

# Knowledge And Attitude Of Nigerians On Snoring As A Health Problem

<sup>1</sup>B.S .Alabi, <sup>2</sup> O.I. Musa , <sup>1</sup> O.A. Afolabi, <sup>1</sup>S.K Aremu, <sup>1</sup>S.O. Adebola

<sup>1</sup>Departments of Otolaryngology and <sup>2</sup>Epidemiology & Community Health, College of Health Sciences, University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria.

## Abstract

This is a cross sectional study on snoring was conducted among adults aged 18 years and above at Ilorin, Kwara State, Nigeria. Simple random sampling technique using the primary health care (PHC) House numbering was used to select households from which adult subjects were interviewed. 400 subjects were sampled, 383 consented and completed the survey. This gave a participatory rate of 96%.

Pre-tested semi-structured questionnaires on knowledge, attitude of Nigerians on snoring as a health problem were administered to the subjects by trained research assistants. Completed questionnaires were analyzed using EPI 2000 software package.

A total of 383 subjects were interviewed in the age range of 18-60 years (mean of 29.09 ±1.23 years). There were 194 females (50.7%) and 189 males (49.3%) with a male/female sex ratio of 0.97 to 1.0. On consideration of snoring as a health problem, majority of the respondents 202 (52.7%) did not feel so, 147 (38.4%) considered it as a health problem while 34 (8.9%) were undecided. Only 42 (11%) admitted they were told they snore, 290 (75.7%) do not snore while 51 (13.3%) do not know if they snore.

The age distribution showed increase of snorers with increasing age, from 7.1% among 16-20 and 21-25 year age groups to 26.2% in 45years and above.

On the knowledge of predisposing factors of snoring, 356 (93.5%) agreed that overweight/obesity is strongly associated, alcohol consumption in 206 (53.8%), cigarette smoking among 169 (44.0%), fatigue and tiredness in 94 (24.6%) and upper airway obstructions amongst 68 (17.8%). On attitudes towards snorers, 71.1% claimed they adapt to it, only 23.3% were disturbed and 15.4% simply ignore it. There was no significant difference in gender and age group of the respondents in relation to whether they snore or not.

The knowledge of snoring as a health problem among Nigerians is quite low despite their awareness of the predisposing factors/causes of snoring and attitude

is simply that of adaptation , hence many do not consider it worthwhile to seek medical attention. There is need to create public awareness on snoring as a treatable health problem that require detailed evaluation with definitive medical, surgical and ancillary treatment of the condition.

Key words: Low knowledge, attitude, Nigerians, Snoring.

## Introduction

Snoring is the production of sound from the upper aero digestive tract during sleep due to turbulent airflow<sup>1</sup>. It is part of sleep disordered breathing (SPB) which ranged from obstructive sleep apnoea (OSA) at one end to simple snoring at the other end<sup>2</sup>.

One of the most important risk factors associated with snoring is obesity. Over two-thirds of individuals with Obstructive sleep apnoea syndrome (OSAS) are 20% above their ideal body weight<sup>3</sup>. Obese individual have enlarged neck size which make them to be prone to snoring as their tongues fall back during sleep leading to obstruction<sup>4</sup>.

According to WHO, in 2005, there are 400 million obese individuals in the world with a projection of 700 million by 2015<sup>4</sup>. Obesity co-exists with the problem of under nutrition in developing countries affecting all ages and socio economic groups due probably to consumption of more energy dense, nutrient poor foods with high levels of sugar and saturated fats<sup>4</sup>.

Obesity rate has risen three folds or more since 1980 in North America, United Kingdom, Eastern Europe, Middle East, Pacific Islands, Australia and China<sup>3</sup>. Other risk factors associated with snoring/ OSAS include diabetes, hypertension, stroke and certain form of cancers<sup>5,6</sup>.

The clinical features associated with OSAS include nocturnal symptoms such as loud snoring, fragmented sleep, apneas, restless sleep, oesopharyngeal reflux and dry mouth with nightmares<sup>3</sup>. The day symptoms include morning headaches, daytime sleepiness, hearing loss, short term memory loss, cognitive deficiencies with reduced mental acuity<sup>3</sup>.

