



Hoarseness among Preachers in Port Harcourt Metropolis

Matilda U.J.U. Ibekwe*

Department of Ear, Nose and Throat Surgery, College of Health Sciences, University of Port Harcourt, Nigeria

***Corresponding Author:** Matilda U.J.U. Ibekwe, Senior Lecturer, Department of Ear, Nose and Throat surgery, College of Health Sciences University of Port Harcourt, Nigeria, Choba port harcourt, rivers 084, Nigeria, Tel: 2347039120091; E-mail: ibekwe_uju@yahoo.com

Received date: March 18, 2019; **Accepted date:** May 17, 2019; **Published date:** May 24, 2019

Abstract

Background: There is an increase in the number of churches and therefore preachers in Port Harcourt metropolis. Most lack formal training while majority do not use microphone during preaching. There is paucity of local work on these preachers and their voice, hence this study.

Aim: The study is to determine the prevalence of hoarseness and knowledge of voice care/hygiene among preachers in Port Harcourt metropolis.

Patients and Methods: An observational study carried out among preachers in three randomly selected churches within Port Harcourt metropolis from October 2017 to March 2018 with the aid of self-administered questionnaire. Preachers who gave their consent were all included in the study. The data obtained were analyzed using SPSS version 20 and results presented in statistical tables.

Results: There were 64 respondents; males n=42 (65.6%), females n=22 (34.4%). Age ranged from 18 to 68 years. The age 40-50 comprised 31.3% and the most seen. Hoarseness was noted in n=42 (65.6%). Among the respondents only 2 (3.1%) uses microphone always. Correlating age of the preachers and hoarseness showed a statistical significance. The risk factors studied, even though gave more yes to hoarseness, was not statistical significant in correlation. Lack of knowledge of voice abuse possibly causing hoarseness in preachers was significant statistically.

Conclusion: Knowledge of the risks associated with wrong voice use or voice abuse among preachers is poor. A significant number lack knowledge of voice care.

Keywords:

Hoarseness; Preachers; Voice

Introduction

Voice is important for human communication. The voice is very important in communicating emotions, transmission of messages as well as expression of different things.

There are different professions that require continual use of voice for example; teachers, preachers, singers and so forth. Voice is essential in the work life of these professionals since it is their main instrument or work tool [1]. The quality of the voice can negatively or positively influence the listeners. Loss of voice quality can affect the performance of these professionals [2]. Their effectiveness and efficiency at work depends on the integrity of their voice [3]. Koufman and Isaacson [4] evolved a classification of these vocal professionals into four levels based on the importance of voice quality to their work. The preachers, teachers, actors, receptionists all belong to level two, the professional voice users; in this group moderate vocal difficulty will impair their work greatly. In these, hoarseness can mean difficulty in carrying out their work which can lead to loss of income. It may also necessitate a need to

change profession [5,6]. Chen et al. [7] in their study on teachers and voice problems found that there is limitation of work in 38% of these teachers due to voice problems and a cause of financial loss in about 1 in 3 teachers [7]. Hoarseness is often associated with abnormalities of the vibratory margins of the vocal folds [8]. There are multifactorial causes which can all interact to result in hoarseness. These factors can cause trauma to the vocal cords and result in inflammatory processes, laryngitis being the commonest [9]. The factors include behavioral, organic, hereditary, environmental and occupational. Occupational factors play a more major role as some occupations lead to excessive use of the voice which could cause trauma to the vocal cords. This continual voice use allows little time for recovery from assaults on the voice, worsening the situation. Environmental factors affect the voice either directly or indirectly for instance, exposure to chemicals, dusts, irritants, bad weather conditions, humidity etc. The life style of the professional is also relevant to their voice health [6]. Some healthy vocal habits that maintain voice hygiene are adequate hydration, sound amplification therefore avoidance of shouting [10] etc. while environmental noise, smoking, pollution, air conditioning, vocal abuse, hearing loss can all add to the risk of developing vocal impairment [11]. Water drinking is essential for the maintenance of vocal quality [12]. Prolonged talkativeness and intense vocal loudness favors the occurrence of vocal trauma. [13] Intense vocal loudness acts as an internal risk factor of vocal impairment because to produce the loud sounds, more respiratory muscles are employed [14] with increase in subglottic pressure and glottis adduction [15]. This subglottic pressure increase requires the vocal folds compression to be increased so that they can maintain their position of medialization in order for voice to be produced. The result of all this is voice trauma [16] which compromises the vocal fold vibration cycle with resultant affectation or alteration of the sound it produces [11].

