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Vocal and emotional features of teachers and non-teachers with low and high anxiety

Características vocais e emocionais de professores e não professores com baixa e alta ansiedade

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ABSTRACT

Purpose: Compare vocal symptoms and emotional features in groups of teachers and non-teachers with low and high anxiety. **Methods:** A total of 93 male and female participants aged between 18 and 59 years participated in the study and were divided into four groups: teachers with low anxiety, teachers with high anxiety, non-teachers with low anxiety, and non-teachers with high anxiety. Vocal parameters were measured by the instruments Vocal Signs and Symptoms Questionnaire, Voice-Related Quality of Life, Voice Handicap Index; and recorded speech and sustained vowels from the Visual Analog Scale were assessed by three speech-language pathologists. To assess emotional parameters, the *Self-Report Questionnaire* and the State-Trait Anxiety Inventory were used. **Results:** Groups with high anxiety reported high levels of stress and depression symptoms, and teachers had symptoms that were more emotional. Teachers with high anxiety expressed a greater number of vocal symptoms, greater impairment of voice quality of life, greater overall change in voice quality, and higher voice handicap index when compared with the other groups. **Conclusion:** Individuals with high anxiety displayed more emotional symptoms related to voice and vocal quality of life, especially if the voice was a work instrument, such as for teachers.

Keywords: Speech, language and hearing sciences; Voice; Emotions; Anxiety; Faculty; Dysphonia

RESUMO

Objetivo: Comparar características vocais e emocionais em grupos de professores e não professores com baixa e alta ansiedade. **Métodos:** Participaram do estudo 93 sujeitos, de ambos os gêneros, com idades entre 18 e 59 anos, divididos em quatro grupos: professores com baixa ansiedade (PBA), professores com alta ansiedade (PAA), não professores com baixa ansiedade (NPBA) e não professores com alta ansiedade (NPAA). Os parâmetros vocais foram mensurados por meio dos instrumentos Questionário de Sinais e Sintomas Vocais (QSSV), Protocolo de Qualidade de Vida em Voz (QVV), Índice de Desvantagem Vocal (IDV), além da gravação de fala e vogal sustentada, avaliada por três fonoaudiólogos, a partir da Escala Analógico-Visual (EAV). Para avaliação dos parâmetros emocionais, utilizou-se o *Self-Report Questionnaire* (SRQ) e o Inventário de Ansiedade Traço-Estado (IDATE). **Resultados:** Constatou-se que os grupos com alta ansiedade relataram sintomas indicativos de alto nível de estresse e depressão, sendo que o grupo de professores apresentou maior número de sintomas emocionais. Quanto aos parâmetros vocais, observou-se que os professores com alta ansiedade expressaram maior número de sintomas vocais, maior comprometimento da qualidade de vida em voz, maior desvio global da qualidade vocal e alto índice de desvantagem vocal, quando comparados com os demais grupos. **Conclusão:** Os indivíduos com alta ansiedade tiveram maior comprometimento emocional, vocal e na qualidade de vida, sobretudo aqueles que têm a voz como instrumento de trabalho, os professores.

Descritores: Fonoaudiologia; Voz; Emoções; Ansiedade; Docentes; Disfonia

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INTRODUCTION

The voice is important within human socialization as a component of oral communication and interpersonal relationships, impacting the quality of life of individuals who have voice disorders[1]. It is common for patients to report emotional problems as a direct cause or direct result of their voice alteration[2,5].

There is a relationship between dysphonia and the stress of everyday life, anxiety, and psychological factors, among others. However, the relationship of cause and effect is not well defined[3,6].

Persistence of a voice disorder can result in psychosocial consequences, such as distress and feelings of inadequacy, common in anxious individuals. This creates a vicious circle, in which vocal problems can lead to emotional consequences, which in turn, lead to worsening vocal function[4].

Voice disorders in teachers are very common and range from the onset of vocal signs and symptoms to the installation of a secondary laryngeal lesion[7]. The most common complaints related to vocal problems in this population are vocal fatigue, loss of voice, pain in the throat, and hoarseness[2,8].

