Difference in Voice Problems and Noise Reports Between Teachers of Public and Private Schools in Upper Egypt

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Summary: Objective. This study aimed to assess teachers' voice symptoms and noise in schools in Upper Egypt and to study possible differences between teachers in public and private schools.

Study Design. A cross-sectional analysis via questionnaire was carried out.

Methods. Four schools were chosen randomly to represent primary and preparatory schools as well as public and private ones. In these schools, a total of 140 teachers participated in the study. They answered a questionnaire on vocal and throat symptoms and their effects on working and social activities, as well as levels and effects of experienced noise.

Results. Of all teachers, 47.9% reported moderate or severe dysphonia within the last 6 months, and 21.4% reported daily dysphonia. All teachers reported frequent feelings of being in noise, with 82.2% feeling it sometimes or always during the working day, resulting in a need to raise their voice. Teachers in public schools experienced more noise from nearby classes.

Conclusion. The working conditions and vocal health of teachers in Upper Egypt, especially in public schools, are alarming.

Key Words: Egypt–Teachers–Voice–Public schools–Private schools.

INTRODUCTION

The voice is the main tool in classroom teaching. Teachers place heavy demands on their voice, often instructing for many hours in acoustically challenging environments without much time for the voice to rest.[1] Voice disorders are more prevalent in teachers (15%–86%) than among the general population (6%–15%).[2] Vocal problems can have a significant impact on the work capacity of school teachers, leading to important financial and vocational costs to the community, teachers, and their families.[3] Risk factors for voice problems among teachers include female gender,[1,4,5] more years of teaching,[1,6] and poor classroom environment.[7,8] Other risk factors include smoking[9] and upper airway problems.[8]

In Egypt, the law requires that all children should be enrolled in basic education from the age of 6 until the age of 14. The 9 years of so-called basic education are divided into 3 years in preparatory school and then 6 years in primary school.[10]

School teachers in Egypt have hardly ever been examined for voice and throat symptoms. Average salaries of teachers in schools in Egypt are not certain; however, current news reports point to it being between EUR 100 and 250 per month.[11] Salaries in schools run by the government fall into the low end of the range, whereas teachers in private schools are in the upper range. Because of low salaries, teachers often work after hours, giving private tuition or doing other jobs.

The factors discussed above predict that occupational voice disorders may be more frequent among teachers in public than in private schools. Egypt's unique educational system, which reflects the social classes of Egyptian society, motivated us to study its effects on the voices of teachers in Egypt's public and private schools.

AIMS

The study aimed to assess voice symptoms among teachers in Upper Egypt with a special emphasis on the differences between teachers working in public vs private schools, as well as noise perception in teacher's working environment.

SUBJECTS AND METHODS

In the Governorate of El-Minia in Upper Egypt, primary and preparatory schools were divided into four blocks. Each was either preparatory or primary and public or private. Schools were chosen randomly from each block. From these schools, 200 teachers were invited to participate in the study, with 140 agreeing to participate (nearly equal among the four schools and primary and public; females = 85). Of the 69 participants in primary schools, 36 were in public and 33 in private schools, and for preparatory schools (n = 71), the figures were 34 teachers and 37, respectively. Answering questionnaires was carried out in the workplaces of participating teachers, with the first author available to help in case something needed clarification.

The teachers were asked to fill a questionnaire about their subjective assessment of their voice, noise, and background information:

1. Age, years of experience, type of school, hours spent using her/her voice in teaching and other administrative or social

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encounters, and voice-related jobs or hobbies. Voice-related medical history and frequency of upper respiratory infections were also asked.
2. Voice and throat symptoms during the last 6 months preceding the study, frequency and severity of different symptoms, and effects of these on work and social activities. Severity was assessed by asking the teacher to choose one of the four grades of none, mild, moderate, or severe.
3. Effects, levels, and types of noise experienced during the working day.

The study received ethical committee approval from Minia University. It also received the approval of the undergraduate educational authorities in Minia, Egypt.

STATISTICS

Descriptive statistics were used for the percentages and frequencies of symptoms of background information, voice symptoms, and noise reports among the teachers. Differences in the distribution of these findings between teachers working in public and private schools were examined using the Mann-Whitney *U* test. Significance level was set at $P < 0.05$ in all statistical analyses. The statistical analyses were carried out with *SPSS 22 software* (IBM SPSS Statistics v. 22 for Windows, Armonk, NY).

