

Determinant Factors of Snoring in adults

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Abstract:-

Background: Snoring is the low frequency sound produced by vibration of the upper airway walls during partial upper airway obstruction. It is a common sleep problem.

Objectives: To find the prevalence of snoring in study sample and find the associative factor related to it like socio- demographic characteristic, smoking, alcohol, obesity, nasal problems, some chronic diseases, drugs and family history.

Methodology: A cross sectional study done from beginning of February to the end of April 2017, convenient sampling (300 clients) were participated attended AL-Yarmouk teaching hospital, AL-Salaam primary health care center and AL-Mansour primary health care center, the questionnaire were filled by direct interview with these participants, and asking them about snoring and its associated factors.

Results: From 300 participants 56.67% of them have snoring in both sexes . There was statistically significant association between snoring and male sex, obesity, smoking, heavy work, family history and nasal trauma. The non-snorers were 43.33%, and there was no statistical significant association between snoring and alcohol drinking and septal deviation.

Conclusion: More than half of the participants have snoring 56.67%, and it is more in smokers 80.0%, increasing age 73.1% at age 51-60, obesity 77.3%. Snorers more frequently in patient had hypertension 53.6% ,and also snoring subjects were complaining more frequently from daytime sleepiness 97.6% and morning headache 62.3%.

Keyword: Prevalence of snoring, snoring and different characteristic.

Introduction:

Snoring is the vibratory sound generated from the upper airway due to partial upper airway obstruction from narrowing that occurs during sleep.⁽¹⁾

Habitual snoring (HS) is defined as the presence of loud snoring at least 3 nights per week, and is strongly associated with obstructive sleep apnea (OSA) and it is one of the manifestations of sleep disordered breathing .⁽²⁾ In the past, snoring generally had been considered a social nuisance with no consequences for the snorer, only for the suffering bed partner. After sleep apnea syndrome was recognized, snoring began to be viewed as an important clinical symptom, but not all patients who snore have sleep apnea.⁽³⁾

Simple snoring is part of the spectrum of sleep disorder breathing ranging from intermittent snoring, through obstructive sleep apnoea/hypopnoea syndrome, to obesity hypoventilation syndrome.⁽⁴⁾

The prevalence of snoring varies widely due to cultural, racial and study design used in obtaining the information. Similarly, it varies with age and sex of the population.⁽⁵⁾

The current study was conducted aiming to find the prevalence of snoring in study sample and find the association between snoring and socio-demographic characteristics, smoking, alcohol, obesity, nasal problems, some chronic diseases, drugs and family history.

Patients and methods

This descriptive cross-sectional study was conducted over a period from the 1st of February to the 30th April 2017 in AL-Yarmouk teaching hospital (ENT department), AL-Salaam primary

health care center, AL-Mansour primary health care center. Convenience sampling involve (330) clients, 18 years old and above who were visit primary health care centers and AL-Yarmouk teaching hospital asking for ENT services, (30) was refused to participate in study and the responders were (300). By definition of snoring(is the vibratory sound generated from the upper airway due to partial upper airway obstruction from narrowing that occurs during sleep), data were collected using structural questionnaire by direct interviewing for each participant, the questionnaire included;

General socio-demographic characteristics // age, gender, marital status, occupation, education, snoring and its associated symptoms including: (morning headache, day time sleepiness) , snoring and its risk factors including: hx of nasal septum deviation, nasal polyp, nasal trauma, presence of any chronic diseases, family history, drug intake, and social habits including smoking and alcohol drinking and finally examination anthropometric measurement including height, weight, BMI, neck length and circumference.

The statistical analyses were performed using SPSS version 20 included the descriptive measures of frequency, percentage and the application of analytic test of significance, the chi-square test for testing the significance of association between qualitative variables with the P-value <0.05 as the level of significance.

Results:

Table (1) showed the distribution of study sample by sociodemographic characteristics, 88 (29.3 %) of respondents were between 21-30 years, male formed

166 (55.3%) of the studied sample, 214 (71.3%) were married.

