SMU
Sikkim Manipal University

SMU Medical Journal

ISSN : 2349 – 1604 (Volume – 3. No. 1. January 2016) Research article

Indexed in SIS (USA), ASI (Germany), I2OR & i-Scholar (India) and SJIF (Morocco) databases
Impact Factor: 3.835 (SJIF)

Vocal Problem: Neglected Occupational Hazard In Teaching Profession

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Manuscript received : 30.11.2015
Manuscript accepted: 29.12.2015

Abstract

Teachers represent noble professional who use their voice as primary job task. Teachers are vulnerable to occupational voice disorder due to incessation of voice usage. The earlier studies focused on the association between vocal disorders on par with their work load. The present study is to determine frequency and types of vocal problems in teachers. To know the Vicissitude and transitory of symptoms in both groups. A cross sectional study was done with questionnaire. The sample size includes 758 teaching professionals and 836 non teaching professionals. Vocal parameters like

Throat discomfort, Impairment in pitch and Impairment of voice were considered for this study. Vocal symptoms were more prevalent in teaching professionals than non-teaching professionals. Among all the symptoms the impairments in pitch (low pitch voice) 19.6 % (teaching professionals), 10% (non-teaching professionals), Impairments in voice (Creaky voice) 21.5% (teaching professionals), 9.5% (non-teaching professionals) were the early vocal symptoms noticed in both teaching & non-teaching professionals. The intensity of voice symptoms was similar in both groups and a two fold increase was observed in teaching professionals than in non-teaching professionals. Teachers are unaware of voice related occupational hazards due to continuous use of voice. So the study recommends that all the educational institutions and schools should come forward to retard vocal problems in teachers by conducting vocal training programs.

***Keywords**:* vocal problems**,** teaching professionals, non-teaching Professionals

Introduction

In the modern era about one third of workers are using their own voice as a major device to perform their work [1].The occupants like telemarketers, lawyers, counselors, singers, tour guides, stage actors, call-centre operators etc are victims of vocal problems. Even the noble professionals like teachers are also not exceptional to vocal problems. Teachers are vulnerable to occupational voice disorders due to in cessation of voice usage [2].Vocal problems are due to the prolonged usage of voice, straining of voice, working in a noisy atmosphere, overloaded classrooms etc.

Voice problems can be identified by the earlier symptom like discomfort in the throat. Later symptoms may be impairment of breath control, pitch, loudness, voice quality and projection and resonance. With purpose of defining biological and environmental risk factors and minimizing the physical, social, and psychic impact consequential of these disorders [3]. Few studies on occurrence of voice disorders [4] were carried out

in kindergartens and elementary schools [5].The present study focuses on to determine frequency and types of vocal problems in teaching group against non teaching group. Also assess the Vicissitude and transitory of symptoms in both groups.

Methodology

Study population

Participants include primary and secondary school teachers in and around Visakhapatnam. The information was collected from 758 teaching and 836 non-teaching professionals using questionnaire. The teaching professional included both science and arts teachers. The non teaching professionals include administrative professionals and children care takers were also provided with questionnaire. Prior to distribution of questionnaire the permission from respective head of school was obtained and research objectives were clearly explained to all the participants. A total of one week time was given to complete the questionnaire. All the teaching and non-teaching professionals were provided with the same questionnaire to determine the prevalence of voice problems.

Questionnaire

The questionnaire provided to both the participants to obtain the information about the following voice problems (a) Frequency of vocal symptoms like throat discomfort symptoms, Impairment in pitch, Impairment in voice, (b) Prevalence of vocal symptoms associated with their age, (c) Impact of voice problems on their work (d)Vicissitude of vocal symptoms (e) Transitory vocal symptoms (f)Socio-demographic characteristics (g) food and personal habits.
https://www.eduweb.vic.gov.au/edulibrary/public/ohs/voice_guide_final.pdf

Statistical analysis

For the independent variables such as sex, age and educational levels, univariate analyses were performed. Multivariate analyses were performed to calculate the linear association between gender, and prevalence of risks at a significance level of 5%. These statistical analysis were performed using the online websites http://turner.faculty.swau.edu/mathematics/math241/materials/anova/acalculate.php. https://www.mccallum-layton.co.uk/tools/statistic-calculators/confidence-interval-for-proportions-calculator/.

Result

Socio demographic characteristics

The socio demographic characteristics of teaching and non teaching professionals were mentioned in the table-1. Male group represented majority of sample group in teaching professionals whereas the female participants were dominant in non teaching professionals. The age group of ranging 30-40 was more in number as teaching professionals. Same trend was observed in non-teaching professionals

Vocal symptoms

The earlier vocal symptoms like throat discomfort symptoms, impairment in pitch and voice were considered in this study. Creaky voice was noticed in teaching (21.5%) and non –teaching professionals (9.5%) In creaky voice the vocal folds close together and leads to low pitch voice. Low pitch voice problem is the one of the impairments in pitch noticed in most of the participants next to the creaky voice in both teaching (19.6%) and non teaching professionals (10%). Strained voice is also an index of voice impairment noticed (14.7%) in teaching professionals and (6.1%) in non-teaching professionals. Strained voice results due to tension in the larynx. The intensity of voice symptoms was similar in both groups and a two fold increase was observed in teaching professionals than in non-teaching professionals.

