

Diagnosis of Dysphonia Among Municipal Employees: Individual and Work Factors

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Summary: Objective. To investigate the association between occupational status and the distribution of dysphonia.

Methods. In 2009, a sample of 5646 (14%) of the population of 38 304 municipal employees of Belo Horizonte was obtained. A questionnaire was made available on an Internet Web site that could be entered only after the respondent had given consent. The response variable was drawn up with reference to the question: “Has a doctor ever told you that you have dysphonia?,” for which the possible responses were yes or no. The following variables were included in the logistic regression model: sociodemographic data, work characteristics, and lifestyle habits.

Results. The associations relating to dysphonia were found to be different between men and women. Differing from men, occupational factors influenced the outcome among women. Among men, there were significant associations between dysphonia and sociodemographic characteristics, health-related factors, and lifestyle factors.

Conclusion. Gender differentials should be taken into consideration in health promotion actions among this group of municipal employees.

Key Words: Dysphonia–Working conditions–Teachers–Occupational health.

INTRODUCTION

Dysphonia is an alteration in the speaking or singing voice that may cause discomfort and body pain, thereby resulting in limitations of day-to-day life and work activities.¹ Both acute and chronic factors may precipitate dysphonia. The main cited causes include vocal overload because of work demands, physical trauma, lifestyle, environmental characteristics, medications, and health problems.^{2,3}

According to conservative estimates, the incidence is 7% in the general population, and this rises to 29% when lifetime prevalence is taken into consideration.⁴ These estimates are doubled when groups at risk are studied. According to the records of specialized clinics, laryngopathy with or without nodules is more common among teachers, singers, nurses, radio presenters, and gym monitors. The diagnostic conditions are manifested with symptoms of vocal fatigue and hoarseness, and these are intensified in situations of intensive voice use.⁵

Findings relating to cofactors have been inconclusive.⁶ Nonetheless, it is known that stress and sound intensity are potent risks for vocal overload, especially among women.⁵ Psychological pressure may have an important role. Teachers who report voice problems are thought to be more vulnerable to psychiatric diseases, such as anxiety or depression.⁶

The differences in the distribution of voice morbidities according to profession have led to implementation of health and safety at work measures in many countries, and these are based on evidence relating to the weight of environmental and contextual factors in triggering or worsening vocal symptoms.⁷ In summary, dysphonia is a health problem affecting women more severely,⁸ that is of multifactorial origin, with

clear predominance among individuals exposed to demands on their voices.

The weight of socioeconomic position is recognized when differentials in the distribution of health events are studied. The term “socioeconomic position” is used to refer to the socially derived economic factors that influence what positions individuals or groups hold within the multiple-stratified structure of a society.⁹ Occupational status measures particular aspects of socioeconomic position. Occupational status also reflects social standing and may be related to health outcomes because of certain privileges, such as easier access to and better quality of health care, access to education, and more salubrious residential facilities, that are more easily achieved for those of higher standing.¹⁰ However, it is also likely that the distribution of morbidities is related to the type of exposure to working conditions in specific occupational categories. Thus, working conditions are believed to modify the effects of socioeconomic position, which in turn are intrinsically related to the schooling and income levels of the subjects studied.¹¹

The present study had the aim of ascertaining associations between occupational status and dysphonia in a sample of municipal employees.

METHODOLOGY

The question posed in this study was addressed in a sample that took into account different occupations encompassed by a single stable employment linkage. An epidemiological survey was conducted from September to December 2009, in which the target population was formed by 38 304 municipal employees of Belo Horizonte.

The questionnaire was made available after a pilot study had been concluded. The questionnaire used was organized into eight groups of responses, with approximately 120 questions: (1) demographic and functional, (2) domestic activities and living habits, (3) state of health, (4) vaccines, (5) working environment, (6) acts of violence: becoming a victim, (7) work demands, and (8) quality of life. It was a self-administered questionnaire on the Internet that was freely answered at the individual’s workplace. It could only be accessed after the

Accepted for publication July 29, 2014.

No competing interests.

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Journal of Voice, Vol. 29, No. 3, pp. 389.e19-389.e26

0892-1997/\$36.00

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<http://dx.doi.org/10.1016/j.jvoice.2014.07.017>

individual had read and agreed to the consent statement that had been approved by the Research Ethics Committee of the City Authority of Belo Horizonte (report: 0054.0.410.000.09^a).

The survey was widely publicized through meetings with the administrative body of all entities of the City Authority of Belo Horizonte, notices on the Internet and intranet, and messages on payslips, among other means, with the aim of clarifying the objectives and the importance of participation. This publicity sought to achieve adherence of as many as eligible subjects as possible. The trade unions representing the municipal employees also notified and made aware of the objectives of the survey and its importance.