The preachers are among the professionals that their ability to function is dependent on a good voice. The demand on the vocals of this group of professionals can be enormous because they must get across to their listeners. In addition, the

acoustics and amplifications in their environments or churches are often poor. [17] In these individuals therefore, hoarseness can impact directly on both the profession and their social life. It can diminish the productivity and regularity in the work of the professionals hence it is taken as an occupational problem [18]. Long periods of talking coupled with environmental factors such as air pollution, high levels of background noise, poor acoustics, could all give rise to increased prevalence of voice disorders [19].

In some of the preachers, hoarseness can be episodic, relating only to the time of overuse or misuse while in others, it may be constant [17]. Preachers can also have high occurrence of voice disorders due to poor information about or lack of knowledge of voice care. The standard management in hoarseness is that once it lasts more than two weeks, it should be evaluated [20]. The aim of this study therefore is to determine the prevalence of hoarseness as well as find out the knowledge of vocal hygiene among preachers in Port Harcourt metropolis.

Methodology

It is a quantitative descriptive study with data obtained by a self-administered questionnaire that was distributed in three randomly selected worship centers within Port Harcourt metropolis; one catholic and two Pentecostal within a four month period, December 2017 to March 2018. Information sought included the age of the preachers, prevalence of and possible causes of voice disorders, social habits and any disease that can affect voice quality, awareness of voice care/hygiene among others. The preachers in these churches that gave their consent were all included in the study. Excluded from the study are any of the preachers that have had any form of surgical interventions on the throat especially on the larynx or trachea prior to the study. Ethical approval was obtained from the ethical committee of the hospital. The data was analyzed using the SPSS version 20 and results presented in statistical tables.

Results

The study involved 64 subjects with age ranging 18 to 68 years. There were 42 males and 22 females

giving a male preponderance 1.9:1. The majority of the respondents were found in the age group 40-50 years (31.3%) while age 18-24 years were the least. Catholic denomination was more in the study 68.8% Table 1.

Table 1: Social demographic characteristics of preachers in the study.

Variables (N=64)	Frequency	Percentage (%)
Age		
18-28 years	4	6.3
29-39 years	16	25
40-50 years	20	31.3
51-61 years	14	21.9
62 and above	10	15.6
Sex		
Male	42	65.6
Female	22	34.4
Denomination		
Catholic	44	68.8
Pentecostal	20	31.3

Prevalence of hoarseness in this study was 65.6% while 34.4% had no hoarseness. The social history of the respondents; smoking n=4 (6.3%) non- smoking n=60 (93.8%) while n=48 (75.0%) takes alcohol and n=16 (25%) does not take (Figure 1).

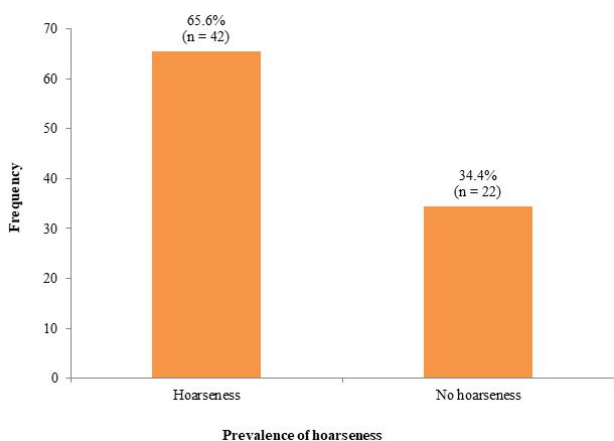


Figure 1: Prevalence of hoarseness.

Risk factors for hoarseness shows only 3.1% of the respondents use Public Address (PA) system always while 25.0% had never used one. 59.4% still shout despite using the PA. Among the respondents,

40.6% has been preaching for less than 5 years and 21.9% for more than 15 years (Table 2).

