

Author's response to reviews

Title: Voice disorders and mental health in teachers: a cross-sectional nationwide study

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Author's response to reviews: see over

The BioMed Central Editorial Team
BMC Public Health

Object: MS: 1975206440191104

Dear editor:

We thank you for allowing us to submit an amended version of our article entitled “Voice disorders in teachers: results from a French survey”.

We are grateful to the reviewers for their comments and we revised the manuscript accordingly as detailed in the “point by point” response below.

In the new version, and following advice of one of the reviewer, we highlighted the part of the study dealing with the association between voice disorders and psychopathologies. To this end, we reorganized both results and discussion sections and added some references. Now, we suggest a new title for our article: “Voice disorders and mental health in teachers: a cross-sectional nationwide study”.

We are aware that the text of this new version differed appreciably from the previous one, but the modifications do not challenge previous conclusions and we think they make the manuscript more informative. We hope that this new version will be acceptable for publication in BMC Public Health.

Yours sincerely,

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Reviewer's report

Title: Voice disorders in teachers: results from a French survey

Version: 3 **Date:** 18 December 2008

Reviewer: Henry C Thode

Reviewer's report:

MAJOR COMPULSORY REVISIONS

1/ In epidemiology, the standard acceptable response rate is considered to be 80%; in this study the overall response rate was 53%, although the response rate for teachers was not stated and could be higher or lower.

We acknowledge that a possible bias as a result of non-response must be investigated. Using the statistics of the National Education Ministry, we estimated that the number of teachers currently in activity in the initial sample of 20,099 individuals was 7,185. Indeed, 45% of the initial sample are retirees; Of the remaining 55% workers still in activity, 65% are teachers giving classes to student (Kovess-Masfety & al. BMC Public Health 2006) [As mentioned in the population section, the remaining 35% are non-teaching staff members in charge of general discipline, non-teaching researchers, librarians and employees/managers in public service]. Finally in the returned questionnaires, 3,940 individuals reported to be "teacher currently giving classes to student". Thus, the response rate for teachers was estimated to be around 55% (3,940/7,185), which is slightly higher than the overall response rate of 53%. This point was specified in the first paragraph of the new results section.

Assuming that the response rate for teachers is about the same as the overall rate, this study has a major limitation.

We agree that a response rate of 55% is a limitation that has to be examined in the discussion section; therefore, we added this short paragraph in the new version: "The non-optimal response rate of the present study is another limitation, with possibility of bias in prevalence estimates. Data on voice disorders were not available from non-responders, raising the concern that persons with voice disorders were either over- or under-represented in the sample. As a consequence, prevalence figures should be viewed with caution. In fact, the study sample shows similar distributions according to sex and grade level taught to those observed at the national level of teachers within the public education system (2005 statistics provided by the National Education Ministry), but younger teachers (less than 30 years old) were slightly under-represented. Given the fact that 26-35 years old teachers were shown to be more likely to complain of voice, prevalence may be underestimated."

2/ Indicate how age was used in the logistic regression adjustments; voice disorders are not linear with respect to age (Figure 1), so it should not be assumed age is linear with respect to mental health outcomes.

We totally agree with your point. We specified in the new version that age was introduced in 5 classes (those presented in Figure 1). Please, see the new methods section.

3/It is unclear why an analysis between voice disorders and mental health was conducted. Although there were some references in the literature to such associations, this study jumped from an epidemiologic descriptive study to a comparative study of voice disorders and mental health. Since the MGEN survey includes physical health measures and healthcare usage, why was mental health singled out? It is almost as if it was decided that since there was data on mental health, it should be used. At the very least some discussion of voice disorders and mental health should be put in the Background section so that the analysis doesn't come as a surprise.

To better present our objectives and working hypotheses, we added some elements in the new version of the background section:

First, at the beginning of the introduction, we noted that voice disorders could be etiologically related to psychological difficulties:

“Voice disorders cover a wide range of troubles which could be related to various aetiologies, including organic lesion of vocal folds (acquired or congenital), deficient control of breathing, deficient control of laryngeal articulation, as well as psychological difficulties.”

Later in the introduction, we present the (few) elements from available literature on the comorbidity between voice and psychological disorders:

“On the whole, findings concerning cofactors of voice problems are inconclusive. Among them, psychological factors have attracted some attention [9, 10]. In teachers particularly, stress and psychological tension could play an important role [11, 12], but data on this particular relationship are scattered.”

