice self-perception of public-school teachers

Autopercepção da voz por professores de escola pública

Auto-percepción de la voz por profesores de escuela pública

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Abstract

Introduction: The professional voice usage has some aspects that are inherent to each profession and the teachers present a high vocal risk. **Purpose:** To identify the perception that public-school teachers have of their own voices and the type and focus of coping strategies they use when they perceive vocal changes. **Methods:** Three vocal self-assessment inventories were answered by 100 teachers (EG) and 40 non-teachers (CG): 100 Word-Descriptors for Voice (WDV), Voice Activity and Participation Profile (VAPP), which allows the calculation of the Activity Limitation Score (ALS) and Participation Restriction Score (PRS), and Voice Disability Coping Questionnaire (VDCQ), that classifies the strategies used to cope with voice disorders into focus on problem and on emotion. Higher scores on VAPP and VDCQ indicate greater disability. Data were compared with a 95% level of confidence. **Results:** Teachers classified 53 descriptors as negative, with 1% to 40% of occurrence, against 40 descriptors of the non-teachers, with maximum 11% of occurrence. The total scores of the VAPP and VDCQ were, respectively per group, 41.95/13.37 and 37.90/10.23, and the ALS was 7.59/1.96 and PRS, 4.95/1.43. EG reported more (37.90) coping strategies than CG (10.23), and the emotion-focused (EG = 23.21 and CG = 6.53) coping strategies were more frequent than problem-focused (EG = 14.69 and CG = 3,70) ones. All data showed significant

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RKSS: participated on the study design, data collection and interpretation, and preparation of the manuscript; RDM: participated on the study design, data collection and interpretation; ACNF: participated on data interpretation, preparation and critical review of the manuscript; EMS: oriented the study, participated on the data interpretation, writing and critical review of the manuscript.

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difference ($p < 0.05$) between EG and CG. **Conclusion:** Teachers perceive the impact of changes in their voices, with greater impact on daily communication. They show greater occurrence of coping strategies to deal with these modifications in their voices and these are more emotion than problem-focused.

Keywords: Voice; Dysphonia; Quality of life; Occupational health; Adaptation, Psychological.

Resumo

Introdução: O uso profissional da voz possui aspectos próprios e os professores apresentam um elevado risco vocal. **Objetivo:** Identificar a percepção que professores da rede pública possuem de suas vozes e o tipo e foco de estratégias de enfrentamento que eles usam quando percebem mudanças vocais. **Métodos:** Três protocolos de autoavaliação vocal foram respondidos por 100 professores (GE) e 40 não professores (GC): Termos Descritivos da Voz (TDV), Perfil de Participação e Atividades Vocais (PPAV), que permite o cálculo da Pontuação de Limitação de Atividade (PLA) e da Pontuação de Restrição de Participação (PRP) e o Protocolo de Estratégias de Enfrentamento das Disfonias (PEED), que classifica as estratégias usadas para lidar com distúrbios de voz com foco no problema e/ou na emoção. Escores mais altos no PPAV e no PEED indicam maior incapacidade. Os dados foram comparados com um nível de confiança de 95%. **Resultados:** Professores classificaram 53 descritores como negativos, com 1% a 40% de ocorrência, contra 40 descritores de não professores, com máximo de 11% de ocorrência. Os escores totais do PPAV e PEED foram, respectivamente, por grupo, 41,95/13,37 e 37,90/10,23, e a PLA foi de 7,59/1,96 e PRP, 4,95/1,43. O GE relatou mais (37,90) estratégias de enfrentamento do que o GC (10,23), sendo as focadas na emoção (GE = 23,21 e GC = 6,53) mais frequentes do que as focadas no problema (GE = 14,69 e GC = 3,70). Todos os dados mostraram diferença significativa ($p < 0,05$) entre GE e GC. **Conclusão:** Os professores percebem o impacto das mudanças em suas vozes, com maior impacto na comunicação diária. Mostram maior ocorrência de estratégias de enfrentamento para lidar com estas modificações na voz e estas são mais centradas na emoção do que no problema.

Palavras-chave: Voz; Disfonia; Qualidade de vida; Saúde do trabalhador; Adaptação psicológica.

