

Original articles

Self-perception of working conditions by primary school teachers

Autopercepção das condições de trabalho por professores de ensino fundamental

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Conflict of interest: non-existent

ABSTRACT

Purpose: to investigate the perception of environmental and psychosocial aspects of the work of public school teachers of primary and relate to the symptoms of vocal discomfort.

Methods: cross-sectional study with a probabilistic sample of public schools teachers. The study included 90 subjects (18 men and 72 women) distributed in the age groups 24-65 years. The research instrument was a questionnaire with 40 questions consisting of 5 blocks of questions. They were carried out: descriptive analysis and linear regression analysis univariate and multivariate to verify the associations between the number of vocal symptoms and working conditions of teachers.

Results: approximately one third of teachers (34.4%) reported the presence of eight vocal symptoms (mean=5.6/SD= 2.4). Regarding the characteristics of the work environment, most teachers regard high or unbearable noise as sound competition to voice use, and (43.3%) of the classroom, and (41.1%) of school. Regarding the psychosocial aspects of work 54.4% of teachers reported low psychological demand and low social support 55.6%. In the final multivariate model, the variable that was associated with number of symptoms was the noise inside the classroom.

Conclusion: primary school teachers have a high number of symptoms of vocal discomfort. The vocal discomfort associated significantly with the presence of noise in the classroom. The relationship between psychosocial aspects of work and voice problems, despite not having been differentiated in the number of vocal symptoms in this study, needs to be.

Keywords: Voice; Speech, Language and Hearing Sciences; Dysphonia; Faculty; Working Conditions

RESUMO

Objetivo: investigar a percepção dos aspectos ambientais e psicossociais do trabalho de professores de escolas públicas de ensino fundamental e relacionar aos sintomas de desconforto vocal.

Métodos: estudo transversal com amostra probabilística de professores de escolas municipais. Participaram do estudo 90 indivíduos (18 homens e 72 mulheres) distribuídos nas faixas etárias de 24 a 65 anos. O instrumento de investigação foi um questionário com 40 questões composto por 5 blocos de perguntas. Foram realizadas: análise descritiva e análise de regressão linear uni e multivariada para verificar as associações entre o número de sintomas vocais e as condições de trabalho dos professores.

Resultados: aproximadamente um terço dos professores (34,4%) relataram a presença dos 8 sintomas vocais (média=5,6/DP=2,4). Com relação às características do ambiente de trabalho, a maior parte dos docentes refere ruído elevado ou insuportável como competição sonora ao uso da voz, sendo (43,3%) da sala de aula, e (41,1%) da escola. Quanto aos aspectos psicossociais do trabalho 54,4% dos professores relatou baixa demanda psicológica e 55,6% baixo suporte social. No modelo multivariado final, a variável que apresentou associação com número de sintomas foi o ruído dentro da sala de aula.

Conclusão: professores de ensino fundamental apresentam elevado número de sintomas de desconforto vocal. O desconforto vocal se associa significativamente com a presença do ruído em sala de aula. A relação entre os aspectos psicossociais do trabalho e os problemas de voz, apesar de não ter se diferenciado quanto ao número de sintomas vocais neste estudo, precisa ser investigada.

Descritores: Voz; Fonoaudiologia; Disfonia; Docente; Condições de Trabalho

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INTRODUCTION

Teachers are the voice professionals most affected by dysphonia, which compromises their work, health and quality of life¹⁻³. The cause of dysphonia is multifactorial. In addition, biological, anatomical and emotional aspects, unhealthy environmental conditions, intense vocal demand and/or vocal abuse are factors that – whether they are combined or isolated – lead to the manifestation of this disorder and contribute to voice illness, especially among teachers¹⁻⁶.

Studies show association between working conditions and the development of recent voice disorders⁵⁻⁷. For instance, classrooms with large numbers of students, internal and external noise, as well as with inadequate temperature and humidity conditions may lead teachers to speak loudly, and it causes important muscle overload detrimental to their voice⁵. Other factors such as psycho-emotional disorders, anxiety, stress and tension may also influence vocal production and lead to inadequate vocal adjustments⁵.