Table 2: Risk factors for hoarseness (harm caused by voice abuse) in preachers.

Variables (N=64)	Frequency	Percentage (%)
Frequency of use of public address system		
Always	2	3.1
Occasionally	46	71.9
Never	16	25
Shout when using microphone		
Yes	38	59.4
No	26	40.6
Frequency of preaching in a week		
Once	34	53.1
Twice	10	15.6
Thrice	14	21.9
More than three times	6	9.4
Duration of being a preacher		
<5 years	26	40.6
5-10 years	16	25
11-15 years	8	12.5
>15 years	14	21.9
Exposure to cold or dust		
Yes	18	28.1
No	46	71.9

There were 65.7% of the respondents with symptoms suggestive of coexisting airway allergy (Figure 2).

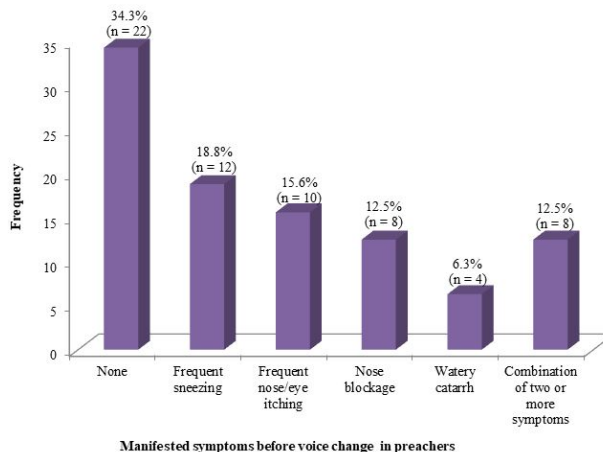


Figure 2: Distribution of manifested symptoms.

While the duration of voice change varied from few days to a week, in 85.7% the change cleared completely but in 14.3% it did not completely clear (Table 3).

Table 3: Distribution of voice change-related factors among preachers.

Variables (N=42)	Frequency	Percentage (%)
Duration of voice change (loss of voice)		
Within a day	10	23.8
2-4 days	26	61.9
5-7 days	6	14.3
See doctor for voice change (loss of voice)		
Yes	4	9.5
No	38	90.5
When voice cleared		
Within a day	12	28.6
2-4 days	22	52.4
5-7 days	6	14.3
1-2 weeks	2	4.8
Voice cleared completely		
Yes	36	85.7
No	6	14.3
Treatment given		
Medication	8	19
Natural remedies	6	14.3
Both	2	4.8
None	26	61.9

Looking at correlations between age and development of hoarseness, there was a statistical significance, note age range 51-61, all had hoarseness this was found to be statistically significant p-value=0.002 while the sex difference was not statistically significant (Table 4).

Table 4: Socio-demographic characteristics vs. hoarseness in preachers.

Variables	Hoarseness		
	Yes N=42 n (%)	No N=22 n (%)	Total N=64 n (%)
Age category			
18-28 years	2 (50.0)	2 (50.0)	4 (100.0)

29-39 years	6 (37.5)	10 (62.5)	16 (100.0)
40-50 years	12 (60.0)	8 (40.0)	20 (100.0)
51-61 years	14 (100.0)	0 (0.0)	14 (100.0)
62 and above	8 (80.0)	2 (20.0)	10 (100.0)
Fisher's exact test=15.857; p-value=0.002*			
Sex			
Male	28 (66.7)	14 (33.3)	42 (100.0)
Female	14 (63.6)	8 (36.4)	22 (100.0)
Chi-square=0.059; p-value=0.808			
Note: *			

The social history did not show any statistical significance with hoarseness. While majority of the risk factors when compared with hoarseness showed no statistical significance, studying the awareness or knowledge of voice abuse affecting voice health and causing hoarseness among both the respondents with hoarseness and those without, showed significant difference statistically, p-value=0.008 (Table 5).

Table 5: Hoarseness vs. awareness of harm caused by voice abuse in preachers.

Awareness of harm caused by voice abuse			
	Aware n (%)	Not aware n (%)	Total n (%)
Hoarseness			
Yes	16 (38.1)	26 (61.9)	42 (100.0)
No	16 (72.7)	6 (27.3)	22 (100.0)
Total	32 (50.0)	32 (50.0)	64 (100.0)
Chi-square=6.926; p-value=0.008*; Odds ratio (95% Confidence Interval)=0.231 (0.08-0.71); *Statistically significant.			