Teachers face situations in daily life that should be taken into consideration, such as low pay, professional devaluation, large numbers of students in the classroom, bad work environment, extensive workload, voice problems, and mood disorders (stress, anxiety, and depression), among others; these aggravate dysphonia and are considered risk factors for this group of professionals[2,7,9,10].

Consequently, teachers make up one of the groups most affected by vocal problems. Their disorders range from difficulties in developing the profession to issues related to communication, social, and emotional life[2,10,11].

Vocal problems are multifactorial. Psycho-emotional factors interfere more in teachers with vocal complaints and those beginning their careers[9]. Anxiety and stress developed by professionals using their voice can contribute actively to the development or exacerbation of the voice disorder[3,12].

Anxiety is a physiological condition inherent to the human being, but when exacerbated, can become a mood disorder, affecting cognition, behavior, and physiological activity[13]. This physiological anxiety can be synonymous with low anxiety that in a specific moment, facing an anxiogenic stimulus, triggers a hormonal discharge and changes the perception of physiological sensations. These sensations quickly return to their normal baseline. When responses to anxiogenic stimuli are more long lasting and intense, anxiety becomes classified as high anxiety, leading to an altered physiological pattern, followed by specific symptoms, characteristic of a psychiatric disorder[14,15].

It is necessary to conduct further research on the relationship between anxiety disorders and vocal performance, considering emotional and physiological issues, their relationships, and their impact on individuals' quality of life, particularly with regard to social and professional issues in which effective communication is extremely necessary. In this sense, teachers stand out, since they are exposed daily to stressful and anxiogenic situations, and make concomitant use of their voice in the exercise of their profession. Thus, the objective of this research was to compare vocal and emotional features in groups of teachers and non-teachers with low and high anxiety.

METHODS

This study was approved by the Ethics Committee in Research of the Hospital Universitário Lauro Wanderley, Universidade Federal da Paraíba (UFPB) under protocol number 278/09. This research, classified as quantitative, cross-sectional, and descriptive, was conducted in the city of João Pessoa, Paraíba, from October 2010 to May 2011.

Teachers participating in the research were linked to the State of Paraíba school system, where visits were carried out. They were approached and received information about the study. The non-teachers were employees of the state as well, working in the same schools as inspectors, directors, security guards, cleaning staff, and others, who also received information about the purpose, procedures, and stages of the research.

All participants read and signed the informed consent and thus authorized their participation in the research and use of data obtained. Volunteers diagnosed with neurological and psychiatric diseases, pregnant women, and those with altered upper airways at the time of collection were excluded. Persons who had not completed high school were also excluded. The data were collected through five questionnaires and a triage form to measure participants' personal, emotional, and vocal features.

The triage form contained individuals' personal and professional data, such as length of employment, workplace, noise exposure, medication use, physical activity, alcohol consumption, and vocal self-assessment, among other data. Three self-assessment questionnaires were used to supplement the data: Vocal Signs and Symptoms Questionnaire (VSSQ), Voice-Related Quality of Life (VRQOL), and Voice Handicap Index (VHI).

The Vocal Signs and Symptoms Questionnaire[16] (VSSQ) lists 14 signs and vocal symptoms, their presence over time, the frequency with which they appear, and their relationship to the work that the individual develops.

Voice-Related Quality of Life (VRQOL)[17] measures the impact of voice on the quality of life of individuals. It has ten items and contains two domains: socio-emotional and physical functioning. It generates three scores: the total, the socio-emotional, and the physical. The higher the domain scores are, the better the quality of life related to voice is.

The Voice Handicap Index[18] (VHI) verifies communication

disadvantages due to voice problems. It consists of three domains: organic, functional, and emotional. Each domain has ten questions marked in degrees of intensity, ranging from 0 to 4, with 0 being the best score and 4 the worst. The higher the total score is, the greater the voice handicap is. The validation study of this instrument in Brazil found that individuals with dysphonia have an average score of 48.1 denoting vocal handicap.