Recent epidemiological surveys among American-Caucasians showed that OSAS occur in greater than 4% of middle aged adults, and in greater than 25% of the elderly<sup>7</sup>. A recent American survey among 30 to 60 year olds showed that 24% of men and 9% of women had an apnoea-hypopnea index score greater than 5<sup>8</sup>, whereas 25%-40% of UK population

## Correspondence to:

DR. B. S ALABI,  
Department of Otolaryngology,  
College of Health Sciences,  
University of Ilorin Teaching Hospital,  
Ilorin. BOX 4210, Ilorin Kwara State  
EMAIL- [alabibs@yahoo.com](mailto:alabibs@yahoo.com),  
Tel+23408033465653, Fax+23431220020

snorers<sup>2</sup>.

The prevalence of OSAS may be particularly high among African-Americans due to their increased liability for cardiovascular diseases<sup>9</sup>. It presents at a younger age among African-Americans compared to European-American and may be more severe<sup>10,11</sup>. Such conditions closely related to OSA as obesity, hypertension and type2 diabetes also occurred more frequently in African-Americans compared to European Americans<sup>12,13</sup>.

In Nigeria, the only published data on the prevalence of snoring among the adult population was by Adewole et al among Abuja residents, who reported a prevalence rate of 31.6%<sup>14</sup>. Management of snorers in Nigeria are based mainly on weight reduction, cessation of alcohol and cigarette consumptions. While the only evaluation being Mollard procedure to identify possible causes of obstruction, and treatment include surgeries aimed at excluding nasal, nasopharyngeal and oropharyngeal obstructions<sup>5</sup>.

This community health survey to identify the knowledge and attitude of Nigerians on snoring as a health problem stemmed from the principal author's stint at a sleep study centre in the United Kingdom<sup>5</sup>. This is considering the fact that OSAS are associated substantially with co-morbidity of obesity, hypertension, diabetes and cardiovascular diseases and social implications, highlighting it is public health importance

**Methodology**

This cross sectional study was conducted among adults aged 18 years and above resident in Surulere community of Ilorin West LGA of Kwara State. Ethical approvals were given by the ethical committee of the University of Ilorin Teaching

Hospital, Ilorin, the State Ministry of Health and the authority of Ilorin west Local Government council. Informed verbal consents were sought from the subjects used for the study.

Surulere community is one of the communities in Ilorin west LGA with a population of 184,541,000 people and a land Mass of 54.2 square kilometers<sup>15</sup> populated largely by students of higher institution and civil servants. It is located along Ojaba market which is one of the major markets in the local government area<sup>15</sup>.

Simple random sampling technique using the primary health care (PHC) House numbering was used to select households from which adult subjects were interviewed. In all 400 subjects were sampled but only 383 consented and completed the survey.

This gave a participatory rate of 96%. Pre-tested semi-structured questionnaires containing questions that elicited information relevant to the objectives of the study were administered to the subjects by trained research assistants.

Completed questionnaires were analyzed on a microsoft computers using EPI 2000 software package. Frequency tables and cross tabulation of variables were done where necessary.

Chi-Square test was used to determine the statistical significance of difference observed in cross-tabulated variables. Level of significant was predetermined at P-value <0.05

**Results**

A total of 383 subjects were interviewed in the age range of 18-60 years with a mean of 29.09 ±1.23 years. Nearly half of the respondents 189 (49.4%) were in the age group 18-26 years. There were 194 females (50.7%) and 189 males (49.3%) with a male/female

Table I - Age Distribution of Respondents

Age group (years)	Frequency (%)
18- 26	189 (49.4)
27- 36	128 (33.4)
37- 46	53 (13.8)
47- 56	12 (3.1)
57- 60	1 (0.3)
Total	383 (100)

Table III: Predisposing factors /causes of snoring (Multiple response N=383)

Factors / Causes	Frequency (%)
Overweight/ Obesity	358 (93.5)
Alcohol consumption	206 (53.8)
Smoking	169 (44.1)
Fatigue/Tiredness	94(24.6)
Upper airway obstruction	68 (17.8)
Bad positioning during sleep	41(10.8)
Unknown	13 (3.4)

