Abstract: Voice problems have become a major occupational health issue within the teaching community, as they frequently result in work absenteeism and need for professional re-orientation. Four main risk factors have been identified: voice loading, general health condition, environmental factors and psycho-emotional factors (occupational stress and frustration).

In order to specifically consider the ‘stress’ aspect, we investigated voice complaints and voice-related quality of life in the teachers of a special education setting: the national military academy for future non-commissioned officers, actually adolescents in the age 12 to 18. The outcomes were compared with those from recent reports about similar studies in common secondary schools in different European countries and in the USA. Our results demonstrate that the specific military teacher’s population considered in this study clearly shows significantly lower prevalence of voice problems than comparable teacher’s populations in ‘common’ secondary schools.

On the other hand, we investigated two specific groups of teachers supposed to have a heavier physical voice load than classical teachers: teachers of physical education and swimming teachers (in secondary schools). Concerning these two classes of teachers, the clear overall similitude with classical teachers provides a strong argument to consider that vocal load and environment is not the sole – or by far the most important – cause of voice complaints.

Keywords: Teachers, voice load, psycho-emotional complaints, stress.

I. INTRODUCTION

Voice problems have become a major occupational health issue within the teaching community, as they frequently result in work absenteeism and need for professional re-orientation. Four main risk factors have been identified [1-3]: voice loading (amount of teaching hours weekly), general health condition (upper airway infections, allergy, hearing loss, gastro-esophageal reflux...), environmental factors (noise, room acoustics, etc.), and psycho-emotional factors (occupational stress and frustration). Several recent publications suggest that the latter could play an important role. Actually the “stress” factor seems to consist of two components: the fear for aggressions and violence [4] and the lack of adequate coping strategies [5]. A growing number of misbehaving pupils and an increase in the size of the classes could account for deterioration in the last years [6].

In order to specifically consider the ‘stress’ aspect, we investigated voice complaints and voice-related quality of life in the teachers of a special education setting: the national military academy for future non-commissioned officers, actually adolescents in the age 12 to 18. The most obvious difference between these specific surroundings and a normal secondary school is the discipline constraint, due to selection of the pupils, strict internal regulations and punitive sanctions (exclusion). The outcomes were compared with those from recent reports about similar studies in common secondary schools in different European countries and in the USA. Our working hypothesis is that enhanced discipline reduces stress in the teachers.

On the other hand, we investigated two specific groups of teachers supposed to have a heavier physical voice load than classical teachers: teachers of physical education and swimming teachers (in secondary schools). The literature is however controversial: E.g. [7] found evidence for a higher risk to develop voice problems in teachers of physical education while [8] found no difference, although the teachers of physical education reported shouting much more (also in open air) compared to the other types of teachers.

The basic tool for these studies was a questionnaire, including the Voice Handicap form, a validated, widely spread instrument for quantifying voice related quality of life, to be filled in by all teachers. Beside the VHI, the questions pertained to:
- general information (gender, age …)
- health condition (general complaints / smoking & drinking habits / hearing / airway / reflux etc…)
- detailed information about career and teaching conditions
- a Yes/No statement: “In general, is your voice for you a problem?”
- the Voice Handicap Index [9].

The questionnaire had to be filled in anonymously.

III. RESULTS

A. Military teachers

73 fully completed questionnaires were suitable for analysis. 28 were incomplete. The response ratio was 70%. All were males.

(i) Prevalence of voice problems:
One single teacher (1%) gave a positive answer on the general Yes/No statement. Reference values for teachers are 52% [10], >55% [11], 59% [3], 43% [12], 54% [13], and for the general population 29% [14, 15] and 5% [11].

(ii) The median value for the VHI-score in our study was 5 (percentile 25: 2.8 and percentile 75: 10.3). The normative values (Median value, percentiles 25 & 75) are:
- Working population without occupational voice use: 5 (2-10)
- General population: 6 (2-12)
- Voice professionals: 7 (2-13)
- Teachers secondary school: 8 (3-15)

[16, 11, 3, 17, 18, 19, 20, 21].

B. Physical education teachers and swimming teachers, compared to classical teachers of the same schools

For this experiment 176 completed questionnaires were collected from teachers (physical education teachers and swimming), and 27 from swimming teachers. The response rate was 86%. The questionnaires of 59 healthy class teachers and 92 healthy physical education teachers were available for statistical analysis.

The median age of the classical teachers was 44.0, with a median of 16.0 working hours per week and 12.0 working years in education there were 63% male teachers and 37% female teachers.

The physical education teachers had a median age of 37.5; 21.0 working hours a week and the average of their years working as a physical education teacher was 13.7. There were 59% male physical education teachers and 41% female teachers.

Analysis of results fails to show any difference between the three groups for the total VHI score, but a possible bias for swimming teachers is that they work in average a significant lower amount of hours per week. For the physical education teachers no significant difference of the VHI-total is found between the male (median 9.0) and the female teachers (median 10.0) (p = 0.17).

IV. DISCUSSION AND CONCLUSIONS

As far as comparative values are available, they indicate that our group of military teachers does not differ – as a general rule – in a biasing sense from the general population of secondary school teachers in the Netherlands or Belgium. The average age of our sample is 40 +/- 8.8 years, and the average age of all teachers in the Netherlands is 45. In our sample there are 77% males and 23% females, while in general in the Netherlands the proportions are 64% males and 36% females for the secondary school teachers [22].

The voice loading for the military teachers and the environmental factors were – as far as possible controlled, and appear to be not more favorable in the military academy than in a normal school. In our sample 95% of the teachers worked full-time while in Flanders this % is 65. In our sample, the average duration of the teaching career was 14.1 +/- 8 years. There were 25 – 30 pupils per class. All classrooms were visited and found quiet (the campus is at distance of town and highroad).

The general health condition is difficult to compare with the general teaching populations, as adequate statistics are lacking, but it could be that military teachers
– being for a part themselves military – have a better general condition than their colleagues from ‘common’ secondary schools. An indicator is that 58% of our military teachers actively practice sport. This is a possible bias. However, in our sample 40% of the teachers were currently smokers.

Our results demonstrate that the specific teacher’s population considered in this study clearly shows significantly lower prevalence of voice problems than comparable teacher’s populations in ‘common’ secondary schools. Further, the psycho-social impact of voice problems considerably differs from what is known about secondary school teachers in general. The VHI scores of the military teachers are comparable to those of normal subjects without occupational voice use, and lower than those of the general population.

The specific surroundings and particularly the discipline context of the military academy seem to considerably reduce the stress related to teaching activities.

Except that the aspect “general health condition” should be investigated more in depth, as a possible partial bias, this study supports the hypothesis that psycho-emotional factors and occupational stress play an important role as risk factor for voice problems in teachers.

Concerning the physical education teachers and the swimming teachers, the clear overall similitude with classical teachers provides a strong argument to consider that vocal load and environment is not the sole – or by far the most important – cause of voice complaints.

REFERENCES