Vocal disorders in teachers are often related to complaints of fatigue and vocal wear due to time of teaching, weekly working hours, monotony and overwork. Other voice disorders are related to productivity demands and to authoritarian labor relations that reflect the frequency and the conditions in which teachers use their voice⁸. The psychosocial aspects of their work may also affect their health⁹. Authors report this element as a risk to workers' health due to the presence of occupational stress^{10,11}.

Thus, working environment and psychosocial aspects are important within the multifactorial context surrounding voice disorders in teachers. Elucidating and closely analyzing the influence these aspects have on voice disorders in teachers broadens the spectrum to understand the relation between vocal health and teaching.

Therefore, the aim of the current study was to investigate the perception of environmental and psychosocial aspects in the work of public elementary school teachers and to relate this perception to vocal discomfort symptoms.

METHODS

The herein presented study was approved by the Research Ethics Committee of Federal University of Minas Gerais, Opinion no. 692 867/14.

This is a cross-sectional study encompassing a probabilistic sample comprising municipal school

teachers of a city with 603,442,000 inhabitants¹² located in Minas Gerais State. Data collection took place between July and August 2014.

The study participants were 90 elementary school teachers, 18 men and 72 women, with mean age 42.4 years.

The inclusion criteria were: age between 20 and 65 years, being an elementary school teacher and not being a physical education teacher.

After all study participants were informed about the purpose of the research, they signed the Informed Consent Form and returned it to the researcher along with the completed questionnaires.

The research instrument used in the current study was a questionnaire consisting of five blocks of questions (totaling 40 questions). The questionnaires were organized by the researchers, and they were based and adapted from existing protocols (JCQ and EDTV), and from other (sociodemographic and working environment) issues related to non-validated aspects investigated in several studies, which were of interest for the present research.

The first block of questions approached the socio-demographic features through questions regarding age, work shift and time of teaching. The second block approached working environment features, and it contained questions regarding ventilation, workplace temperature, microphone use in the classroom, and the presence of external and internal noise. The third block contained questions about the psychosocial aspects of work. This block was based on the Job Content Questionnaire (JCQ)¹³, which was validated in Brazil¹⁴. The instrument measures and identifies the psychosocial aspects of work: the control one has over his/her own work, the psychological demand, the physical demand and the social support from colleagues and from the school board. Among these aspects, only psychological demands and social support were used in the current research.

Psychological demand refers to work process requirements. On the other hand, social support allows checking the existing social interaction among colleagues and between teachers and school board¹⁵.

The questions used in the questionnaire were arranged in: a) Psychological demand – (9 questions); and b) Social support from colleagues and from the school board – (11 questions). Responses assumed the following values: (4) I strongly agree, (3) I agree, (2) I disagree and (1) I strongly disagree.

The fourth block contained voice-related information and it used the Vocal Tract Discomfort Scale (VTDS)¹⁶ adapted to the Portuguese language in order to assess the frequency and intensity of eight vocal discomfort symptoms, namely: burning, tightness, dryness, sore throat, itching, sensitive throat, irritation, and lump in the throat. It also included questions about the diagnosis of voice disorders (in the last 6 months), speech therapy and other activities that required intensive voice use.

SPSS (Statistical Package for Social Sciences) was used in the statistical analysis. Descriptive analyzes of the study variables were performed through the distribution of the absolute and relative frequency of categorical variables, numerical synthesis analysis of continuous variables, and through univariate and multivariate regression analysis to verify associations between the number of vocal symptoms and the working features in the school environment. The multivariate model included the variables associated with the number of vocal symptoms at 20% significance level in

the univariate analysis. As for the multivariate analysis, the final model kept the variables associated with the number of vocal symptoms at 5% significance level. Variables such as gender, age and time of teaching were kept in the final model as adjustment variables.

RESULT

Table 1 shows the sample comprising 90 municipal elementary school teachers, with mean age 42.4 years, and mean teaching time 15.3 years. The mean of reported discomfort symptoms was 5.6 symptoms.

Figure 1 shows that 34.4% (n = 31) of the teachers reported the presence of 8 vocal discomfort symptoms.

