

Hoarseness and Risk Factors in University Teachers

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Summary: Purpose. To characterize the presence of hoarseness and the risk factors in male and female university teachers in private institutions in the city of São Paulo, Brazil.

Study Design. Cross-sectional survey.

Methods. Voice self-evaluation forms prepared by the Brazilian Ministry of Labor were administered to 846 university teachers in a private institution in the city of São Paulo, Brazil.

Results. Prevalence of hoarseness in the sample is 39.6%. Percentage of hoarseness is higher in females (51.8%) than in males (32.6%). Comparing hoarseness and time of teaching, it was observed that the percentage of hoarseness is lower in a time shorter or equal to 1 year, and it is higher in a time between 10 and 20 years. Percentage of hoarseness is lower in the maximum workload of one to three class hours per day compared with the other workloads. Percentage of hoarseness is lower when the maximum number of students per classroom is less than 30 than when it is between 101 and 150 students. Other factors like in terms of noise and sound competition, air pollution, and in terms of causing stress and anxiety, besides habits and style/quality of life are related to the presence of hoarseness.

Conclusion. University teachers show high percentage of hoarseness. Factors, such as time of teaching, females, work organization, workplace, in terms of noise and sound competition, air pollution, and in terms of causing stress and anxiety, besides habits and style/quality of life, are related to the presence of hoarseness in this group.

Key Words: Teachers–Dysphonia–Risk factors.

INTRODUCTION

The term “professional voice users” was defined in the Brazilian Consensus of Professional Voice in 2004 as the oral communication used by people who depend on their voice to perform their working activities.¹ Approximately, one-third of today’s known professions use the voice to varying degrees.² Among the professionals who use the voice, teachers, representing more than four million workers in Brazil,³ are the focus of most studies about the professional voice.⁴ Among the professionals who use the voice, teachers are most likely to develop dysphonia.^{5,6} Moreover, only one-third of teachers with vocal complaints seek professional assistance.^{7–9}

Teachers have recently been the subject of several studies on the professional voice. Such studies warn of the adverse effects of voice problems on work performance,^{10,11} suggesting that teaching has a high risk of work-related vocal problems.^{10,12} In addition, the number of voice complaints is higher in female teachers than in male teachers.⁸

Behlau et al,¹³ in an epidemiological study in Brazil, compared vocal symptoms in 1651 teachers of elementary and high schools with 1614 nonteachers. They made the following observations: (1) there was a vocal complaint incidence of 11.6% in teachers and 7.5% in nonteachers, (2) 63% of teachers and 35.8% of nonteachers had vocal problems at some point in life, (3) there was a higher number of vocal symptoms seen in current teachers (average of 3.7) and previous teachers (average of 3.6) compared with nonteachers (1.7 and

2.3), (4) the voice contributed to limitations in the work of 29.9% of teachers and 5.4% of nonteachers, and (5) teachers had higher numbers of absenteeism in the last year and had considered more job changes than nonteachers. The researchers concluded that working at school as a teacher has a high occupational risk for vocal problems.

In 2010, de Almeida and Pontes¹⁴ introduced the concept of occupational dysphonic syndrome (ODS) by considering the multitude of factors that can cause dysphonia in professional voice use and the numerous symptoms of dysphonia. This range of factors and symptoms explains the discrepancies found in the literature.

Regarding the symptoms of ODS, the modification of voice quality that is typically referred to as hoarseness is the symptom most noticed by voice professionals, although this symptom may present with different characteristics, such as roughness, harshness, and breathiness, among others. Thus, in the present study, we will consider this symptom to be an identifying parameter of ODS in university teachers.

Several studies include teachers from different segments of school,^{7,8,10–13} but thus far, we have not found a study specifically addressing university teachers that has used a self-evaluation survey. Thus, it is of interest to use a voice self-evaluation survey, such as that designed by the Brazilian Ministry of Labor, for an epidemiological profile of voice complaints and risk factors in university teachers.¹⁵

The objective of this research is to characterize the presence of hoarseness and the risk factors in male and female university teachers in private institutions in the city of São Paulo, Brazil.

METHODS

This cross-sectional study was reviewed by the Ethics Committee in Research of the Universidade Federal de São Paulo (UNIFESP) and was authorized by the institution Universidade Paulista (UNIP), from which the data were collected.