There is an increased chance of developing hoarseness due to not being aware of proper voice care (Table 5). In almost all the age groups there were more people unaware of proper voice care than those that are aware with p-value=0.017 which is significant (Table 6). All the risk factors studied when correlated with development of hoarseness was found not to be significant except exposure to dust and cold, most of the respondents were not aware of the effect of these environmental factors

on voice health. This was found to be significant, p-value=0.005 (Table 7).

Table 6: Socio-demographic characteristics vs. awareness of harm caused by voice abuse in preachers.

Awareness of harm caused by voice abuse			
Variables	Aware N=32 n (%)	Not aware N=32 n (%)	Total n (%)
Age category			
18-28 years	2 (50.0)	2 (50.0)	4 (100.0)
29-39 years	6 (37.5)	10 (62.5)	16 (100.0)
40-50 years	8 (40.0)	12 (60.0)	20 (100.0)
51-61 years	6 (42.9)	8 (57.1)	14 (100.0)
62 and above	10 (100.0)	0 (0.0)	10 (100.0)
Chi-square=12.086; p-value=0.017*			
Sex			
Male	18 (42.9)	24 (57.1)	42 (100.0)
Female	14 (63.6)	8 (36.4)	22 (100.0)
Chi-square=2.494; p-value=0.114; *Statistically significant.			

Table 7: Risk factors associated with hoarseness vs awareness of harm caused by voice abuse in preachers.

Awareness of harm caused by voice abuse			
Variables	Aware N=32 n (%)	Not aware N=32 n (%)	Total N=64 n (%)
How often use public address system			
Always	0 (0.0)	2 (100.0)	2 (100.0)
Occasionally	22 (47.8)	24 (52.2)	46 (100.0)
Never	10 (62.5)	6 (37.5)	16 (100.0)
Fisher's exact test=2.696; p-value=0.266			
Shout when using microphone			
Yes	20 (52.6)	18 (47.4)	38 (100.0)
No	12 (46.2)	14 (53.8)	26 (100.0)
Chi Square=0.259; p-value=0.611			
Number of times preaching is done in a week			
Once	18 (52.9)	16 (47.1)	34 (100.0)
Twice	4 (40.0)	6 (60.0)	10 (100.0)
Thrice	8 (57.1)	6 (42.9)	14 (100.0)
More than three times	2 (33.3)	4 (66.7)	6 (100.0)
Fisher's exact test=1.497; p-value=0.739			
Duration of preaching			

<5 years	12 (46.2)	14 (53.8)	26 (100.0)
5-10 years	6 (37.5)	10(62.5)	16 (100.0)
11-15 years	4 (50.0)	4 (50.0)	8 (100.0)
>15 years	10 (71.4)	4 (28.6)	14 (100.0)
Fisher's exact test=3.702; p-value=0.281			
Exposure to cold or dust			
Yes	4 (22.2)	14 (77.8)	18 (100.0)
No	28 (60.9)	18 (39.1)	46 (100.0)
Chi-square=7.729; p-value=0.005 [*] ; [*] statistically significant.			

Discussion

This study was carried out among the Pentecostal pastors and catholic priests, it was found that though there were two Pentecostal churches involved and only one catholic church, the majority of the respondents came from the catholic church n=44 (68.8%). We looked at both Pentecostal pastors as well as catholic priests because they both have different preaching styles. While the Pentecostal pastors have more intense preaching style that tends to have greater vocal demands, the catholic priests have a different and perhaps less vocally demanding style. However, there was no significant difference between these two groups in terms of hoarseness.

The prevalence of voice change was found to be 65.6% and age 40-50 years were the most affected 31.3%. In contrast, other researchers found age 31-40 years to be more affected [21-23].

There was a male preponderance found, similar to other works [21,23].

Among these preachers there was a lack of awareness of the effect and consequence of abuse on vocal health, this lack of awareness of voice abuse causing hoarseness is significant statistically with p-value of 0.008 and odds ratio (95% confidence interval)=0.231. Some were aware yet did not modify their vocal behavior. This agrees with a work by Hagelberg on voice problem among priests, there was high prevalence of voice problems and poor knowledge of vocal care among these priests [19].