Resumen

Introducción: El uso profesional de la voz trae algunos aspectos inherentes a cada profesión, y los profesores presentan un alto riesgo vocal. **Propósito:** Identificar la percepción que los maestros de las escuelas públicas tienen de sus propias voces y el tipo y enfoque de las estrategias de afrontamiento que utilizan cuando perciben alteraciones vocales. **Métodos:** 100 maestros (EG) y 40 no docentes (CG) respondieron tres inventarios vocales de autoevaluación: los 100 Word-Descriptors for Voice (WDV), Perfil de Actividad y Participación Vocal (VAPP), que permite el cálculo de el Puntaje de Limitación de Actividad (ALS) y el Puntaje de Restricción de Participación (PRS), y el Voice Disability Coping Questionnaire (VDCQ), que clasifica las estrategias utilizadas para enfrentar los trastornos de la voz centradas en el problema y/o en la emoción. Puntuaciones más altas en VAPP y VDCQ indican mayor discapacidad. Los datos se compararon con un nivel de confianza del 95%. **Resultados:** Los maestros clasificaron 53 descriptores como negativos, con 1% a 40% de ocurrencia, contra 40 descriptores de no docentes, con un máximo de 11% de ocurrencia. Las puntuaciones totales de VAPP y VDCQ fueron, respectivamente por grupo, 41.95/13.37 y 37.90/10.23, y la ALS fue 7.59/1.96 y PRS, 4.95/1.43. EG informó más (37,90) estrategias de afrontamiento que el CG (10,23), y las estrategias de afrontamiento centradas en la emoción (EG = 23,21 y CG = 6,53) fueron más frecuentes que las centradas en el problema (EG = 14,69 y CG = 3,70). Todos los datos mostraron una diferencia significativa ($p < 0.05$) entre EG y CG. **Conclusión:** Los maestros perciben el impacto de los cambios en sus voces, con mayor impacto en la comunicación diaria. Muestran mayor ocurrencia de estrategias de afrontamiento para lidiar con estas modificaciones en la voz y éstas están más centradas en la emoción que en el problema.

Palabras clave: Voz; Afonía; Calidad de vida; Salud Laboral; Adaptación Psicológica.

Introduction

Any voice disorder related to its use during the professional life that diminishes compromises or limits the workers' performance and/or their communication skills is called Work-Related Voice Disorder¹.

Amongst the factors related to vocal fold pathology in teachers it can be mentioned workload volume and complexity, school cultures, structures and operating systems, community relations^{2,3}, humidity variations and the interference of the hydration of pharynx and larynx mucosa, biological constitution aspects, respiratory system diseases and stress^{4,5}.

The teachers' health is an incipient issue that concerns the education sector, both in terms of school management and teachers professional lives. Although there is scientific evidence of the cause relationship between inadequate voice use and vocal over-effort in some professions and occupations^{6,7}, vocal disorders were not recognized as an occupational risk or disease, and it is recognized in the literature that teachers are more likely to develop voice disorders than other professionals^{3,6,8}.

The Brazilian Ministry of Health composed a workgroup that reviewed, updated and published the Work-Related Voice Disorders Protocol¹ and, in recent years, there has been a significant increase in studies about teachers' vocal health. However, most of these studies were interventions and collective actions carried out in working processes, but with enormous variations regarding to duration, workload and number of meetings². There are still limitations on findings related to strategies to adapt the use of the voice to the classroom environment and with the participation of the school community. Therefore, actions of Speech-Language Pathologists directed to vocal health programs are necessary in the perspective of health promotion and the establishment of health public policies.

Speech-Language Pathologists have been studying the teacher's voice because of their greater chance of being affected by some type of vocal disorder^{6,12}. This is one of the great challenges faced in resizing health issues among teachers.

One of the reasons for carrying out this study is the several cases of voice disorders among teachers observed in the Public Health System of the studied municipality, leading to suppose that they present these vocal disorders because of misuse of

the voice, deficiency of acoustic treatment in the classroom and/or the lack of information about healthy vocal habits. Besides knowing that there are practically no public health policies directed to teachers in any governmental sphere.

Then, the purpose of this study was to identify the perception that teachers from the Public Education System have of their own voices, if the presence of these commitments generates restrictions of participation and/or limitations of their activities, and what kind of coping strategies they used.