To measure the emotional features, two questionnaires were used: (1) Self-Report Questionnaire (SRQ-20) and (2) State-Trait Anxiety Inventory (STAI). The Self-Report Questionnaire (SRQ-20) evaluates the emotional features and stress levels shown by individuals and is indicative of anxiety and depression. It contains 20 statements, which must be answered positively or negatively. The number of questions answered positively determines the emotional state of the individual, considered altered from six statements[19]. The State-Trait Anxiety Inventory (STAI) measures the subjective state of anxiety through the self-perception of the individual in relation to trait anxiety. In other words, it measures personality features that can indicate propensity to anxiety over time (state anxiety) and transient personality traits at the time of the interview (trait anxiety). It has two subscales, with 20 items, containing four intensity levels each. The individual was considered anxious when the score displayed on each scale was greater than 41 points[14].

After completing the questionnaires, the subjects provided a voice recording. The speech material collected was the sustained vowel /ɛ/ and counting numbers 1 to 10. For the recording, a Dell® Inspiron 3260 notebook and microphone headset Karsect HT-22, coupled to an Andrea PureAudio USB sound card, were used. The recording software was PRAAT with a sampling rate of 44,100 Hz. Subsequently, these samples were analyzed by means of hearing-perceptive analysis by consensus from three expert voice and speech therapists experienced in this kind of evaluation.

The instrument used for this analysis was the Visual Analog Scale (VAS), which corresponds to a horizontal line of 100 mm; the evaluators are instructed to mark the general voice deviation degree for each issue. Each mm corresponds to one degree of deviation and, therefore, the range offers 100 possibilities of gradation. A recent study[20] transformed the values of VAS to a numerical scale, with the cutoff values defined by statistical analysis of the ROC curve, as follows: markings between 0 and 35.5 mm, normal variability of vocal quality; scores from 35.6 to 50.5 mm, slight vocal deviation; between 50.6 and 90.5 mm, moderate deviation; and above 90.5 mm, intense vocal deviation. In the VAS protocol, there was also space for experts to indicate the predominant voice type heard in vocal production (rough, breathy, tense, and unstable), without any indications of degree of intensity to the predominance.

After having responded to the self-assessment instruments and performing the task of voice recording, subjects were divided into groups, classifying them as low anxiety when they presented a score below 40 on the STAI and high anxiety when they presented values above 41 points. Thus, the sample consisted of 93 male and female volunteers, teachers and non-teachers, aged between 18 and 59 years, who were divided into four groups: teachers with low anxiety (TLA, n=13), teachers with high anxiety (THA, n=31), non-teachers with low anxiety (NTLA, n=19), and non-teachers with high anxiety (NTHA, n=30).

The data were tabulated in an electronic spreadsheet and analyzed quantitatively through the STATISTICA software, version 6.1, with a significance level

of $p \leq 0.05$. Descriptive statistics analysis was used to describe the variables by averages, standard deviations, frequencies, and percentages, in addition to the inferential statistics from the Kruskal-Wallis and Mann-Whitney tests to compare the groups.

RESULTS

The high-anxiety group, especially the teachers, showed changes in both vocal and emotional behavior. Only significant results are presented.

The THA group showed more vocal symptoms than the groups with low anxiety (p=0.005). Similarly, the THA group also obtained lower values for the QLV scores (p=0.03, p=0.01, and p=0.006). In addition, the vocal self-assessment contained in VRQOL showed that anxious teachers were more dissatisfied with their voices than the other groups (p<0.0001). The results of the VHI scores corroborated previous surveys showing that teachers and non-teachers with high anxiety had higher scores on emotional (p=0.02) and organic (p=0.02) domains when compared with the NTLA group. Functional and total scores of the VHI did not show significant values (Table 1).