Table II: Age distribution of Snorers

Age group (years)	Frequency (%)
17-26	06 (14.2)
27- 36	10 (23.8)
37- 46	15 (35.8)
47	11 (26.2)
Total 42 (100)	

Table IV: How respondents cope with snorers

Coping with snorers	Frequency (%)
Adapt to the Sound	244 (71.1)
Disturbed	80 (23.3)
Ignore the sound	59 (15.40)
Total	383 (100)

Table V: Respondents' snoring status in relation to age, sex and knowledge of snoring as a medical problem

Age group (years)	Respondents' snoring status		Total
	YES	NO	
18- 26	6	183	189
27- 36	10	118	128
37- 46	19	34	53
>46	7	6	13
<b>Total</b>	<b>42</b>	<b>341</b>	<b>383</b>
<b>Chi square = 2.76</b>			<b>df= 3</b>
			<b>P Value = 0.0915</b>
Respondents' sex	Respondents' snoring status		Total
	YES	NO	
Female	15	179	194
Male	27	162	189
<b>Total</b>	<b>42</b>	<b>341</b>	<b>383</b>
<b>Chi square = 1.507</b>			<b>df= 1</b>
			<b>P Value = 0.0713</b>
Snoring as a medical problem	Respondents' snoring status		Total
	YES	NO	
Yes	19	217	236
No	23	124	147
<b>Total</b>	<b>42</b>	<b>341</b>	<b>383</b>
<b>Chi square = 1.976</b>			<b>df= 1</b>
			<b>P Value = 0.0679</b>

sex ratio of 0.97 to 1.0. Most of the respondents 218 (59.9%) were single; 163 (42.6%) were married while separated and widowed respondents were 1(0.3%) each. The occupational status of the respondents showed students were 161 (42.0%), health workers 125 (31.6%), civil servants 51 (13.3%) and traders 10 (3.8%); while 36(9.4%) were unemployed.

Considering definition of snoring, all the respondents were able to relate it to sound produced during sleep. On the question of snoring being considered a health problem, over half of the respondents, 202 (52.7%) did not feel so, 147 (38.4%) considered it as a health problem while 34 (8.9%) were undecided. Only 42 (11%) respondents admitted they were told they snore, 290 claimed they do not snore (75.7%) while 51(13.3%) do not know if they snore.

The age distribution showed increase of snorers with increasing age, from 14.2% among 16-26 years age groups to 23.8% among 27-36 year age groups. While 37-46 age group was 35.8% and 47 years being 26.2% (Table II).

On the knowledge of predisposing factors or causes of snoring, nearly all the respondents 356 (93.5%) believed overweight/obesity is strongly associated, alcohol consumption in 206(53.8%), cigarette smoking in 169(44.0%), fatigue and tiredness in 94(24.6%) and features of upper airway obstructions

in 68(17.8%).

On the respondents' attitudes towards snoring, 71.1% claimed they get disturbed, only 23.3% adapt to it and 15.4% simply ignore it (Table IV). However, more than half of them (53.5%) did not know that snoring can be treated medically; only 46.5% knew it is treatable. Among the 11% respondents that snore, most (65%) were told they were loud snorers, the rest being moderate to mild snorers. There was no significant difference in gender and age group of the respondents in relation to whether they snore or not.

#### Discussion

About 40 years ago, snoring was still regarded as a social nuisance that is harmless to the sleeper<sup>14</sup>. However, obstructive sleep apnoea (OSA) resulting from snoring has been known to be associated with hypertension, diabetes, obesity and cardiovascular diseases, highlighting its broad public health importance<sup>14,16</sup>. OSA is said to affect at least 2 to 4% of middle aged adults, 2% of middle school children; and more than 10% of elderly<sup>17</sup>, however in our data the elderly were not captured but 7.6% of the middle age were involved out of which 47.6% of this group admit to snoring.