RESULTS

Background information and voice use

Mean age of all teachers was 35.8 years (range 21–56 years). There was a significant difference ($P < 0.00$) between the mean age of teachers in public schools in comparison to private ones, at 40.6 and 30.9 years, respectively. When asked about different diseases with possible effects on the voice in the 6 months preceding this study, 10 reported having asthma, 29 gastric reflux, 39 chronic sinusitis, and 27 hearing impairment. Only eight teachers were smokers.

Average years of experience teaching was also significantly different ($P < 0.001$) between public school (17.9 years) and private school (7.4 years) teachers, with a total average of 12.3 years for the two groups combined. Also, the average class size was significantly higher in public schools (39 children; $P < 0.001$) than in private schools (33 children).

On voice use, 61% of teachers reported teaching without intervals, with no significant difference found between the public and private schoolteachers. On duration of teaching, teachers taught for 4 hours in public schools and 4.9 hours per day in private school (nonsignificant difference). Public school teachers talked with their colleagues on average for 1.9 hours per day in comparison to 1.8 hours in private schools.

Of the 140 teachers, only 18 (12.9%) reported giving private tuition to children after the end of the official school day. Nine (6.4%) teachers reported having a second evening job other than teaching and all reported having to deal with customers (eg retails shops, sports coaching, and call centers).

None of the teachers reported nonreligious singing as a hobby, although seven (5%) sang in church choirs. Of the teachers, 26 (18.6%) recited the Quran regularly at home or taught it to others. Five (3.6%) gave lectures at mosques. Among public school teachers, 35 (50%) had no other voice-related second job or hobby; the same was reported by 41 teachers (58.6%) in private schools. There were no significant differences by school type for voice-related out-of-hours work and hobbies.

Voice and throat symptoms and their effects on work and social activities

Almost half of teachers (47.9%) reported moderate and severe dysphonia daily or weekly within the last 6 months. Reports of throat pain, dryness, or clearing, as well as failing voice by the end of the work day were also common (see Table 1).

No significant difference in severity and frequency of voice and throat symptoms was found between public and private school teachers, except for the symptom "voice failing by the end of working day," which teachers in public schools reported more often ($P = 0.03$; see Table 2).

We also examined the effects of voice and throat symptoms on out-of-hours work and social activities (Table 3). Needing extra effort to complete speech was reported by almost a fifth of teachers (17.9%). In addition, 10.7% of teachers experienced increased absence from school (1–2 days in the last 6 months) or a decrease in income because of voice symptoms. These two symptoms were more common in public than private school teachers (Table 4).

When asked if their voice is heard clearly by others on account of possible voice problems, 104 teachers reported their voice being heard clearly, 34 reported their voice being somewhat heard, and 2 reported that their voice was not heard clearly.

Effects, levels, and types of noise experienced during the working day

Teachers reported always (34; 24.2%), sometimes (81; 57.9%), rarely (18; 12.9%), and never (7; 5%) "feeling of being in noise," whereas the respective figures for having to raise their voice because of noise were 72 (51.4%), 46 (32.9%), 16 (11.4%), and 6 (4.3%). None of the teachers used amplifiers during work. A significant but low correlation was found between presence of hearing impairment and increase in the need to raise voice because of noise ($r = 0.23$, $P = 0.006$). Figure 1 shows the distribution of reports of "feeling of being in noise" among public and private school teachers.

Figure 2 shows the percentage of teacher reports on different sources of noise. Noise coming from nearby classes was the only type that showed a statistically significant difference between teachers in public and private schools ($P = 0.001$).

Doors and windows in classrooms were reported to be always (32; 22.9%), sometimes (71; 50.7%), rarely (19; 13.6%), and never (18; 12.9%) closed. Two (0.014%) public school teachers reported a broken window in their classroom. In addition, over a third of teachers (56; 40%) reported working in classrooms where the door was broken, with a significant difference ($P = 0.001$) between public (38; 27.1%) and private (18; 12.9%) schools. A significantly positive but low correlation ($r = 0.21$,