Regarding occupation, the result showed that 112 (37.33%) officer, while education the highest rate was college 37.3%, and the majority of persons in this study lived in urban 280 which form 93.3%. As shown in figure (1) shows that 170 (56.67%) of attendance got snoring. Table (2) showed that 73.1%

of attendance aged between 51-60 years got snoring, there were significant association between age, gender, occupation, residence and got snoring, (P value =0.03, p=0.01, p=0.01, p=0.029 respectively). while no significant association between marital status, level of education and snoring, (P value =0.153, p=0.381 respectively).

Table (1): Distribution of study sample by socio-demographic characteristics

		No.	%
Age category/year	< 20	22	7.3%
	21-30	88	29.3%
	31-40	74	24.7%
	41-50	46	15.3%
	51-60	52	17.3%
	≥ 61	18	6.0%
Gender	Male	166	55.3%
	Female	134	44.7%
Marital status	Single	56	18.7%
	Married	214	71.3%
	Divorced	28	9.3%
	Widow	2	0.7%
Occupation	Worker	30	10.0%
	Officer	126	42.0%
	Student	30	10.0%
	Housewife	86	28.7%
	Retired	28	9.3%
Education	Primary	88	29.33%
	Secondary	100	33.33%
	College	112	37.33%
Address urban/rural	Rural	20	6.7%
	Urban	280	93.3%

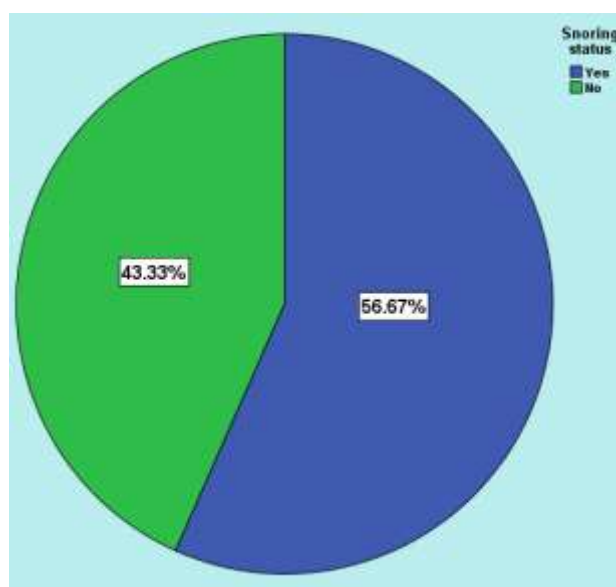


Fig. (1) Prevalence of snoring in studied group.

Table (2): Association between socio demographic characteristics and snoring status

		Snoring status				P-value
		Yes		No		
		No.	%	No.	%	
Age category/year	< 20	10	45.5%	12	54.5%	0.03
	21-30	40	45.5%	48	54.5%	
	31-40	46	62.2%	28	37.8%	
	41-50	26	56.5%	20	43.5%	
	51-60	38	73.1%	14	26.9%	
	≥61	10	55.6%	8	44.4%	
Gender	Male	126	75.9%	40	24.1%	0.01
	Female	44	32.8%	90	67.2%	
Marital status	Single	26	46.4%	30	53.6%	0.153
	Married	124	57.9%	90	42.1%	
	Divorced	18	64.3%	10	35.7%	
	Widow	2	100.0%	0	0.0%	
Occupation	Worker	22	73.3%	8	26.7%	0.01
	Officer	78	61.9%	48	38.1%	
	Student	18	60.0%	12	40.0%	
	Housewife	32	37.2%	54	62.8%	
	Retired	20	71.4%	8	28.6%	
Education	Primary	46	52.3%	42	47.7%	0.381
	Secondary	62	62%	38	38%	
	College	62	55.4%	50	44.6%	
Residence	Rural	16	80.0%	4	20.0%	0.029
	Urban	154	55.0%	126	45.0%	

Table (3) showed that 80% of smokers got snoring, while only 41.1% of non-smokers got snoring, there was significant association between smoking status and getting snoring. (P value= 0.001).