In the perceptual voice assessment, all groups showed slight intensity of vocal deviation in the sustained vowel. Only the NTLA group showed an overall degree of vocal deviation within the normal variability of vocal quality in connected speech. Among the groups, teachers showed more intensive vocal deviation (TLA 45.4 ± 6.2 mm and THA 48.3 mm ± 4.8 mm). Non-teachers with high anxiety also showed an average vocal deviation (NTHA 43.7 ± 4.8), which is higher than the group with low anxiety (NTLA 36.8 ± 8.4). The TLA group had a predominance of roughness (44.7 ± 10) and instability (43.5 ± 13.6). The anxious groups had a predominance of instability in vocal production (THA 46.5 ± 11.5 and NTHA 42.7 ± 9.1) and roughness. Speech analysis showed lower scores, suggesting compensation by adjusting in the moment for this type of production (Table 2).

Regarding emotional issues, the anxious groups were more affected (p<0.0001) with THA showing the largest number of features related to stress, depression, and anxiety (Table 3).

The groups with high anxiety had greater impairment in

Table 1. Average and standard deviation scores of the vocal self-assessment protocols in teachers and non-teachers with low and high anxiety

Variables	Averages				Test statistics	p-value
	TLA	THA	NTLA	NTHA		
Nº of symptoms	2.9 ± 2.9	5.5 ± 3.7	2.4 ± 2.6	5 ± 3.2	66.17	0.005*
V-RQOL SE	94.5 ± 14.9	87.8 ±20.6	95.4 ± 6.2	91.3 ±11.8	85.3	0.03*
V-RQOL P	86.1 ± 15.9	72.4 ± 16.4	88 ± 10.9	79.2 ± 20.8	86.37	0.01*
V-RQOL T	89.7 ± 14.3	80 ± 13.3	90.8 ± 8.3	81.5 ± 19.2	88.90	0.006*
VHI E	5.8 ± 18.3	5.1 ± 4.7	1.6 ± 2.9	6.1 ± 7.2	8.25	0.02*
VHI O	8.8 ± 18.2	11.9 ± 9.2	4.4 ± 5.3	10 ± 10.7	8.78	0.02*
Grade of the vocal self-assessment (V-RQOL)	2.2 ± 0.4	2.5 ± 0.5	1.6 ± 0.7	1.8 ± 0.4	9.52	<0.0001*

*Significant values (p≤0.05) – Kruskal-Wallis and Mann-Whitney test

Note: TLA = teachers with low anxiety; THA = teachers with high anxiety; NTLA = non-teachers with low anxiety; NTHA = non-teachers with high anxiety; SE = Voice-Related Quality of Life, socioemotional; V-RQOL P = Voice-Related Quality of Life, physical functioning in Voice; V-RQOL T = Voice-Related Quality of Life total scorel; VHI E = Voice Handicap Index emotional; VHI O = Voice Handicap Index organic; V-RQOL = Voice-Related Quality of Life

Table 2. Average and standard deviation parameters of the VAS scale in vocal perceptual assessment of teachers and non-teachers with low and high anxiety

Variables	Averages				Test statistics	p-value
	TLA	THA	NTLA	NTHA		
G VAS (E)	45.4 ± 62	48.3 ± 4.8	36.8 ± 8.4	43.7 ± 4.8	78.13	<0.0001*
R VAS (É)	44.7 ± 10	45 ± 7.4	33.8 ± 10.6	41.4 ± 11	53.13	0.0001*
B VAS (É)	38.7 ± 12.3	39 ± 12.3	28 ± 13.6	31.4 ± 14.4	26.91	0.02*
T VAS (É)	41 ±13.8	43 ± 14.5	26.8 ± 14.8	39.1 ± 15.6	33.19	0.0005*
I VAS (É)	43.5 ± 13.6	46.5 ± 11.5	32.9 ± 12.8	42.7 ± 9.1	42.13	0.0001*
G VAS (speech)	37.6 ± 7.2	44.8 ± 9.3	33.7 ± 10	38.5 ± 6.7	24.93	0.0004*
R VAS (speech)	32.8 ± 15.3	40 ± 16. 6	29.5 ± 14	30.4 ± 17.6	11.37	0.01*
T VAS (speech)	23.9 ± 15.4	37.8 ± 17.7	19.5 ± 14.2	30.3 ± 15	9.63	0.005*
I VAS (speech)	25.9± 16.6	37.5 ± 19.3	20.9 ± 16.7	26.4 ± 12.7	15.00	0.004*