According to Koufman and Isaacson [4] classification, there are four levels of voice

professionals. Level 1; these are the sophisticated voice users which includes singers, actors, they are known as the elite vocal users. The mildest impairment of voice affects their work very tremendously. Preachers come under Level 2 also known as professional voice users. In this group, moderate vocal difficulty would hamper adequate job performance. Therefore in the 14.3% that the hoarseness did not clear completely, they may likely have their work hindered to a large extent. This is also based on the finding that voice disorders such as hoarseness can affect the preachers quality of life in terms of work [24] other levels are non-vocal, iii and non-vocal/nonprofessionals level iv [4].

Although the respondents that do not use microphone either occasionally or not at all had more hoarseness, this finding was not significant agreeing with some other researchers [25]. The risk factors studied though appears to give rise to hoarseness, was not statistically significant. In another study, age and length of sermon showed a significant effect on voice change but microphone use and potential voice overuse did not correlate significantly with hoarseness [25]. In the general population, the prevalence of voice problems is 6-15%. It is known that this rate increases in occupations that require intense use of voice, [26] in this study a prevalence of 65.6% was obtained, which is similar to a study in the USA on Jewish cantors 65% [27] but lower than that obtained by Hocevar from a study on Priests in Slovenia 85.6% [28] but higher than the 21%, 57.1% and 36.8% found by Hagelberg, Neto FXP and Selman respectively in their various studies on different preachers [19,29,30].

This study showed that a good number of these preachers are ignorant of voice care and voice hygiene despite the fact that their means of livelihood is dependent on the integrity of their voice. When this was correlated with other variables studied, it was statistically significant therefore there is a need for voice training in this category of professional voice users, some of them despite the use of microphone still shouts, as found in this study 59.4%. Majority of the respondents had hoarseness lasting up to a week before clearing, most 90.5% did not consult a doctor, and it is known that such repeated vocal trauma can lead to a more serious damage to the vocal cords and the larynx in general.

There was a significant correlation between age and hoarseness $p\text{-value}=0.002$ in this study; age group 51-61 all had hoarseness while for all the other age groups the number that had hoarseness was more than those that did not have. This agrees with other works [25] in addition there was a significant lack of awareness of dangers of voice misuse with $p\text{-value}$ of 0.017 among all the age groups. It is known that knowledge of vocal hygiene, breathing exercises and use of correct vocal technique decreases voice fatigue therefore enhancing vocal efficiency and self-confidence [31].

Conclusion

Preachers as voice professionals are quite prone to voice disorders such as hoarseness and in our environment the prevalence is quite high and majority lack knowledge of voice care and hygiene. Most importantly, they have no training whatsoever on proper voice use.

Limitations

There was no physical ENT examination carried out on the respondents and there was also no form of laryngoscopy done so as to determine the state of the larynx. There was also no vocal analysis carried out.

Some variables were not studied such as emotional stress, neurological problems etc. which could impact on the voice.

Recommendations

The preachers like the singers need proper training on voice use. They also should be educated on the effect of voice hygiene and care as it affects their profession.