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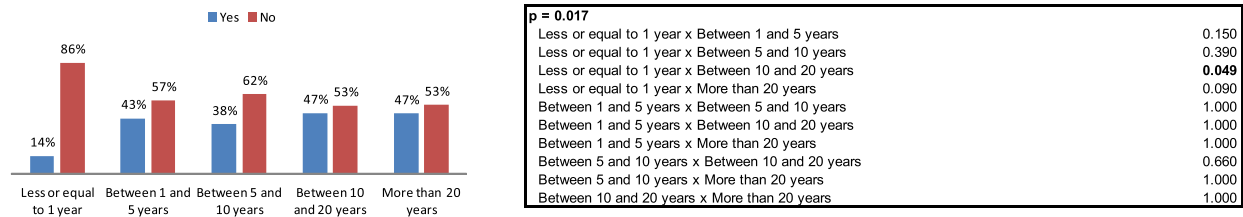


FIGURE 1. Hoarseness by the time of teaching and the respective *P* values.

Voice self-evaluation forms, prepared by the Brazilian Ministry of Labor, were completed by 846 university teachers, regardless of type, from a private institution in the city of São Paulo during a 1-month period in 2007. The response rate was 86%.

The variables related to hoarseness in teaching that were analyzed were selected from the self-evaluation forms and grouped as follows:

- *Identification variables*: age, gender, and time of teaching.
- *Work organization variables*: number of institutions, maximum workload during the week, class length, time between classes, maximum number of students per classroom, other professional activities, use of voice in other professional activities, and professional activity that consumes the most time.
- *Workplace variables*: noise in the classrooms, air pollution, stress and anxiety because of the activity, and water supply in the institution.
- *Voice care variables*: medication for the throat or voice, seeking medical advice because of vocal symptoms, and degree of difficulty in teaching.
- *Habits and style/quality of life outside the institution variables*: use of voice, stress and anxiety, drinking water/hydration, diet, body weight, smoking, alcohol consumption, use of other drugs, continuous-use medication, sports activity, and health care.

Differences in hoarseness rates for each variable were considered. Statistical analyses were performed using the SPSS, version 13.0, statistical package for Windows. Student *t* test was used to compare hoarseness rates for the numeric variables, the chi-square test was used to compare hoarseness for the categorical variables, and Fisher exact or likelihood ratio test was used when necessary. A significance level of 5% ($P < 0.05$) was used.

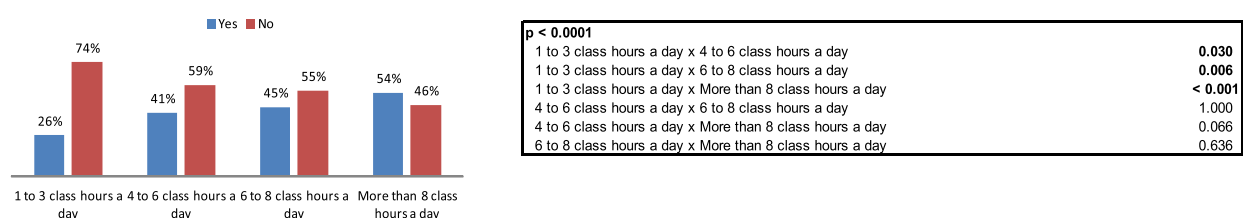


FIGURE 2. Hoarseness by maximum workload during the workweek and the respective *P* values.

RESULTS

The incidence of hoarseness in the sample of 846 university teachers is 39.6% (54.6% of the teachers did not have hoarseness, and 5.8% did not answer this question).

Identification variables

The percentage of hoarseness is higher in females (51.8%) than in males (32.6%). No statistically significant difference in age was observed between patients with and without hoarseness; the age averages and standard deviations were 41.5 (9.4) and 42.5 (9.7), respectively. Additionally, age was analyzed as a qualitative variable by grouping participants into two groups, those who were of 60 years or younger than 60 years and those older than 60 years. Again, no statistically significant difference was observed between patients with or without hoarseness; the percentage of hoarseness in each age group corresponds to 42.6% and 37.8%, respectively.

The percentage of hoarseness is lower for those teachers who have spent 1 year or less teaching and higher for those who have taught between 10 and 20 years (Figure 1).

Work organization variables

The percentage of hoarseness is lower for those teachers with a maximum workload of one to three class hours per day compared with the other workloads (four to six class hours per day, six to eight class hours per day, and more than eight class hours per day) (Figure 2).

The percentage of hoarseness is lower for those teachers with a maximum number of students per classroom of less than 30 compared with teachers with a maximum number between 101 and 150 students (Figure 3).

No statistically significant differences were observed in the rate of hoarseness for the variables “number of institutions where you teach,” “duration of the most frequent classes,” “minutes of break,” and “use of the voice in other professional activities” (Table 1).

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