*Significant values (p≤0.05) – Kruskal-Wallis and Mann Whitney test

Note: TLA = teachers with low anxiety; THA = teachers with high anxiety; NTLA = non-teachers with low anxiety; NTHA = non-teachers with high anxiety; G VAS (E) = General Grade of the vowel 'e' in the Visual Analog Scale; R VAS (E) = Roughness of the vowel 'e' in the Visual Analog Scale; B VAS (E) = Breathiness of the vowel 'e' in the in the Visual Analog Scale; T VAS (E) = Tension of the vowel 'e' in the in the Visual Analog Scale; I VAS (E) = Instability of the vowel 'e' in the in the Visual Analog Scale; G VAS (speech) = General Grade of the emission of speech in the Visual Analog Scale; R VAS (speech) = Roughness of the emission of speech in the Visual Analog Scale; T VAS (speech) = Tension of the emission of speech in the Visual Analog Scale; I VAS (speech) = Instability of the emission of speech in the Visual Analog Scale

Table 3. Averages and standard deviations of the emotional parameters of teachers and non-teachers with low and high anxiety

Variables	Averages				Test statistics	p-value
	TLA	THA	NTLA	NTHA		
SRQ total	3.0 ± 2.6	8.6 ± 4.5	2.9 ± 1.9	8.4 ± 3.9	14.69	<0.0001*
Indigestion	1.5 ± 0.5	1.7 ± 0.5	1.6 ± 0.5	1.8 ± 0.4	13.68	0.03*
Tremors	1.5 ± 0.5	1.8 ± 0.4	1.7 ± 0.5	2	8.59	0.03*
Nervous	1.2 ± 0.4	1.8 ± 0.4	1.6 ± 0.5	1.9 ± 0.3	13.73	<0.0001*
Think clearly	1.5 ± 0.6	2 ± 0.2	1.6 ± 0.5	1.9 ± 0.3	12.77	<0.0001*
Sad	1.5 ± 0.5	1.8 ± 0.4	1.6 ± 0.5	1.9 ± 0.3	9.57	0.001*
Crying	1.8 ± 0.6	2 ± 0.2	1.5 ± 0.5	1.9 ± 0.3	7.69	0.04*
Dissatisfaction	1.7 ± 0.5	1.9 ± 0.2	1.5 ± 0.5	1.9 ± 0.3	10.66	0.0002*
Difficulty in decisions	1.4 ± 0.5	2 ± 0.2	1.3 ± 0.5	1.8 ± 0.4	15.57	<0.0001*
Difficulties at work	1.8 ± 0.4	2	1.9 ± 0.2	1.9 ± 0.3	7. 08	0.05*
Lack of interest	1.7 ± 0.5	2	1.8 ± 0.4	2	10.23	0.0005*
Weary	1.7± 0.5	1.9 ± 0.2	1.6 ± 0.5	1.9 ± 0.3	9.06	0.007*
Easily tires	1.5 ± 0.5	1.9 ± 0.3	1.3 ± 0.5	1.9 ± 0.3	12.57	<0.0001*

*Significant values (p≤0.05) – Kruskal-Wallis and Mann Whitney test

Note: TLA = teachers with low anxiety; THA = teachers with high anxiety; NTLA = non-teachers with low anxiety; NTHA = non-teachers with high anxiety; SRQ = Self-Report Questionnaire

their voices and emotions. This was especially true for the group of teachers, who demonstrated a greater number of vocal symptoms, lower scores on VRQOL, and higher scores in VHI, as well as intensity of vocal deviation, with averages higher than the non-anxious and non-teacher groups. Thus, in addition to greater vocal demands, there was also greater emotional impact.