References

1. Cardin P, Sataloff RT. Evaluation of professional voice singers. *Otolaryngol Clin N Am.* 2000;33:923-55.
2. Sataloff RT. Professional voice users: The evaluation of voice disorders. *Occup Med.* 2001;16: 633-47.
3. Verdolin K, Ranig LO. Review: Occupational risks for voice problems. *Logoped Phoniatr Vocol.* 2001;26:37-46.
4. Koufman JA, Isaacson G. The spectrum of vocal dysfunction. *Otolaryngol Clin North Am.* 199;24:985-88.
5. Ingram DB, Lehman JL. Management of high risk performers in clinical practice. *Curr Opin Otolaryngol Head Neck Surg.* 2000;8:143-52.
6. Cardin P. Managing dysphonia caused by misuse and overuse. *BMJ.* 2000;32:1544-45.
7. Chen SH, Chiang SC, Chung YM, et al. Risk factors and effects of voice problems for teachers. *J Voice.* 2010;24:183-92.
8. Sataloff RT, Spiegel RJ, Hawkshaw M. Voice disorders. *Med Clin North Am.* 1993;77:551-70.
9. Fortes FSG, Imamura R, Tsuji DH, et al. Profile of voice professionals with vocal complaints attended at a tertiary health center. *Braz J Otorhinolaryngol.* 2007;73:27-31.
10. Behlau M, Feijo D, Madazio G, et al. Professional voice: General aspects and actuation fonoaudiologica. In: Behlau M. *Voice: The specialist's book 2*, Rio de Janeiro: Revinter. 2005:287-407.
11. Behlau M, Madazio G, Feijo D, et al. Voice evaluation. In: Behlau M. *Voz: The specialist's book 1*, Rio de Janeiro: Revinter. 2001:85-245.
12. Solomon NP, Glaze LE, Arnold RR, et al. Effects of a vocally fatiguing task and systemic hydration on men's voices. *J Voice.* 2003;17:31-6.
13. Gama ACC, Santos JN, Pedra EFP, et al. Vocal dose in Teachers: Correlation with the presence of dysphonias. *COINS.* 2016;28:190-92.
14. McFarland DH, Smith A. Effects of vocal task and respiratory phase on prephonatory chest wall movements. *J Speech Hear Res.* 1992;35:971-82.
15. Chhetri DK, Park SJ. Interactions of subglottal pressure and neuromuscular activation on fundamental frequency and intensity. *Laryngoscope.* 2016;126:1123-30.
16. Zhang Z. Cause-effect relationship between vocal fold physiology and voice production in a three dimensional phonation model. *J Acoust Soc Am.* 2016;139:1493-07.
17. Lima BM, Goldenberg M. The voice of the evangelical pastor: A comparative study (monograph) Rio de Janeiro (RJ): CEFAC. 2001;49.

18. Roy N, Merrill RM, Thibeault S, et al. Voice disorders in teachers and the general population. *J Speech Lang Hear Res.* 2004;47:542-51.
19. Hagelberg AM, Simberg S. Prevalence of voice problems in priests and some risk factors contributing to them. *J Voice.* 2015;29:389 e11-8.
20. Rosen CA, Anderson D, Murry T. Evaluating hoarseness: Keeping your patient's voice healthy. *Am Fam Physician.* 1998;57:2775-82.
21. Baitha S, Raizada RM, Kenedy Singh AK, et al. Clinical profile of hoarseness of voice. *Indian J Otolaryngol Head Neck Surg.* 2002;54:14-8.
22. Banjara H, Mungutwar V, Singh D, et al. Hoarseness of voice: A retrospective study of 251 cases. *Int J Phonosurg Laryngol.* 2011;1:21-7.
23. Pal KS, Kaushal AK, Nagpure PS, et al. Etiopathological study of 100 patients of hoarseness of voice: in a rural based hospital. *Indian J Otolaryngol Head Neck Surg.* 2013;66:40-5.
24. Woo P. Evaluation and management of the dysphonic patient. In: fried M, Tan M.eds. *Clinical laryngol-The essentials*, New York: Thieme. 2015;15-27.
25. Reed JP, Sims HS. Comparative analysis of characteristics of voice use. *Amidst Clergy J Voice.* 2017;31:256.
26. Smith E, Cray M, Doie S. Frequency and effects of teachers voice problems. *J Voice.* 1997;11:81-7.
27. Hapner E, Gimán M. The vocal load of reform Jewish cantors in the USA. *J Voice.* 2012;26:201-04.
28. Hocevar-Boltezar I. Prevalence and risk factors for voice problems in Priests. *Wiener Klinische Wochenschrift.* 2009;121:276-81.
29. Neto FXP, da Silva IPC, Madeira AV, et al. Analysis of the vocal health of the preachers of the seventh day Adventist churches. *Int Arch Otorhinolaryngol.* 2009;13:407-12.
30. Selman S. Prevalence and risk factors for voice problems in Imams. *TJFMPC.* 2018;12:275-80.
31. Bovo R, Cialceran M, Petruccelli J, et al. Vocal problems among teachers. Evaluation of a preventive voice program. *J Voice.* 2007;21:705-22.