The frequency of reported vocal symptoms was: sore throat (93.3%, n = 84), dryness (91.1%, n = 82), throat irritation (86.6%, n = 78), sensitive throat (80 %, n = 72), itching (66.6%, n = 60), both burning and lump in the throat (58.8%, n = 53) and tightness (51.1%, n = 46).

Table 1. Numerical summary of variables related to the number of vocal symptoms, age and to time of teaching (n = 90)

	Age (years)	Time of teaching (years)	Vocal symptoms*
Median	42	14	6
Mean	42.4	15.3	5.6
Standard Deviation	9.1	10.1	2.4
Minimum	24	2	0
Maximum	65	48	8

* Burning, tightness, dryness, sore throat, itching, sensitive throat, throat irritation and lump in the throat.

Seventy-two (80%), out of the 90 participating teachers, were women. Although 13.3% (n = 12) presented medical or phonoaudiological diagnosis of vocal disorders, only 3.3% (n = 3) underwent speech therapy. Some respondents (12.2%, n = 11) exercised another professional activity involving intensive voice use.

Regarding the working environment features, it was observed that most teachers (86.7%) do not make use of microphone and that the reference to high or unbearable noise in the classroom and in school has significant value (43.3% and 41.1%, respectively), as shown in Table 2.

Half of the teachers reported low psychological demand (54.4%) at work as well as low social support (55.6%) (Table 3).

Table 4 shows the univariate and multivariate linear regression analyses. The univariate analysis found no statistically significant association among the number of symptoms and the noise outside the school, the social support, the psychological demands and the microphone use. The only variable associated with the number of symptoms was noise inside the classroom.

The final multivariate model was adjusted according to gender, age and time of teaching. According to this model, the noise inside the classroom remained associated with the number of symptoms, thus indicating that as the teacher perceives a high or unbearable noise, the number of symptoms also rises ($p = 0.038$).

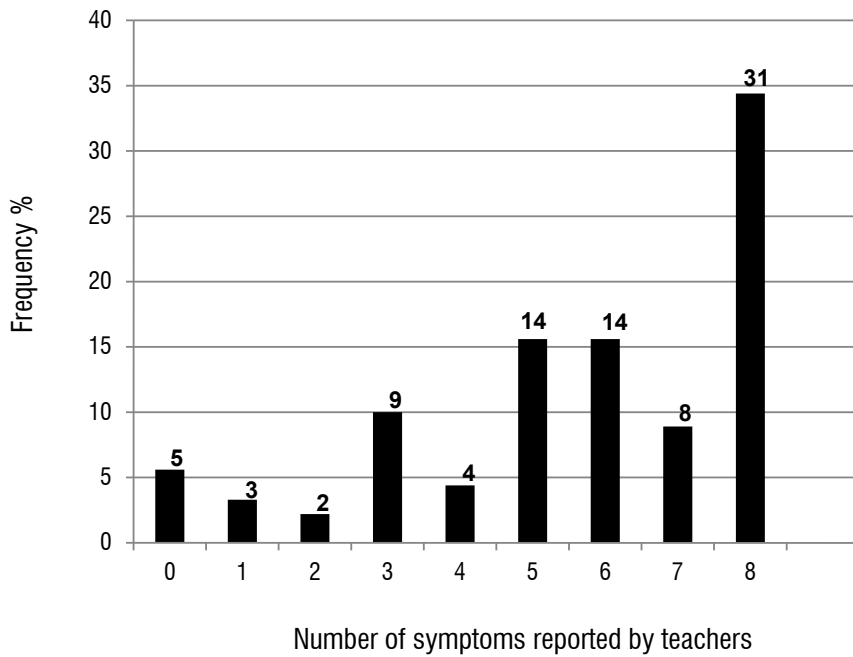


Figure 1. Absolute frequency and percentage of vocal symptoms reported by teachers (n=90)

Table 2. Working environment features reported by teachers (n = 90)

Features	N	%
Microphone use		
No	78	86.7
Yes	12	13.3
Noise in the Classroom		
Insignificant/moderate	51	56.7
High/unbearable	39	43.3
Noise within the School		
Insignificant/moderate	53	58.9
High/unbearable	37	41.1
Noise outside the School		
Insignificant/moderate	73	81.1
High/unbearable	17	18.9

Table 3. Numerical summary of variables such as psychological demand and social support (n = 90)