Prevalence of vocal problems based on the age

The age factor of participants may also influence the frequency of voice problems. So the association between the vocal problems and age factor was assessed. The table -3 shows the results of successive age groups. The probability of prevalence of one or more symptoms was high in teaching then non-teaching professionals. Surprisingly the younger age group teachers are also more vulnerable to vocal symptoms. The occurrence of vivid symptoms was increased with respect to age in teaching professionals where as in non-teaching professionals it was ineffective.

Vicissitude and Transitory of symptoms

Table-4 & 5 shows the vicissitude and transitory of symptoms in both teaching and non teaching professionals. Majority of the teaching (22.9%) and non teaching professionals (6.4%) expressed that symptoms are not persistent and also (16.2%) of teaching professionals and (15.1%) of non teaching professionals noticed that there is no frequent variation in symptoms. In teaching profession (23.6%) and in non-teaching professionals (15.1%) expresssed that vocal symptoms will disappear in less than few minutes.

As per the data many symptoms are temporary and does not persist for longer duration.

Discussion

They are many possible causes of voice problems and many contributing factors which, although not direct causes, increases persons risk for developing vocal problem. It is also clear that individuals vary widely in their susceptibility to voice problems and other factor which causes a voice problem in one person may have no adverse affect on another. The main contributing factors for vocal problems in teachers are lack of knowledge on vocal production techniques & voice care

principles, health and stress patterns, characteristics of physical environment. Teachers who have limited understanding of basic anatomy and physiology of voice production and little knowledge of principles of voice care may be a greater risk of developing voice problems. Similarly teachers are likely to be at risk if they misuse their voice by yelling or use insufficient voice production techniques such as upper chest breathing. Further, teachers are likely to be at greater risk for voice disorders if they have health problems such as reflux, allergy, poor general health or high stress levels, using their voices in environments which are not conducive to safe voice production. As mentioned in the previous studies the vocal problems are more prevalent in teaching professionals than in non teaching professionals and also the prevalence of symptoms was increased with age in teaching professions. Large size classrooms increases the incidence of vocal problems in teaching professionals [6].Noisy environment and self reports of physical work related problems are the also the reasons for the vocal problems in teaching professionals [7]. The present study also noticed that the teaching professionals are more prevalent to vocal problems and two fold increase of vocal symptoms was noticed in teaching professionals when compared to non teaching professionals.

Conclusion

Vissictitude and transitory of symptoms in both teaching and non-teaching group. Data revealed that the teaching professionals are more prone to vocal problems than non-teaching professionals majorly with impairments of voice and pitch, and these problems are increased with age in teaching professions. Vocal demand and lack of awareness among the vocal problems leads to the vocal problems in teachers. Increased education on vocal among teachers can reduce the impact of vocal problems, so the study recommends that all the educational institutions and schools should come forward to eliminate vocal problems in teachers by conducting vocal training

programs. So that teachers will at least aware of fundamentals of voice and production techniques.

Acknowledgement

The authors are grateful to DEO (District Educational Officer) for permitting us for the smooth execution of our work. The authors are also grateful to GITAM University for providing necessary lab facilities.

Table-1: Socio demographic characteristics of the both teaching and non-teaching professionals

Socio demographic parameters	Teaching professionals (n=758)		Non-teaching professionals(N=836)		p-valu
	N	%	N	%	
Age					
25-34	148	19.5	226	27.0	
35-44	233	30.7	297	35.5	
45-54	211	27.7	191	22.8	<0.0000
55-60	169	22.1	122	14.5	
Gender					
Females	331	43.6	486	58.1	<0.0000
Males	427	56.3	350	41.8	
Years of service					
0-10	142	18.7	265	31.6	
11-20	199	26.2	201	24.0	<0.0000
21-30	175	23.1	124	14.8	
31-40	97	12.7	109	13.1	
41-50	84	11.0	86	10.3	
≥50	61	8.0	51	6.1	
Food & personnel habits					
Smoking	162	21.3	97	11.6	0.02040
Non-Smoking	596	78.6	253	30.2	

Table-2: Prevalence of vocal symptoms in teaching and non teaching professionals

Vocal symptoms	Teaching group (N=758)		Non-teaching group (N=836)		P-values
	N	%			
Discomfort in throat symptoms					
Effort is needed to talk	95		45	5.3	
Scratchiness	12.5				0.20577
Feeling of ache			64	7.6	
Tightness or uncomfortable voice	88	11.6	31	3.7	
	80	10.5	27	3.2	
	79	10.4			
Impairments in pitch					
Low pitch voice					
High pitch voice			84	10	42741
	149		19	2.2	
Impairments in Voice quality	19.6				
	43				
Strained voice	5.6				
Breathy voice					
Creaky voice			51	6.1	0.000017
			36	4.3	
			80	9.5	
	112				
	14.7				
	71				
	9.3				
	163				
	21.5				

Table-3: prevalence of vocal symptoms in both teaching and non-teaching professionals based on age