With the aim of obtaining representation from all bodies within the administration, the number of questionnaires filled out was monitored every week, through a systematized process devised by a computer technology company in the municipality. In this manner, it was possible for the investigative team to reinforce the publicity measures among managers and workers at localities with lower adherence.

The questionnaire was accessed by 6490 workers (16.9%). In the end, a sample of 5646 employees (14.7%) was obtained, that is, the number of employees who effectively answered the questionnaire. However, the quantity of data lost varied according to the variable because of fluctuations in the number of responses provided by the participants (a single respondent might fail to give responses for some of the questions in the questionnaire). We considered that such occurrences would not compromise the analysis, given that average percentage of lost data was 5%. The group was not randomized, but there was no difference between the respondents and nonrespondents in relation to sex and age group, which suggests that homogeneity was achieved between the groups. However, contrasting with the overall population, individuals with bachelor's or post-graduate degrees predominated among the respondents.¹²

The response variable was drawn up with reference to the question: "Has a physician ever told you that you have dysphonia?" for which the possible responses were yes or no.

Given the multidimensional nature of dysphonia (individual, environmental, and behavioral), the Phoniatory Committee of the European Laryngological Society has suggested that broad protocols should be used in studies on voice alterations.¹³ Their recommendation was accepted for the present study, and the dimensions implied in specific domains were incorporated, including the following: (1) individual and demographic characteristics, (2) work characteristics, and (3) health and living habits. A review of the literature made it possible to construct a theoretical model (Figure 1) that guided the selection of independent variables, which were classified in groups to draw up a hierarchical model for structuring the analysis.

For the present study, event determination groups were structured (Figure 1). The first group included *age group* in complete years (up to 29, 30–39, 40–49, and 50 or older), *conjugal situation* (with partner or without partner), and *children* (no or yes). The variable of conjugal situation was originally obtained in terms of the following responses: single, married, together, stable union, widowed, separated, legally separated or divorced; and these were subsequently dichotomized.

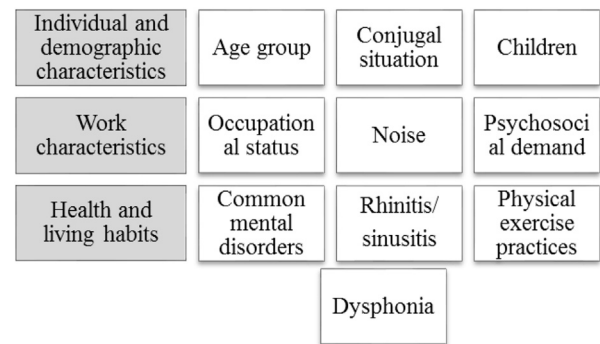


FIGURE 1. Model structured in groups for analyzing the diagnosis of dysphonia among municipal employees in Belo Horizonte.

The second group included occupational status, noise, and psychosocial demand. In 2009, the City Authority of Belo Horizonte had employees in 384 functions according to the municipal plan of positions and careers. The respondents were distributed into 255 functions, and these were incorporated into the analyses (Table 1).

It was decided to use the occupational category as a measurement referring to social class, given that occupation influences subjects' positioning in the social structure. Social class links individuals to the distribution of economic and social resources, which affects health care opportunities.^{14,15} The occupational classification makes it possible to examine particular aspects and also more generic mechanisms of socioeconomic position, which may explain the association between occupational status and becoming ill.^{16–18}

To define occupational status, the International Socioeconomic Index (ISEI) was used. This was constructed taking into consideration information on individuals' education, occupation, and income.¹⁹ The ISEI scale has been validated with regard to its applicability in different contexts, and it has strong correlations with other scales. The resulting set of scores range of 16–90, with Judges gaining the highest score. The lowest score is jointly held by two unit groups: (1) farmhands and laborers and (2) helpers and cleaners in offices, hotels, and other establishments.²⁰ To obtain the ISEI, the codes in the Brazilian Occupational Classification corresponding to the job position plan of the City Authority of Belo Horizonte had to be obtained. The Brazilian Occupational Classification was instituted through ministerial ordinance no. 397, of October 9, 2002, with the aim of identifying occupations in the labor market. In cases in which no direct correspondence was found between

TABLE 1.
Total Number of Functions According to the Classifications Used

Classification	Total
City Authority of Belo Horizonte	255
Brazilian Occupational Classification	108
Clasificación Internacional Uniforme de Ocupaciones 88	68
International Socio-Economic Index	32

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