DISCUSSION

In research with teachers and non-teachers conducted in the United States, 4.3 signals and vocal symptoms were found in teachers and on average, 3.1 in non-teachers[21]. In Brazil, a similar study revealed 3.5 vocal signs and symptoms for teachers and 1.7 for non-teachers[16]. In the present study, the groups with high anxiety showed a higher number of vocal signs and symptoms, especially the THA group, which may be indicative of voice alteration (Table 1). The fact that the group of non-anxious teachers reported more symptoms than those found in the literature may be related to high anxiety, since studies suggest a relationship between this personality trait and dysphonia[3,5,7].

The fact that teachers use their voice as a work instrument includes them in the risk group to develop vocal disorders[10,22]. The most common complaints related to the teacher's voice are vocal fatigue, sore throat, pain in the throat region, hoarseness, and loss of voice[2,8,22].

It is believed that, generally, voice problems appear after long years of work[22], but there is a tendency for psycho-emotional factors to appear in teachers from the beginning of their careers. The voice complaints appear to be multifactorial, such that emotional factors are more influential in teachers with high number of symptoms reported. The vocal dysfunction can lead to problems, from high costs of treatment to quitting the teaching career[9,11].

Some authors suggest that vocal disorders can cause psycho-emotional stress, depression, and frustration[23]. Others argue that stress and anxiety can be both primary and secondary to a voice disorder, thus creating a vicious cycle between emotional and vocal symptoms[24]. In both cases, the social and professional performances of individuals may be adversely affected. The higher the scores were on the Voice-Related Quality of Life, the lower the impact voice had on individuals' quality of life.

Some authors[6] believe that poor quality of life may impair vocal health. Results found indications that individuals with higher anxiety traits make greater compromises in quality of life in various aspects of voice use and show a higher number of vocal signs and symptoms[3]. Studies show that personality characteristics are configured as a risk factor for dysphonia in teachers[2].

Vocal impact is greater in the field of "physical functioning" of the VRQOL. A recent study[25] concluded that the most affected VRQOL domain was the physical, where the difficulty of speaking loudly, being heard in noisy environments, having problems at work, or developing the profession because of the voice, were the most reported by teachers.

People with voice disorders may have greater impairment in social and professional communication, a fact that may even compromise their quality of life. External factors (stress), inadequate habits, and those related to overall and vocal health interfere with voice production and, consequently, compromise communication[24]. The results described in Table 1, in which groups with high anxiety had greater voice impairment, especially in the organic parameter, highlight the perception of vocal problems, in which the individual feels the installation of the change and knows the multifactorial influence of its development. In addition, the losses related to dysphonia in physical, social, and professional aspects were noticeable especially by teachers, who had higher scores in the VHI.

The data in Table 2, noting that groups of teachers had higher overall divergence of vocal quality, ranging from mild to moderate, depending on the parameter evaluated, are consistent with the findings of recent research, in which most teachers in the study (69.2%) showed altered voice quality to a moderate degree[26].

Teaching requires considerable vocal use. Besides the high demand, teachers face daily voice aggressors in the working environment, such as background noise, unfavorable environmental acoustics, and large numbers of students in the classroom. Another influential factor is the organization of work, which may contribute as a stressing agent and trigger anxiety disorders, reflecting in the vocal production of the teacher. In general, teachers had vocal impairment, which may interfere with the efficiency of their work and, if not addressed, this change could worsen, jeopardizing their stay in the role they play. This underscores the importance that these professionals maintain healthy vocal habits and seek expert help.

As noted, the vocal parameters with greater alteration were tension, roughness, and instability in both groups with high anxiety (Table 2).

Roughness is the most common manifestation of voice disorders in the population, due to the irregular vibration of the vocal folds, with or without change in mass, resulting in a noise perceived aurally[27]. The rough voice quality is the combination of the roughness and hoarseness components present in the voice.