Vocal symptoms	Age group						
	25-34		35-44		45-54		55-60
	Teaching (N=148) N (%)	Non-teaching (N=226) N(%)	Teaching (N=233) N(%)	Non-teaching (N=297) N(%)	Teaching (N=211) N(%)	Non-teaching (N=191) N(%)	Teach (N=16 N(%)
Discomfort in throat symptoms							
Effort is needed to talk	37(25%)	9(3.9%)	16(6.8%)	7(2.3%)	18(8.5%)	12(6.2%)	24(14.
Scratchiness	24(16.2%)	11(4.8%)	12(5.1%)	16(5.3%)	17(8.5%)	19(9.9%)	35(20.
Feeling of ache	31(20.9%)	3(1.3%)	12(5.1%)	8(2.6%)	16(7.5%)	9(4.7%)	21(12.
Tightness or uncomfortable voice	29(19.5%)	0(0)	14(6%)	7(2.3%)	11(5.2%)	9(4.7%)	25(14.
Impairments in pitch							
Low pitch voice	47(31.7%)	9(3.9%)	29(12.4%)	19(6.3%)	38(18%)	25(13.0%)	41(24.
High pitch voice	17(11.4%)	7(3%)	7(3%)	9(3%)	9(4.2%)	1(0.5%)	10(5.9
Impairments in Voice quality							
Strained voice	12(8.1%)	2(0.8%)	27(11.5%)	7(2.3%)	33(15.6%)	27(14.1%)	40(23.
Breathy voice	12(8.1%)	4(1.7%)	17(7.2%)	7(2.3%)	21(9.9%)	14(7.3%)	21(12.
Creaky voice	51(34.4%)	12(53%)	37(15.8%)	21(7%)	41(19.4%)	37(19.3%)	34(20.

Table-4: Vicissitude (permanent) of symptoms in the course of time

Vicissitude of symptoms	Prevalence %	
	Teaching professionals (N=758) N %	Non-teaching professionals(N=836)
No frequent variation	213 16.2	126 15.0
Intermittently appearing	174 22.9	54 6.4
Constantly increasing	59 7.7	43 5.1
Constantly decreasing	62 8.1	38 4.5

***One can give two or three answers**

Table-5: Transitory (temporary) symptoms

Transitory symptoms	Prevalence %			
	Teaching professionals (N=758)		Non-teaching professionals(N=836)	
	N	%	N	%
In less than few minutes	179	23.6	127	15.1
In less than few hours	194	25.5	103	12.3
During the night time	121	15.9	84	10
In less than one day	78	10.2	65	7.7
In less than few days	86	11.3	20	2.3
In less than a week	35	4.6	34	4
During a longer period of time	21	2.7	12	1.4

Vocal problems in teachers
A Questionnaire based study

Dt_ _/_ _/__

School Particulars:

Name of the school_____
Mode of School_____
Location of the school_____
Year of establishment_____

Personal details of teacher:

Name of the teacher_____
(No need to mention if they want to be anonymous)
Year of appointment_____
Years of experience_____
Age_____
Height_____
Weight_____

Food Habits:

Items **Servings per a day**

Tea 0_____ 1-2_____ 2-5_____ more than5___ Coffee 0_____ 1-2_____ 2-5_____ more than5___
Caffeinated soda 0_____ 1-2_____ 2-5_____ more than5___

Herbal tea 0_____ 1-2_____ 2-5_____ more than5___

Alcohol 0_____ 1-2_____ 2-5_____ more than5___

Gutka pan 0_____ 1-2_____ 2-5_____ more than5

Throat discomfort symptoms:

Symptoms	**Age groups**		
	24-35	**36-45**	**46-55**
Tightness or uncomfortable voice	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Scratchiness	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Feeling of ache	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
A feeling that talking is an effort	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Frequently needs to clear the throat	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B

Y means Yes, N means No, N.O.B means Not Observed

Pitch Impairments:

Symptoms	**Age groups**		
	24-35	**36-45**	**46-55**
Pitch is too high	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Pitch is too low	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B

Y means Yes, N means No, N.O.B means Not Observed

Voice quality impairments:

Symptoms	**Age groups**		
	24-35	**36-45**	**46-55**
Strained voice(too much muscle tension in the larynx)	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Breathy voice(vocal folds do not close adequately and air escapes)	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B
Glottal fry or creaky voice(Vocal folds stay close for too long and the pitch is too low)	Y/N/N.O.B	Y/N/N.O.B	Y/N/N.O.B

Y means Yes, N means No, N.O.B means Not Observed

Are you currently the victim of above mentioned problems?

a. No b. Yes(if Yes please mention the particular voice problems below)

_____

_____

_____

Are you the past victim of the above mentioned voice problems?

a. No b. Yes (if Yes please mention the particular voice problems below)

_____

_____

_____

If you are the past victim of voice problem when did you identified the problem

Mention the month and year _ _/_ _/_ _/

Have you consulted a physician or other voice care professionals for voice problem?

a. No b. Yes

Are you currently under medication for the voice problems?

a. No b. Yes

Signature of the participant

----------The END----------

Thank you so much for the cooperation

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