It seems that being alcoholic is not associated with snoring, (P-Value = 0.057). Septal deviation in this study was not associated with snoring, (P value =0.213), but nasal polyp and

family history of snoring were associated with snoring (P value = 0.01) in both condition.

More than three quarter 81.8% of patients with history of nasal trauma got snoring, while only 54.7% of patients without history of trauma got snoring, again significant association was found between nasal trauma and snoring, (P-value= 0.013).

Table (3) Association between risk factors of snoring and snoring status

		Snoring status				p-value
		Yes		No		
		No.	%	No.	%	
Smoking	Yes	96	80.0%	24	20.0%	0.001
	No	74	41.1%	106	58.9%	
Alcohol	Yes	10	83.3%	2	16.7%	0.057
	No	160	55.6%	128	44.4%	
Septal deviation	Yes	14	70.0%	6	30.0%	0.213
	No	156	55.7%	124	44.3%	
Nasal polyp	Yes	20	100.0%	0	0.0%	0.001
	No	150	53.6%	130	46.4%	
Family History	Yes	20	100.0%	0	0.0%	0.001
	No	150	53.6%	130	46.4%	
Nasal trauma	Yes	18	81.8%	4	18.2%	0.013
	No	152	54.7%	126	45.3%	
Anti-histamine	Yes	6	50.0%	6	50.0%	0.634
	No	164	56.9%	124	43.1%	
Antidepressant	Yes	8	100.0%	0	0.0%	<0.05
	No	162	55.5%	130	44.5%	
Hypertension	Yes	31	75.6%	10	24.4%	0.008
	No	139	53.6%	120	46.4%	

Table (4): Association between BMI and snoring status

BMI	Snoring status			
	Yes		No	
	No.	%	No.	%
Normal	41	34.8%	77	65.2%
Over weight	78	67.3%	38	32.7%
Obese	51	77.3%	15	22.7%
P value = 0.0000001				

Table (4): showed that (34.8%) of normal weight status patients got snoring, while 77.3% of obese patients got snoring, with very high significant association, P value < 0.001.

Table (5) showed that there was significant association between neck circumference and snoring, P value = 0.01, while no significant association was found between neck length and snoring, P=0.1.

This study showed that snored patient need to spent

Table (5): Association between neck measures and snoring status

	Snoring status	N	Mean	Std. Deviation	P-value
Neck circumference	Yes	170	39.3	3.4	0.01
	No	130	37.5	3.1	
Neck length	Yes	170	11.5	1.2	0.1
	No	130	11.8	1.3	

Table(6): Association between daytime sleeping hours and snoring status.

Day time sleeping hours	Snoring		Non snoring	
	No.	%	No.	%
One hour	19	15.0	108	85.0
Two hours	69	77.5	20	22.5
Three hours	82	97.6	2	2.4
P-value = 0.001				

Table (7): Association between morning headache and snoring.

Morning headache	Snoring status			
	Yes		No	
	N	%	N	%
Yes	106	62.3	22	16.9
No	64	37.7	108	83.1
Chi-Sq = 62.152; P-Value = 0.000				

Discussion:

In the current study we found that more than half 56.67 % of the sample were snorers, and the prevalence of snoring was higher than other studies as the study done by Mahdi . in Iraq 36%.⁽⁶⁾ , Khazaie et al in Iran 49.5%⁽⁷⁾ , Khassawneh et al in Jordan 28.7%⁽⁸⁾ , Chuange et al in Taiwan 51.9%⁽⁹⁾.

This diversity in prevalence rate of snoring is due to variations in snoring definition, age range, sample size, severity level, and characteristics of populations studied.

Snoring was higher in males than females in this study, and this male predominance among snorers can probably be explained by gender differences in the upper airway anatomy and difference in hormonal affects. These results were in agreement with studies conducted by Chuang et al in Taiwan⁽⁹⁾ and Patel et al in California⁽¹⁰⁾. While disagree with Khazaie et. al.

more hours of sleeping during the day, in fact 97.6% of them need to sleep more than three hours/day , while only 2.4% of non-snored patient need that, P value = 0.001 .(Table 6). Table (7) showed that there was significant association between snoring and getting morning headache, where 62.3% of patient with snoring got morning headache, while only (16.9%) of patient without snoring got morning headache.