Methods

This study is registered and approved by the Ethics Committee under the protocol no. 2014.01.05.06-20, and those who agreed to participate, signed prior to study participation the Free and Informed Consent Term, where it was stated the voluntary participation, the data collection format, the confidentiality of participation, which complied the Resolution no. 466/2012, of the Brazilian National Health Council and its complementary ones.

This study was carried out in a municipality with approximately 29 thousand inhabitants, a development index of 0.626, an index of basic education development of 4.9 points^{9,10} and the Public Education System counts with 77 units of primary and elementary levels with 557 teachers¹⁰.

Two groups were composed to the research:

Experimental Group (EG), with 100 teachers from the Public Education System, following the inclusion criteria: one year or more of effective teaching activity; do not perform other activities or hobbies involving the use of the voice; not being accompanied by Speech-Language Pathologists, singing teachers, vocal trainers or vocal coaches; nonsmokers, and having not undergone phono surgery;

Control Group (CG), with 40 non-teachers, selected randomly in different places of the city, such as shops and offices, through a direct approach and that met the criteria of not performing any activity related to teaching, and nonsmokers.

The only personal information collected was age and gender and the inventories used in this study were adapted or validated to Brazilian Portuguese in previous studies. All the inventories were distributed and filled in at the teachers' workplaces, and the researchers were available for explanations

and solving any doubts or difficulties. These instruments were the Brazilian versions of the:

100 Word-Descriptors for Voice (WDV)⁴, an alphabetical list of 100 adjectives or descriptors that describe positive and negative opinion about the voice. This list can be used to develop awareness of different voice characteristics. The participants were asked to choose descriptors and classify them as positive or negative towards their voices;

Voice Activity and Participation Profile (VAPP)¹¹, described as a 28-item questionnaire developed specifically to evaluate the quality of life and the result of treatments of vocal disorders in dysphonic people. The items are distributed into five sections: section 1 – self-perceived severity of voice problem (one item), section 2 – effect on job (four items), section 3 – effect on daily communication (12 items), section 4 – effect on social communication (four items), and section 5 – effect on emotion (seven items). Each item uses a 100-mm visual analogue scale to gather the responses. The distance from the left end to the mark drawn by the respondent on the scale corresponds to the score, which could reach 10 points each. The total score is the sum of the five sections scores (280, maximum). Two additional scores can be calculated, the Activity Limitation Score (ALS) and the Participation Restriction Score (PRS), defined, respectively, as the sum of the first and second questions of the sections 2, 3 and 4. The higher the score the worst is the perception of voice problem, activity limitation, and participation restriction;

Voice Disability Coping Questionnaire (VDCQ)¹², described as a 27-item rated on a six-point Likert-type format scale, ranging from “never” (zero point) to “always” (five points), and indicates the variety of coping strategies to deal with the vocal problem. The maximum total score is 135 points and the strategies are classified into problem and emotion-focused based on the Lazarus and Folkman’s model.

Student’s t-test with a significance level of 95% was used to compare the groups’ results.

Results

140 individuals were subjects of the study. Most of them were females (84.3%), who had worked at least 20 hours a week with classroom activities. The EG was composed by 82 female and 18 male teachers, with a mean age of 41.6 years.

Women had a higher mean age (42.5 years) than men (37.3 years). All the participants of this group came from 12 schools of primary and elementary levels, worked as teachers, had no parallel professional activities or hobbies with vocal demand; were non-smokers. The CG was composed by 36 female and 4 male non-teachers, with a mean age of 29.3 years, who did not smoke or use their voices professionally. Males had a mean age (31.8 years) higher than females (28.5 years).

In the WDV protocol the participants selected descriptors to qualify their voices positively and negatively. It is noteworthy that the participants could classify a descriptor either as positive or negative, depending on his/her perception or internal reference.