There is paucity of data relating to snoring among blacks, either in Africa or in the developed world, however it is said to be present in 20% of men and 5% of women among 30-35 years old population,

increasing with age and at 60years, 60% of men and 40% of women snores<sup>18</sup> but our study showed an insignificant difference between the two sexes which is at variance with the study. However, Daniel et al indicated racial difference in body mass index and high blood pressure both of which are related to snoring habits, showed snoring to be commoner among blacks compared to whites<sup>19</sup>. Our survey showed increasing prevalence with increased age similar to Adewole et al in Abuja, Nigeria<sup>14</sup>. The mean age of respondents were young adults in their third decades of life being the highest population in the area sampled which is populated by students of higher institutions.

More than three fifth of the respondents did not consider snoring as a health problem from our study despite the previous study that has found excessive daytime sleepiness, subjective work performance problems, and morning headaches that are associated with it<sup>20, 21</sup> and this is evidence from our study by the ability of the respondent to cope with snorer, so it is indeed a nuisance as treatment of non-apnoeic snores surgically have resulted significantly in the reduction of daytime sleepiness<sup>22,23</sup>.

Also, the attitudes of the respondents towards snorers is simply that of adaptation in nearly three quarters of them, this is similar to findings in a study done in the USA among Black-American versus Caucasian- Americans whose bed partners were more likely to accept snoring compared to the Caucasian<sup>7</sup>. Furthermore, more than half did not know snoring is a treatable surgically and medically<sup>4,5</sup>.

On the knowledge of the predisposing factors and causes of snoring nearly all believed overweight /obesity, alcohol consumption, cigarette smoking, fatigue and tiredness, air way obstruction and bad sleeping posture in that order were the common causes, similar to views of respondents elsewhere in the world<sup>6, 8</sup>, this might be due to the knowledge of the sampled population most of who got information about snoring from reading of health magazines, radio and television and personal experiences.

A little over a tenth of the sampled population snores with male being predominant, also increasing frequency with advancing age, similar to findings from previous series<sup>6,24</sup>. Sleep apnoea / snoring are under diagnosed because it happens when individuals are asleep resulting in adult snores denying suffering from any problems because they cannot hear themselves snoring or are not aware of their symptoms<sup>4</sup>. Half of the snores have daytime sleepiness during common daily activities resulting in morning headaches, cognitive deficiencies short term memory loss, fatigue and even family quarrels or even sleeping of bed partners in separate rooms, reduced productivity or even divorce<sup>4, 22-25</sup> however this was not captured by our study but will

be considered for future study.

In conclusion, the knowledge of snoring as a health problem among Nigerians is quite low despite their awareness of the predisposing factors/causes of snoring, hence many do not consider it worthwhile to seek for medical attention.

There is the need to create public enlightenment and awareness on snoring as a treatable health problem that require detailed evaluation with definitive medical, surgical and ancillary treatment.

## References

1. Raymond C, A brief History of Sleep Medicine. Sept/Oct ENT NEWS. 2004 Vol 13(4), p43.
2. Counter P, Wilson JA. The treatment of Snoring. Sept/Oct ENT NEWS. 2004; Vol 13(4), 45
3. Davies RJ, Stradling JR. The relationship between neck circumferences, Radiographic pharyngeal anatomy and the obstructive sleep apnea syndrome. *Eur Respir J*. 1990; 3: 509 – 14.
4. Madani M; Snoring and obstructive sleep apnea. *Arch Iran Med* 2007, Apr; 10(2):215-26.
5. Alabi B S, Kotecha B.T, the desirability of sleep study centres in Nigeria: Experience from the sleep Centre, Royal National Throat, Ear and Nose Hospital, Grayis Inn road, London-UK, *Nig. Jour of Otor*. Vol.3, 1(3), 2006; 39-42.
6. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA Cancer J Clin*. 2005; 55: 74 – 108.
7. Friedman M, Bliznikas, Klein M, Duggal P, Somenek M, Joseph Nj, comparison of the incidences of obstructive sleep apnoea-hypopnea syndrome in African- Americans versus Caucasian- Americans; *Otolaryngol Head Neck Surg*. 2006 Apr; 134(4):545-50.
8. Charles B, Pringle C, Pringle M; Snoring and sleep apnoea: *Scott-Brown's Otolaryngology-Rhinology*; Alan GK, Ian S, Bull TR; Butterworth 6<sup>th</sup> Edition/Heineman: Oxford 1997 vol 6; 4/19/1-4/19/19
9. Redline S, Tishler PV, Hans MG, Tosteson TD, Strohl KP, Spry K. Racial differences in sleep- disordered breathing in African-Americans and Caucasians. *Am J Respir Crit Care Med* 97; 155: 186-192.
10. Stepanski E, Zayyad A, Nigro C, Lopata M, Basner R, Sleep-disordered breathing in a predominantly African-American pediatric population. *J Sleep Res* 1999; 8: 65-70.
11. Ancoli-Israel S, Klauber MR, Stepnowsky C, Estline E, Chinn A, Fell R. Sleep-disordered breathing in African-American elderly. *Am J Respir Crit Care Med* 1995; 152: 1046-1049.
12. Brancati FL, Kao WH, Folsom AR, Watson RL, Szklo M, Incident Type 2 diabetes mellitus in