In Iran⁽⁷⁾ which show higher frequency among women also differ from the study done by Sogebi et al in Nigeria⁽¹⁾ as they found that there is no significant difference in the prevalence of snoring between male and female.

This study shows that snoring rate increase with age and it was more frequent in the old age group between 51-60 years. Similar finding was reported by other workers (Kara et al in Turkey⁽¹¹⁾ and Sogebi et.al. In Nigeria⁽¹⁾ also showed that snoring increase with age and its prevalence is greatest in the fifth and sixth decade.

Regarding occupation, workers were found to be associated with highest prevalence of snoring 73.3% and this may be attributed to heavy day work leading to more deep night sleep and more relaxation of pharyngeal muscles, also workers in this study were almost all were males with high prevalence of snoring,

retired people having also high prevalence of snoring 71.4% and this may be due to their old age, which contributes to this high prevalence. Both of them agree with Mahdi in Iraq. ⁽⁶⁾.

Active smoking has been shown to be associated with snoring. In this study snoring was more prevalent in current smokers 80.0% than non smokers 41.1% as shown in other study Nagayoshi *et. al* in Japan ⁽¹⁴⁾, this because smoking may causes mucosal edema and inflammation of the pharynx lead to narrowing of pharyngeal airway, and cause an increased risk of snoring, while no association between alcohol drinking and snoring ,and this disagree with Kara *et. al.* In Turkey ⁽¹¹⁾, and Nagayoshi *et. al.* In Japan ⁽¹³⁾.

Regarding septal deviation, there was no association with snoring in this study, and this disagree with study done by Mahdi in Iraq (6).

In present study the prevalence of family history of snoring was very high, this may be due to inheritance of a narrow throat that cause snoring as shown in the study done by Wali SO and Abaalkhail B.A. In Saudi Arabia. ⁽²⁾

Hypertension occurred more frequently in snorers 75.6% than non-snorers 53.6% in this study. This finding was in agreement with study published by Adewole *et al* in Nigeria ⁽¹²⁾. Drug uses including antihistamines was found very low in the studied sample taken and with no significant differences between snorers and non-snorers, while anti-depressant drug has very high prevalence 100% of snoring than non-snorers, this may be due to increase relaxation of throat and tongue muscles, which makes snoring more likely, there was no similar study to this.

All surveys showed that snoring is more common in obese subjects as in Khazaie *et al* in Iran ⁽⁷⁾, in current study which showed that the prevalence of snoring was nearly double in the obese than those non obese, 77.3% and 34.8% respectively. While different finding was reported by the Wali SO and Abaalkhail B.A. In Saudi Arabia ⁽²⁾ as they found that there was no significant association between BMI and snoring.

In this study snoring is associated with neck obesity (neck circumference). This agree with other study done by Mahdi in Iraq. ⁽⁶⁾

Regarding daytime sleepiness, snoring was associated with increasing degree of daytime sleepiness. This increase tendency to fall asleep could partly be due to insufficient refreshing sleep probably due to repeated awakenings. This agree with study done by Mendes *et.al.* In Brazil. ⁽¹⁴⁾ In this study, morning headache was highly prevalent in snorers 62.3% than non-snorers 16.9% and this result coincide with Mendes *et.al.* study in Brazil. ⁽¹⁴⁾

Conclusion; The prevalence of snoring in this study was more than half 56.67%, significant statistical association between snoring with male sex, increasing age, obesity (especially upper body obesity), smokers, family history, nasal polyp and nasal trauma. The association between snoring and chronic diseases as hypertension was clear in this study also strong association between

snoring and daytime sleeping hours, morning headache

The study recommended: Further studies are required and need to increase sample size and to include more hospitals in order to get more effective outcome and these results can be used to assess the size of the problem and increase awareness of this health disorder among health care professionals.

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