The EG selected 42 different words and classified them as positive. The choices varied from 1% to 69% of occurrence, being the 16 most cited, in descending order: normal (69%); joyful (62%); powerful, clear (49%, each); confident (37%); stentorian (35%); feminine (34%); good (31%); smooth (26%); friendly (24%); chesty (21%); cool (20%); open (20%); tired (16%); warm and beautiful (11%, each). 53 descriptors were classified as negative, varying from 1% to 40% of occurrence, and, in descending order, the 21 most cited were: joyful (40%); powerful (34%); hoarse (27%); nervous (19%); decisive (17%); strident, wavering (16%, each); shallow (15%); cutting, thin (14%, each); chesty, intimidating, timid, unsure (12%, each); forced, nasal, ugly (11%, each); dry; fluttering; quivering; rough (10%, each). The others 26 positive and 32 negative terms punctuated less than 10%.

The CG selected 40 words classified as positive, being the 11 most cited, in descending order: joyful (41%); good (24%); normal (18%); cool (17%) feminine (16%); stentorian, powerful, clear (15%, each); smooth, confident (14%, each) and friendly (11%). More 40 were classified as negative, but only two of them reached 10% and 11% of occurrence (respectively, joyful and powerful). All the other 29 positive and 38 negative terms punctuated less than 10%.

The VAPP protocol brought in significantly ($p < 0.05$) different total, ALS and PRS scores between EG (41.95, 7.59 and 4.95 points, respectively) and CG (13.37, 1.96 and 1.93 points, respectively). Also, all sections showed significantly different scores ($p < 0.05$): section 1 - self-perceived

severity of voice problem (3.15 in EG versus 0.49 in CG); section 2 - effect on job (8.42 in EG versus 0.73 in CG); section 3 - effect on daily communication (17.57 in EG versus 7.18 in CG); section 4 - effect on social communication (3.76 in EG versus 2.06 in CG) and section 5 - effect on emotion (9.05 in EG versus 2.90 in CG) (table 1).

Table 1. Mean scores of the teachers group and non-teachers group in the aspects of the VAPP protocol.

Aspects	Teachers group (n=100)	Non-teachers group (n=40)	p
Self-perceived severity of voice problem	3.15	0.49	0.00*
Effect on job	8.42	0.73	0.00*
Effect on daily communication	17.57	7.18	0.00*
Effect on social communication	3.76	2.06	0.01*
Effect on emotion	9.05	2.90	0.00*
Activity limitation	7.59	1.96	0.00*
Participation restriction	4.95	1.93	0.00*
Total	41.95	13.37	0.00*

* Significant difference ($p < 0,05$) – Student's t Test

The items 6 (1.61 in EG and 0.73 in CG), 7 (1.26 in EG and 0.59 in CG), 8 (1.26 in EG and 0.79 in CG), 9 (0.67 in EG and 0.52 in CG), 10 (1.11 in EG and 0.82 in CG), 11 (0.97 in EG and 0.42 in CG), and 17 (1.54 in EG and 0.67 in CG), from section 3 (effect on daily communication); 18 (1.03 in EG and 0.56 in CG), 20 (1.05 in EG and 0.84 in CG) and 21 (0.74 in EG and 0.34 in CG), from section 4 (effect on social communication);

and 23 (0.84 in EG and 0.38 in CG), 24 (0.74 in EG and 0.38 in CG), 26 (1.59 in EG and 0.73 in CG), 27 (0.66 in EG and 0.36 in CG) and 28 (0.75 in EG and 0.18 in CG), from section 5 (effect on emotion) did not demonstrate statistically ($p > 0,05$) significant difference (table 2). These items are related to repetition of information, difficulty of being understood, avoidance of speaking and the own and the other perception of their voices.

Table 2. Mean, minimum, maximum scores of the teachers group and non-teachers group on individual items in the VAPP protocol.