	Psychological Demand	Social Support
Median	14.0	19.0
Mean	14.2	18.9
Standard Deviation	2.7	3.1
Minimum	8.0	12.0
Maximum	21.0	27.0

Table 4. Results of univariate and multivariate regression analyses between the number of symptoms and the school environment features

Features*	Univariate Model		Multivariate Model	
	Coefficient (Standard error)	P value*	Coefficient (Standard error)	P value *
Gender	0.444 (0.638)	0.488	0.445 (0.632)	0.474
Age	-0.007(0.028)	0.794	-0.042(0.041)	0.317
Time of teaching	0.013(0.025)	0.601	0.051(0.038)	0.184
Noise in the classroom	1.045(0.502)	0.041	1.079 (0.510)	0.038
Noise in the school	0.862(0.516)	0.099	-	-
Noise outside the school	0.280(0.668)	0.676	-	-
Microphone use	-0.744(0.749)	0.323	-	-
Constant	-	-	5.621 (1.612)	0.001

* Reference categories: female gender; insignificant/moderate noise; no microphone use

DISCUSSION

The study participants were mostly women (80%). The participants' mean age was 42.4 years, and the teachers worked in two shifts.

It was observed that the mean of reported discomfort symptoms was 5.6 symptoms. Sore throat and dryness were among the most significant discomfort symptoms. These symptoms were also recorded in other studies as the most frequently cited by teachers^{17,21}. Dysphonia is defined as any difficulty or change in the natural voice emission. This process emerges through different symptoms, such as pain/burning, vocal fatigue, burning or stinging, tightness in the throat, difficulty to speak very loudly, among others^{4,22}.

Interestingly, only 12 (13.3%) out of the 90 teachers, presented medical or phonoaudiological diagnosis of vocal disorders and very few (3.3%, $n = 3$) underwent speech therapy, although they presented a significant number of vocal symptoms. Some studies indicate that most teachers do not value or are even unaware of the symptoms related to dysphonia, and this fact helps increasing their difficulty on vocal emission^{8,23}. These are alarming data that show how health promotion actions are important to teachers. Public policy practices aimed at teachers may be suggested as an attempt to help these professionals by providing better working conditions and care for their voice.

Dysphonia is multifactorial. In addition, environmental, behavioral, occupational, and emotional factors and even lifestyle influence its genesis^{18,24}. Regarding the working environment features in the current study, the presence of noise in the classroom was the factor showing greater relevance to increase in vocal symptoms (Table 2).

Studies show that the environmental noise, especially that found in the teachers' everyday routine, contributes to the emergence of vocal disorders^{19,24}. In the long term, high noise levels may cause changes in teachers such as hoarseness and voice fatigue resulting from benign lesions in the vocal folds. These changes may lead to relevant implications to their personal, social and professional quality of life, resulting in sick leave, absence from work and functional re-adaptation, fact that causes obvious damage to the teacher and to the school community^{25,26}.

The results regarding the use of microphone by the participants were negative, i.e., most teachers (86.7%) do not make use of it. Studies encourage the incorporation of microphone use as prophylactic measure, and as personal protective equipment for the teacher²⁷. We believe that an ergonomic analysis of the working environment and the administrative alternatives to improve the noise condition in the classroom also need to be taken into consideration and incorporated by the competent bodies in elementary schools.

There was no statistically significant association between the number of vocal symptoms and the psychosocial aspects of work. Studies report that the psychological demand may have different meanings for different groups within the working population in their cultural, social and occupational contexts⁸. Social support is considered to be one of the main moderators of the individuals' health and satisfaction at work^{8,10}. However, the results of the psychosocial aspects of work were not conclusive. They should be further investigated in researches aiming at broadening the knowledge about the relation between these aspects and teachers' voice disorders.

CONCLUSION

Elementary school teachers present a large number of vocal discomfort symptoms and they do not seek speech therapy or medical help. The number of vocal discomfort symptoms was significantly associated with the presence of noise in the classroom. As teachers perceive a high or unbearable noise, the number of symptoms also rises. The relation between psychosocial aspects of work and voice disorders needs to be investigated, although there was no difference in the number of vocal symptoms found in the current study.

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