Finally, at the end of the Introduction, we specify our objectives:

“Besides computing descriptive figures to understand the full extent of the voice problem in teachers at the national level, we aimed at adding to the emerging literature on the association between voice disorders and psychological factors. In accordance with available preliminary results relating voice complaints to psychological distress, we hypothesized that teachers who reported voice disorders were more susceptible than the others to suffer from psychiatric disorders such as anxiety or depression. To test our working hypothesis, we took advantage of data on a large sample of policyholders of the health care insurance company of the National Education system. Among many other factors, this epidemiological study asked a number of questions on voice disorders, as well as on mental health.”

In the abstract, we summarised our objectives as follows:

“The aim of this study was to evaluate prevalence and cofactors of voice disorders among teachers in the French National Education system, with particular attention paid to the association between voice complaint and psychological status.”

4/In the first paragraph of Results, there is a comparison of teachers and non-teachers. Since there is no description of the non-teacher group, it cannot be determined what the

comparison means. This should preferably be excluded, or the population of non-teachers defined.

We deleted the sentence dealing with this comparison. Indeed, we choose to refocus our article on the study of voice disorders in teachers specifically.

5/The MH5 score is higher in both men and women when comparing those with and without voice disorders. While statistically significant, the difference in both men and women is only 5: is this a clinically meaningful difference, or is the statistical significance just an artifact of a large sample size?

We thank the reviewer for this interesting comment; indeed, the mean test was not the most adapted to evaluate the association between MH score and voice disorders. In the new version, we used a Wilcoxon-Mann-Whitney test that confirms that distributions differed significantly. Another possibility to confirm this result was to dichotomize MH score according to the “universal” 56-cut-off point to distinguish between individuals with or without depressive symptomatology and then to compare (with a simple Chi2 test) the prevalence of voice disorders among those with or without depressive symptomatology (i.e. those showing MH score below or above the cut-off). This was also done and confirmed our conclusion ($p < 0.01$) for both men and women.

6/On the questionnaire in the appendix, the primary question is whether the teacher had one of the following symptoms. It doesn't state what period of time this question covers (ever? in the last year? in the last month?).

As presented in the appendix, the question in the questionnaire was “Couldn't you **ever** have one of the following symptoms?” We added a sentence in the method section to specify that point.

MINOR REVISIONS

1/ Numerical information should be included in the abstract rather than just indicating that, for example, “Psychological distress was greater in teachers who reported voice disorders...”.

In the abstract, we choose to present specifically the results concerning the associations between voice disorders and mental health problems / sick leave. Therefore, after mentioning the prevalence of voice disorders among male and female teachers, we gave for each psychopathology diagnosis (among major depressive episode, generalized anxiety disorder, and phobia), the corresponding sex- and age- adjusted OR[95%CI]. We also presented the OR between voice disorders and sick leave.

2/ Please indicate over what period of time the survey was administered.

We added this sentence in the method section:

“Between January and June 2005, three mail shots were sent, the two latter to non-respondents specifically.”

3/The median test is not used to compare means (end of Methods section).

Indeed, this was a mistake. In the new version, we used a Wilcoxon-Mann-Whitney test that enables assessing whether two independent samples of observations come from the same distribution.

4/Is the difference in vocal training between women and men (18% vs 10%) statistically significant?

Yes, with a p-value to the corresponding Chi2 test <0.01 , and we stated that point in the text

5/In Results, I was confused by the statement that voice problems occurred more often “at the end of the term and at the start of the year”. Is the start of the year January 1, or the beginning of the academic year? When is the end of the term? How many terms are there in an academic year?

To teacher mind, the year begins in September and ends in June and comprises three terms: the first lasts from September to December, the others from January to March and from April to June respectively. However, to simplify the message and to avoid confusing, we finally choose not to present the non-central and rather fragile results on the occurrence of voice disorders (one sentence deleted).

6/ In the analysis of mental health outcomes, “The OR estimated from univariate models” is shown after adjustment for age and gender. Adjusting for age and gender makes it a multivariate model.

Indeed, it was a mistake. We replace “univariate” by “sex- and age-adjusted”

7/ It is my understanding that the MH scale is the 5 item mental health measure from the SF-36, and that the MH5 is the fifth item in that group. Unless the terminology has changed, use MH instead of MH5 when referring to that score.