Items	Teachers group (n=100)			Non-teachers group (n=40)			p
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	
1	3.15	0.00	9.50	0.49	0.10	6.20	0.00*
2	3.01	0.00	9.60	0.24	0.10	3.20	0.00*
3	1.92	0.00	9.50	0.13	0.10	0.80	0.00*
4	1.55	0.00	9.40	0.14	0.10	0.80	0.00*
5	1.94	0.00	9.30	0.22	0.10	3.50	0.00*
6	1.61	0.00	9.50	0.73	0.10	8.80	0.06
7	1.26	0.00	8.30	0.59	0.10	9.40	0.08
8	1.26	0.00	9.50	0.79	0.10	9.40	0.26
9	0.66	0.00	9.00	0.52	0.10	9.40	0.61
10	1.11	0.00	9.50	0.82	0.10	9.00	0.44
11	0.97	0.00	9.00	0.41	0.10	5.80	0.08
12	2.70	0.00	9.50	0.57	0.10	7.60	0.00*
13	2.36	0.00	9.50	0.49	0.10	7.70	0.00*
14	1.61	0.00	9.50	0.64	0.10	8.50	0.03*
15	1.13	0.00	9.10	0.37	0.10	9.40	0.03*
16	1.34	0.00	9.50	0.57	0.10	8.00	0.04*
17	1.54	0.00	9.50	0.67	0.10	9.50	0.05
18	1.03	0.00	8.90	0.55	0.10	9.50	0.18
19	0.94	0.00	8.90	0.33	0.10	7.30	0.05
20	1.05	0.00	9.10	0.84	0.10	9.50	0.60
21	0.74	0.00	5.70	0.33	0.10	7.70	0.09
22	1.94	0.00	9.60	0.43	0.10	9.50	0.00*
23	0.84	0.00	9.20	0.38	0.10	9.40	0.15
24	0.74	0.00	9.00	0.38	0.10	9.40	0.24
25	2.54	0.00	9.60	0.44	0.10	9.30	0.00*
26	1.59	0.00	9.30	0.73	0.10	9.30	0.07
27	0.66	0.00	8.50	0.36	0.10	7.90	0.29
28	0.75	0.00	9.00	0.18	0.10	1.00	0.06

* Significant difference ($p < 0,05$) – Student's t Test

The total scores of the VDCQ were different ($p < 0,05$) between EG and CG (37.90 versus 10.23), suggesting that EG uses more strategies to deal with their voice deviations. Interestingly,

both groups showed higher ($p < 0,05$) scores on emotion-focused (23.21 in EG and 6.53 in CG) than on problem-focused strategies (14.69 in EG and 3.70 in CG) (table 3).

Table 3. Mean scores of the teachers group and non-teachers group in the aspects of the VDCQ protocol.

Aspects	Teachers group (n=100)	Non-teachers group (n=40)	p
Emotion-focused strategies	23.21	6.53	0.00*
Problem-focused strategies	14.69	3.70	0.00*
Total	37.90	10.23	0.00*

* Significant differences ($p < 0,05$) – Student's t Test

Individually, only items 14 (0.45 in EG and 0.33 in CG), 16 (0.57 in EG and 0.30 in CG), 17 (0.78 in EG and 0.43 in CG) and 23 (0.33 in EG and 0.13 in CG) did not show significant difference ($p>0.05$). Amongst these items, just the item 14 is not related to emotion. The EG uses more often strategies with focus on emotion. What seems to

corroborate the section 5 of the VAPP protocol, in which the scores are higher than in sections 1 and 2. Besides, both groups seem not to consider the voice rehabilitation as a possibility (item 17), even when they state that they try to seek information about their voice problem (item 4) to probably cope with it in an easier way (item 8).

Table 4. Mean, minimum, maximum, emotion-focused (EF), problem-focused (PF) and total scores of the teachers group and non-teachers group on individual items in the VDCQ protocol.