For a voice to be considered stable, the interrelation of myoelastic forces of the larynx and aerodynamics of the lung current, which allow support in the vocal emission, is required. Emotional changes, lack of vocal training, and manifestations of neurological problems may interfere with the support process, causing frequency fluctuation and loudness or overall change in vocal quality[27].

When vocal tension occurs, there is hyperactivity of the extrinsic muscles of the larynx, especially the suprahyoid, which can elevate the larynx, causing the sound to be produced

at a higher frequency, with reduced vocal projection and compensatory effort in the laryngopharyngeal region. People with tense voices present vocal folds more longitudinally tensioned (stretched) and/or with higher subglottic pressure and increased glottal adduction[28]. Repetitive use of this pattern can be an abusive vocal pattern and cause mass lesion by behavior, thereby producing a rough and sometimes unstable voice. Therefore, the tension generated by anxiety can lead to changes in the vocal tract, a fact that is capable of enhancing the laryngopharyngeal resonance and triggering a process of voice alteration.

Teachers are more susceptible to vocal disorders, because in addition to the high vocal demand, they seek inadequate compensatory adaptations in order to achieve greater intelligibility and clarity for the listener. These disorders can result in emotional problems, and the reverse also occurs. However, many of these professionals do not value the symptoms that characterize dysphonia, thereby exacerbating the problem, which can hinder their job performance and even cause their removal from the profession[1].

The results presented in Table 3, referring to the degree of emotional involvement measured by SRQ, were expected given that the findings show correlation between voice and emotion. Research[29] conducted in order to investigate the perception of stress, anxiety, and depression of patients with the most common vocal disorders, and the distribution of these variables in relation to laryngeal diagnosis and gender, showed that, of the 160 volunteers assessed, 36.9% had high anxiety levels, 31.2% had depression, and 25.0% had stress. Another study suggested that voice changes significantly prevail in cases of individuals with disorders of anxious natures, interpersonal sensitivity, and obsessive compulsive disorder traits[24].

When dysphonia happens, psychological changes can include, for example, a feeling of being ill or even an existential fear, especially in patients who rely on voice as the working medium. The increase of anxiety is one of the most common features in patients with non-organic disorders[23], or rather, vocal changes that are inherent in the behavior.

These data corroborate the findings in this research, in which anxious teachers and non-teachers reported emotional symptoms that are reflected in their daily physical performance and their organic and physiological performance. They reported: "feeling sad lately," "dissatisfaction in performing daily activities," "crying more than usual," "lack of interest," "nervous, tense, or worried," "having difficulties at work; causing pain," and other indications of stress and depression, which can be directly linked to symptoms, such as poor digestion, tiredness, and tremors. These factors may be related to the low scores in the Physical Functioning domain of VRQOL and Organic for VHI discussed above, confirming that issues, such as stress, anxiety, and depression can compete with vocal symptoms.

A study conducted with teachers and non-teachers to verify the impact of loss of speech in daily life concluded that these groups value the voice differently. For teachers, loss of voice would interfere with work, social relationships, daily activities, and emotional expression. Feelings of anger, depression, sadness, and dependence

were considered to have the greatest impact in relation to the possible loss of voice[5].

The quality of life of the teacher's voice is more compromised, as demonstrated by previous data. When investigating the voices of this group of professionals, we noted that the general health of teachers is affected by physical and emotional suffering. In addition to the unresolved problems and needs of general and vocal health, it is important to implement proposals for the promotion of health for teachers[30]. It is important to investigate all aspects of vocal production by these professionals, from their quality of life to the emotional aspects. It is also important to emphasize teachers in proposals for vocal promotion, since they depend on their voices professionally, with greater vocal demand in relation to non-voice-driven professionals.

CONCLUSION

Emotional symptoms, like anxiety, stress, and depression, can influence vocal features and quality of life proportionally in individuals with high anxiety, especially those who use their voices as work instruments, such as teachers.

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