

Prevalence of Voice Disorders in Primary Level School Teachers of Nepal: A Pilot Study

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Introduction: It is said that the human voice is the most perfect instrument of all. So if misused disorder is inevitable. Professional speech users of teachers are shown to be at an unusually elevated risk of experiencing speech disorders owing to tension inherent in their profession and environmental factors in which they work. The school education system in Nepal consists of primary, lower secondary and higher secondary education. Starting from Grade one the primary schools offer five years of education and it has the highest number of teachers. Hence, our endeavor is to determine the prevalence of voice disorders in primary level school teachers and aetiological factors associated with it. Though it is only a pilot study of its kind in Nepal, it may be used as a reference for further research which will be beneficial in formulating guidelines for proper planning and programming to prevent voice disorder in teachers of developing countries in general and Nepal in particular.

Subjects and Methods: This prospective cross sectional study was conducted in a tertiary care institute from December 2015 to November 2016 after ethical clearance from the Institutional Review Committee. Out of 24 schools in the Terai region of eastern Nepal, 11 nearby one are selected.

1. Teachers fulfilling the following criteria: Primary-level education, offering at least 6 hours of class a week, in the occupation for at minimum one year of period as well as less than 60 years of age has been listed and taken for research in Nobel Medical College and Teaching Hospital, Biratnagar.

2. The others who were: having additional profession like radio jockey, actors, politicians and salesman, diagnosed case of pharyngitis, rhinosinusitis or any previous chronic disease and not willing to take part in the study were excluded. The qualified candidates were then submitted to a brief background and a rigorous otorhinolaryngological review, including IL and NPL, after receiving their written consent.

Observation: In this prospective study out of 137 teachers enrolled, 72 had voice disorder accounting prevalence of 52.6%. Prevalence of 69.9% in Hong Kong was reported by Lee, et al. and 13.1% in Singapore by Charn and Hwei Mok [1,2]. But the rate can vary from place to place because different authors use various definitions, assessment and diagnostic method. Mean age of study population was 41.12 yrs. Most of the teachers were in the age group of 20-30 years (43.8%) and the least above 50 years (8.8%). In other studies more than 21 years as majority was 47.47% in Smith, et al., 20-29 years as majority -32.5% in Da Costa, et al. and about 01-09 years as majority - 51.8% in Lee, et al. [1,5,6]. Main materials for teaching in the classes were chalk- 102 (74%). Others were marker in white boards and projector - 35 (26%). Power points were not used in any school. There is no statistical significance between voice disorder in chalk users and non-users ($p = 0.8$). Teachers confirmed the existence of chalk dust in their classrooms. In developed

countries, chalks were not used as teaching material.

74.5% of teachers complained there was noise in the class for which they have to speak loudly. Higher rate (90.8%) was reported by Precaido, et al. [7]. There is a large and powerful statistical significance among both voice disturbance and noise in the schoolroom (p value= <0.05). Class taken by the teachers per day was 3 - 8 periods (One period= 40 min duration). Mean 6 periods (6x40 min= 4 hr). There was no association between hours of class per day with voice disorder ($p = 0.21$). In Nepal, there is no guideline for the number of hours of class per week for primary schools. 29(21.1%) patients were tobacco users. Out of which male are 79%. The percentage is higher than the finding of WHO (2013) which reported a prevalence of 19.25% in Nepali adult population smoking cigarette [8]. 35(25.5%) have habits of drinking alcohol. This result is less than the percentage of alcohol consumption by adult population of Nepal reported by WHO (2004) which is 67.5% [9]. Use of tobacco is statistically significant with voice disorder than non-tobacco users ($p = 0.03$). Similar report ($p < 0.001$) is given by Precaido, et al. [7]. Alcohol and voice disorder is not statistically significant in this study ($p = 0.9$) which is again similar to the study of Precaido, et al. [7]. The findings from IL and NPL are Normal in 47.4%, LPRD in 18.2%, Vocal Nodule in 11.7%, Vocal Polyp in 9.5%, Acute Laryngitis in 7%, Vocal Cyst in 5.1% and Functional dysphonia in 1.5%.

Limitations: Since this study was the first of its kind in the country there were few limitations. Videostroboscopic laryngoscopy was not available which could have detected vocal fold movements and character. The schools were not ideal for performing basic ENT examination. This study being a cross-sectional one the follow up and evaluation of teachers with voice problem were not satisfactory.

Recommendations: Since voice disorder is preventable health education and awareness of voice disorder should be advocated. There should be certain limitation of hour of class per week for various levels of teachers by government. The prevention and treatment of work associated voice disorders should be aimed at improving working conditions and introducing health plans for professionals with regular medical check up. Training of vocal hygiene should be given to all teachers. Chalk as a material for class should be replaced by dustless materials as marker with white board, projector and power-point system.

Conclusion: The prevalence of voice disorder in the primary level teachers is high (52.6 %). Most common vocal cord lesion is LPRD-18%. There are various risk factor and the main are Teachers of female gender, Longer teaching experience and Use of tobacco. Some are non-modifiable such as age and gender. Some are modifiable such as tobacco use, noise in class and teaching duration.

References

1. Lee SY, Lao XQ, Yu IT (2010) A cross sectional survey of the voice disorders among the primary teachers in Hong Kong. *J Occup Health* 52: 344-352.

2. Charn TC, Hwei Mok PK (2012) Problem Amongst Primary in Singapore. *J Voice* 26: 141-147.
3. Jardim R, Baretto SM, Assuncao AA (2007) Voice Disorder case denition and prevalence in teachers, *Rev Bras Epidemiol* 10: 625-636.
4. Department of Education, Ministry of Education. School Level Educational Statistics of Nepal Consolidated Report 2011(2068) 2012.
5. Smith E, Kircner HL, Taylor M, Hoffman H, Lemke JH (1998) Voice Problems Among Teachers: Differences by Gender and Teaching Characteristics. *J Voice* 12: 328-334.
6. Da Costa V, Prada E, Roberts A, Cohen S (2012) Voice Disorders in Primary School Teachers and Barriers to Care. *J Voice* 26: 69-76.
7. Preciado J, Perez C, Calzada M, Preciado P (2005) Frequency and risk factors of voice disorders among teaching staff of La Rioja, Spain. Clinical study questionnaire, functional vocal examination, acoustic analysis and videolaryngostroboscopy. *Acta otolaryngol esp* 56: 161-170.
8. World Health Organization (2013) Report on the Global Tobacco Epidemic p 589. 9. World Health Organization (2004) WHO Global Status Report on Alcohol p 1.