Items	Teachers group (n=100)			Non-teachers group (n=40)			p
	Mean	Minimum	Maximum	Mean	Minimum	Maximum	
1	2,45	0,00	5,00	0,48	0,00	5,00	0,00*
2	1,76	0,00	5,00	0,48	0,00	5,00	0,00*
3	2,24	0,00	5,00	0,40	0,00	5,00	0,00*
4	1,47	0,00	5,00	0,28	0,00	3,00	0,00*
5	1,76	0,00	5,00	0,40	0,00	5,00	0,00*
6	1,53	0,00	5,00	0,35	0,00	5,00	0,00*
7	1,45	0,00	5,00	0,43	0,00	3,00	0,00*
8	2,25	0,00	5,00	0,40	0,00	4,00	0,00*
9	1,54	0,00	5,00	0,33	0,00	5,00	0,00*
10	1,25	0,00	5,00	0,35	0,00	4,00	0,00*
11	1,30	0,00	5,00	0,53	0,00	5,00	0,00*
12	1,23	0,00	5,00	0,38	0,00	5,00	0,00*
13	1,70	0,00	5,00	0,20	0,00	3,00	0,00*
14	0,45	0,00	5,00	0,33	0,00	5,00	0,45
15	1,49	0,00	5,00	0,48	0,00	5,00	0,00*
16	0,57	0,00	5,00	0,30	0,00	5,00	0,20
17	0,78	0,00	5,00	0,43	0,00	5,00	0,16
18	1,60	0,00	5,00	0,48	0,00	5,00	0,00*
19	1,15	0,00	5,00	0,53	0,00	5,00	0,03*
20	1,60	0,00	5,00	0,43	0,00	4,00	0,00*
21	0,91	0,00	5,00	0,20	0,00	3,00	0,01*
22	1,47	0,00	5,00	0,50	0,00	5,00	0,00*
23	0,33	0,00	5,00	0,13	0,00	3,00	0,22
24	2,56	0,00	5,00	0,55	0,00	5,00	0,00*
25	1,04	0,00	5,00	0,35	0,00	5,00	0,01*
26	0,71	0,00	5,00	0,18	0,00	4,00	0,02*
27	1,31	0,00	5,00	0,40	0,00	5,00	0,01*

* Significant differences ($p<0,05$) – Student's t Test

Discussion

The studied population uses its speaking voice intensively and depends on it professionally. It should be noticed that the basic voice parameters depend on the voice use situation, and on basic individual characteristics, such as age and gender¹³. In this study there were more women than men, what

reflects a characteristic of the Brazilian teaching workforce, and the historical female dominance in basic education^{10,14}.

Teaching is intrinsically related with the risk of developing voice symptoms^{6,7} and it has brought the interest of many researchers in investigating and understanding the relation health-work-illness from the workers point of view favors establish-

ment of public policies directed to the real needs of the job market.

Epidemiological studies have used health self-evaluation as an indicator of the “real” or “objective” status, with the ability to consistently predict the decrease of the individual’s functional health. Therefore, thinking about occupational health self-evaluation protocols defines potentialities and specific characteristics for the determination of scores and punctuations that contribute to the evaluation of several domains of health and work. One of the main causes for teachers’ absences at work is related to voice disorders or symptoms and it assumes great importance related to the economic and pedagogical scenario since it can generate feelings of insecurity and isolation among teachers¹⁵.

Health work-related self-evaluation has been widely used as an indicator in epidemiological studies. This indicator, determined from how the subjects evaluate their health status using a Likert scale, has a predictive power about mortality, morbidity, and the use of health services, as well as it reflects a global evaluation of diseases, symptoms and functional abilities and overall well-being. And for presenting reliability and validity equivalent to other more complex evaluations of health status, self-evaluation should be considered an important complement to objective measures^{16,17}.

It is important that the subject analyzes and self-evaluates the impact that his/her voice produces on the listener, evaluating the vocal behavior, whether at work or in an informal conversation with others^{4,17}. The WDV opens up the perception of the evaluator/therapist about what bothers the speaker during his phonation process and how his/her voice is perceived.

Although only a descriptive analysis is performed in this study, EG showed a higher occurrence of negative terms, while CG presented the same occurrence of positive and negative terms, but with a different impact in selection, since the most negative selected descriptor was chosen only 11 times, while EG made it 40 times, which may suggest different valuation of the voice symptoms. It seems to indicate a greater preoccupation with the voice quality by EG. However, it may also suggest a sharpened self-criticism regarding the modifications on the voice due to its continuous use, its overuse or specific demands that the occupation requires. Nevertheless, the most EG considered the voice normal.

CG perception of the voice cannot be ignored, however there is a probable indication that in this group, participants only classify their voices with negative attributes when it seems to bother the listeners as an unpleasant voice, which is reflected in one of the most adjectives classified as negative, powerful (comprehended in Brazilian Portuguese as a very potent voice), what can indicate or a self-perception or a statement of the listener. Interestingly, the negative attributes of CG were also cited by EG (joyful, 40%, and powerful, 34%), which suggests that both groups probably recognize the difficulty of controlling the volume and the pitch of their voices. The presence of more negative attributes in EG may be justified by the fact that teachers present much higher vocal demand and effort than the non-teachers, since they use the voice intensively and frequently, because they try to keep students’ attention, to control classroom discipline; and they are constantly exposed to vocal fatigue due to a greater tension and intensity, noise and sound competition, air pollution, stress and anxiety, personal habits, and lifestyle^{7,8,17}, which may become a communication style, *the teacher’s voice*, and/or a vocal habit.

Voice is fundamental to the interpersonal relationship and, in this study it is also true for the working process, as long as a disharmony of organic, physiological and emotional factors there would be a disorder and, consequently, an inefficient oral communication. Thus, from the moment the person becomes more aware of his/her vocal psychodynamics, he/she gradually becomes conscious of his/her vocal expression and its effects on the listener, and also more attentive to listeners’ reaction¹⁸. Consequently, the adequate perception of vocal psychodynamics gains special interest because of its laboral use, and the communicative limitations due to voice symptoms, which may result in anguish related to career maintenance and development¹⁹.

The impact of a voice disorder on the quality of life depends on the importance of several factors, including its use in the profession, without necessarily being directly related to the severity of the dysphonia²⁰. But it should be considered that the judged severity of a voice disorder may not be the better indicator of impact of the voice on life quality, since there is a low correlation between the self-perceived voice disorders in dysphonic individuals’ quality of life²¹.



Teachers have difficulties in correlate their health-illness-work processes and also to reflect about the vocal symptoms that they might feel or present. It can indicate the desensitization to their own suffering and deformation in the ways of perceiving, feeling, interpreting, understanding, adapting and coping with everyday experiences, probably favored by the way the teaching-learning process is organized²².

The VAPP total and sections scores were significantly different between EG (41.95) and CG (13.37) and suggest that EG perceives the influence of the impact of voice disorders on the quality of life. But it should be noteworthy that, when the section scores were analyzed isolated, it seems that both groups do not value the vocal symptoms and do not relate them to their work, since the scores of the section effects on work (8.42 in EG and 0.74 in CG) were lower than in the section effects on daily communication (17.57 in EG and 7.18 in CG). This result suggests that the teachers seem not to be aware of the work-related voice symptoms, which may be due to the non-existence of vocal deviation, the lack of attention to these voice deviations during their professional lives, or as discussed previously, the way they understand and adapt the use of the voice to their everyday experiences, what may lead them to consider their voices as normal in WDV.

Furthermore, it is important to consider that teacher well-being brings better educational outcomes, since the teacher is the most important factor that affects the students' achievements in the classroom²³. In addition, teachers with a voice disordered profile have worse perception of their profession and their relationship with students in comparison to healthy teachers. They also show hopelessness for their professional future and a greater desire to leave the profession²⁴.

The education policymakers should consider strategies and policies that can positively influence teachers' decisions to enter and remain in the teaching profession, such as offering effective and affordable means to provide support and improve working conditions²⁵, like vocal health care through orientation sessions.

Conflictingly, in question 2 ("Is your job affected by your voice problem?") of the VAPP, the results of the EG suggest that the group perceives some influence of the voice in their work (a score of 3.01). However, it reinforces the previous discussion, when it confirms that the vocal symptoms

are not taken into account by the teachers, who do not establish a straight correlation between the voice disorder, the professional vocal demand, the vocal misuse and their work. This could be seen in questions 3 ("In the last 6 months, have you thought of changing your job because of your voice problem?", score 1.92), 4 ("Has your voice problem created any pressure on your job?", score 1.55) and 5 ("In the last 6 months, has your voice problem affected your decisions for your future career?", scores 1.94), that defined lower scores.

On the other hand, even not showing significance in all items of section 5 (effects on emotion), the results suggest that teachers perceive on a certain way the work-related vocal symptoms, since they have been upset (question 22, 1.94 in EG versus 0.43 in CG), worried (question 25, 2.54 in EG versus 0.45 in CG) but they are not dissatisfied (question 26, 1.59 in EG versus 0.73 in CG) with the presence of changes in their voices. Anxiety, stress, tension, and other psychodynamic disorders, common among teachers, can influence vocal production, causing inappropriate vocal adjustments^{6-8,15,26}, which may justify some of our results.

Then, it is necessary to make teachers understand the importance of prevention and valuation of the voice as a fundamental resource for their vocal performance, since it is responsible for a large percentage of the information contained in the oral message, it does not receive proper attention, so that might endanger the voice health. In addition, this can imply in temporary absence or incapacity for performing the teaching function, and bring losses in social, economic and professional functions^{17,26}.

Other important factor is that a voice disorder means losing partially the personal identity, limiting the possibilities of communication and transmission of emotions³⁷. In the present study, it is observed that EG has a more negative impact on the social and daily communication than CG. The quality of social life, regarding the use of voice as the main instrument of oral communication, remains impaired due to the living conditions, the agitation and the amount of commitments that these teachers have²⁶. Emotional issues, social life, work and daily communication may be affected, once communication is impaired. Teachers who perceive these difficulties need to be oriented in terms of voice care or its necessary rehabilitation, as long as voice and emotional problems can reduce vocal longevity, because the individual get more



susceptible to vocal injuries, presenting a greater degree/intensity of symptoms.

Although the findings show that teachers perceive greater voice impact than the general public, the impact of voice on the quality of life and work is still poorly perceived, despite their high vocal demand and their need of health promotion actions²⁷, what suggests that the awareness of professionals who use the voice in high demand need specific guidance, regarding vocal health, the favorable environment, vocal warm-up and cool-down and abusive vocal habits. This awareness becomes fundamental for the maintenance of vocal longevity²⁰.

For this reason, these professionals have to cope with different voice disorders. Coping is defined as cognitive and behavioral efforts to manage external or internal stressful demands that, in general, over adapt the subject's resources²⁸. Clearly, the teachers group, of this study, use more strategies than the non-teachers group to deal with voice disorders, but the findings suggest that both groups prefer emotion-focused strategies, which, to some extent, corroborates VAPP information, when it defines a higher score in section 5 (effects on emotion) than in sections 1 and 2 (self-perceived severity of voice problem and effects on work).

Comparing vocal and emotional characteristics in groups of teachers and non-teachers with low and high anxiety, it was concluded that individuals with high anxiety present greater emotional, vocal and quality of life impairment, especially those who use the voice as a working tool. In other words, the teachers stand out because they are exposed daily to stressful and anxious situations and use concomitant voice in their professional performance^{6-8,15,6}.

The coping style influences directly the expectations of the individual²⁸. The emotion-focused coping mechanism does not modify the situation itself, but rather serves the individual to negotiate with emotions and thereby maintain a positive self-esteem, hope and welfare²⁹. The data presented at VDCQ suggest that both groups avoid being with other people due to the voice problem (items 15 and 19), they understand that vocal rest assumes an important role in recovering their voices (item 24) and they seem to be unaware of the possibilities of voice rehabilitation, as they affirm that there is nothing to be done about it (item 17), although EG participants say they seek information about the problem (item 4) so they can better comprehend it (item 8).

A probable explanation for this finding could be the stress generated by the effort to act over the problem situation, so this strategy aims to change what causes the existing problem in the relationship between the person and the environment²⁸. So these two focuses on coping strategies often occur simultaneously, and can be mutually facilitative. Individuals with vocal complaints who seek objective and more real resolutions to face voice problems are more likely to use problem-focused strategies and it is noteworthy that the coping focus adopted by the subjects influences both the maintenance of the vocal disorders and also the outcomes of the treatment³⁰.

Therefore, the evaluation and identification of these strategies favor a reaction and an adaptation of the individual to the disease, considering also the individual's culture and beliefs, since these facts can influence the effectiveness of strategies for promoting emotional well-being and how to access stressors or problems^{28,30}.

Henceforth, focus on the vocal health may develop a primary attention purpose to a possible development and maintenance of cultures that support teachers' work.

Conclusion

Teachers present greater perception of the impact of the vocal quality than the general population. However, it is intriguing the lack of attention of the symptoms and of the voice disorders related to daily work and, curiously, the coping strategies for dysphonias have a greater focus on emotion rather than on the problem. These findings may indicate the importance of clarifying this population about the possibilities of healthy voice use, vocal habits and the different ways of rehabilitation of voice disorders, and by the establishment of public policies that value teaching work and have on the voice one of its focus.

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