- African-American and White adults: the Atherosclerosis risk in communities study ,JAMA 2000; 283: 2253-59.
13. Sowers JR, Ferdinand KC, Bakris GL, Douglas JG. Hypertension-related disease in African-Americans: factors underlying disparities in illness and its outcome. *Postgrad. Med* 2002;112: 24-26,29-30,33-34.
14. Adewole O.O,Adeyemo, H.O, Ayeni, F,Anteyi, E.A, Ajuwon,Z.O, Erhabor, G.E, and Adewole,T.T, Prevalence and correlates of snoring among adults in Nigeria, *Afr Health Sci.* 2008 June; 8(2): 108–113.
15. (<http://www.kwarastate.gov.ng/ilorin-west-local-government-area.html>) accessed on 27<sup>th</sup> January 2011.
16. Gislason T, Aberg H, Taube A. Snoring and systemic hypertension-an Epidemiological study. *Acta Med Scand* 1987; 222:415-21.
17. Punjabi NM,Sorkin JD,Katzel LI,Goldberg AP,Schwartz AR,Smith PL.Sleep-disordered breathing and Insulin resisatnce in middle aged and overweight men.*Am J Respir Crit Care Med* 2002;165:677-82.
- 18.Leung RS,Bradley TD.Sleep apnea and cardiovascular disease.*Am J Respir Crit Care Med* 2001; 164:2147-2165.
- 19.Young T,Palta M,Dempsey J, Skatrud J,Weber S,Bader S,The ovvurence of sleep disordered breathing in middle aged adults.*N Engl J Med* 1993;328:1230-35.
20. Jeffrey N.H. Snoring and sleep apnoea annual meeting publication of American Academy of Otorhinolaryngology- Head and Neck surgery foundation, Inc. September 29-october 2 1996; 85-96
21. Daniel TL, Trevor JO, Julian EK, Donald ES Jr, Frances CW, Lucile L ADAMS-CAMPBELL, Robert HM and Rebecca GK. Are Race Differences in the Prevalence of Hypertension Explained by Body Mass and Fat Distribution? A Survey in a Biracial Population *Int. J. Epidemiol.* Vol 21; 1992:236-45
22. Ulfberg J, Carter N, Talba`ck M, et al. Excessive daytime sleepiness at work and subjective work performance in the general population and among heavy snorers and patients with obstructive sleep apnea. *Chest* 1996; 110:659–63
23. Ulfberg J, Carter N, Talba`ck M, et al. Headache, snoring and sleep apnoea. *J Neurol* 1996; 243:621–25
24. Boudewyns A, De Cock W, Willemen M, et al. Influence of uvulopalatopharyngoplasty on alfa-EEG arousals in nonapnoeic snorers. *Eur Respir J* 1997; 10:129–132
25. Janson C, Hillerdal G, Larsson L, et al. Excessive daytime sleepiness and fatigue in heavy snorers: improvement after UPPP. *Eur Respir J* 1994; 7:845–49