Done

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published
The present version has been reviewed by a professional English native editor

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests

Reviewer's report

Title: Voice disorders in teachers: results from a French survey

Version: 3 **Date:** 15 December 2008

Reviewer: Miguel Goncalves

Reviewer's report:

Major Compulsory Revisions

1/ In the methods section, the statistical explanations need to be expanded. For example, the authors should explain to the reader what tetrachoric correlations are and how they differ from normal correlations.

We expanded the methods section to better present which tests and models were successively used. Please, see the new version of the statistical analysis paragraph. We notably included a brief explanation on tetrachoric correlations:

“Tetrachoric correlation coefficients were also used to evaluate the strength of the relationship between the different types of voice disorders. Tetrachoric correlation provides a measure of agreement between two binary variables in estimating what the Pearson correlation would be if binary ratings were made on a continuous scale. Indeed, each complaint involving a specific type of voice disorders, although viewed as discrete here, might still be considered as a continuous gradation of varying levels of symptom intensity (i.e. as a latent trait).”

2/Also it is not clear where a logistic regression analysis was used in the manuscript (is this shown in figure 2?). If a logistic regression was used then the reader would benefit from a table summarising the results.

Please, see response given to previous point, concerning development of explanations on methods used. Concerning the results from the logistic regression models, we replace Figure 2 by Table 4, which provides more precise and complete information on the associations between voice disorders and psychopathologies (including percentages of these diagnoses among those who complained or not of voice disorders).

3/The response rate was only 53% and the authors should incorporate the impact of this fact on their discussion/conclusions.

We added a sentence in the discussion section:

“The non-optimal response rate of the present study is another limitation, with possibility of bias in prevalence estimates. Data on voice disorders were not available from non-responders, raising the concern that persons with voice disorders were either over- or under-represented in the sample. As a consequence, prevalence figures should be viewed with caution. In fact, the study sample shows similar distributions according to sex and grade level taught to those observed at the national level of teachers within the public education system (2005 statistics provided by the National Education Ministry), but younger teachers (less than 30 years old) were slightly under-represented. Given the fact that 26-35 years old teachers were shown to be more likely to complain of voice, prevalence may be underestimated.”

4/There are some p-values associated with percentages – for example, page 8, 3rd paragraph – and I am not sure which statistical test was used to determine these.

Page 8, 3rd paragraph, the p-value related to a Chi2 test

Now, when mentioning a p-value, the corresponding test was systematically specified in the text.

Minor Compulsory Revisions

1/ Page 5 – It would be useful to state if the authors would add what the CNIL is, the French data protection authority, for completion.

We modified the text as follows:

This study was approved by the “Commission Nationale de l'Informatique et des Libertés” (CNIL), an independent administrative authority protecting privacy and personal data in France.

2/ Page 6 – Why was a median test used?

The MH score can not be considered as normally distributed (p-value of the Kolmogorov Smirnov test less than 0.01). Therefore, we used a non-parametric test (the Wilcoxon-Mann-Whitney test) that allows evaluating whether two distributions differ or not.

3/ Page 7 (and other pages) – The number of decimal places in the document should be standardised. We have some p values with 4 decimal places, whilst others have only 2. I would select 2, since 4 gives a sense of precision, which is false.

In the new version, all p-values were presented with 2 decimals (possibly, we used “<0.01”).

4/ Table 1 and 2 – I don't really understand why there are more voice disorders (table 2, N = 3,904) than participants (table 1, N = 3,646). My understanding is that some people have more than one voice disorder. If this is the case, then the chi-square test in table 2 (or any other test) is incorrect, since the data points are not independent from each other.

First, there was a mistake in the frequencies in Table 2. Indeed, the prevalence were computed in a stable sample of 1,264 men and 2,382 women (n=3,646), as presented in the text and in Table 1.

Second, some people complained of more than one type of voice disorders, but this does not limit the use of the chi2 test, when comparing men and women for *each* type of voice disorders.

5/ Figure 2 – What are negative/positive diagnosis?

In the new version, Figure 2 was replaced by Table 4. For mental disorder diagnoses, we no longer use the “negative/positive” terminology, which could be confusing.

In a footnote, we mentioned that mental disorders were assessed following the DSM-IV criteria and we specified that diagnosis refers to the previous one-year.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests