

# To study gender related differences in clinical presentation of patients with Obstructive Sleep Apnoea

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## Abstract

**Background:** Gender related differences may be an important reason for underreporting of OSA in females.

**Objectives:** To study the gender related differences in clinical presentation of patients with Obstructive Sleep Apnoea confirmed with Polysomnography.

**Method:** A prospective observational study was conducted over a period of one year from September 2011 to August 2012 in the Department of Pulmonary Medicine, King George's Medical University U.P., Lucknow on 44 patients (37 males and 7 females) of Obstructive sleep apnoea confirmed with Polysomnography. Results were analysed for gender related differences in symptoms.

**Results:** Overall, males had a significantly higher frequency of snoring, excessive day time sleepiness, and history of smoking and alcoholism than females. In contrast, females had a higher BMI and HAD score (for anxiety and depression) than males. No significant difference was found between the two in neck circumference and Mallampati grading.

**Conclusion:** This study showed that there is significant difference in clinical presentation between males and females with obstructive sleep apnoea and this may be the reason for lesser prevalence of Obstructive Sleep Apnoea reported in Females and must be taken into consideration while evaluating patients with suspected OSA.

**Keywords:** Obstructive Sleep Apnoea, gender related differences, HAD score.

## Introduction

Obstructive sleep apnoea is a common disease afflicting 2-4% of the adult population<sup>1-3</sup>. The diagnosis of OSA is confirmed when polysomnography recording determines an apnoea -

hypopnoea index of >5 /hr of sleep. Various studies have revealed higher prevalence of OSA in males than females. This may be due to anatomical differences including distribution of fat and hormonal changes in females. Other factors may include difference in clinical presentation and lesser health services utilised by females leading to misdiagnosis and underreporting. This study aimed to compare clinical features of males and females in patients of OSA.

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## Material & Method

48 Patients of suspected OSA were interviewed on the basis of predesigned standardised Berlin questionnaire to elicit information from the subjects themselves and from their partners about the occurrence of snoring, cessation of breathing during sleep, tiredness, sleepiness while driving or any past history of hypertension. The daytime sleepiness was also assessed by Epworth sleepiness scale. Based on the response to the questionnaire and Epworth sleepiness, patients having high risk (total: 44; 37 males and 7 females) underwent overnight polysomnography for confirmation of the diagnosis of obstructive sleep apnoea. AHI was used for the diagnosis and assessment of severity of OSA. These patients were also screened for anxiety and depression using Hospital Anxiety and Depression scale which is a reliable screening tool for anxiety and depression in various clinical settings and populations. In this study we divided the patients into two groups on the basis of gender and analysed them for differences in various

parameters. The statistical analysis was done using SPSS (Statistical Package for Social Sciences) Version 15.0 statistical Analysis Software. The values were represented in Number (%) and Mean  $\pm$  SD.

## Results

A total of 71 patients attending the Outpatient Department of Pulmonary Medicine were included in the study. Out of these 71 patients, 7 patients were diagnosed as a case of hypothyroidism and 16 patients did not participate in Polysomnography and their AHI scores could not be calculated hence these 23 patients were excluded from the study. Polysomnography of 48 patients was done. 44 were diagnosed as OSA with AHI >5. Out of these 37 were males and 7 females. These 44 patients were screened for anxiety and depression using Hospital Anxiety and Depression Scale (HAD). These patients were divided into two groups based on gender and the data was subjected to analysis. (Table1)

Table 1: Various parameters in both groups

	Female (n=7)		Male (n=37)		Statistical significance	
	No.	%	No.	%	$\chi^2$	'p'
Alcohol consumption	1	14.29	6	16.22	0.016	0.898
Smoking	1	14.29	12	32.43	0.931	0.335
History of drug intake	0	0.00	2	5.41	0.396	0.529
Snoring	4	57.14	36	97.30	11.484	0.001
Excessive daytime sleepiness (EDS)	3	42.86	29	78.38	3.745	0.05
Mean BMI	34.74 $\pm$ 5.41		31.26 $\pm$ 3.42		't'=2.240; 'p'=0.030	
Neck Circumference	15.94		16.43		0.953	0.346
Presence of psychiatric features	4	40	6	60.00	5.614	0.018

Snoring and excessive day time sleepiness was found to be present in higher frequency of males as compared to females. This difference was statistically significant.

Females were reported to have more symptoms of early morning headaches and fatigue as compared to males..

Mean BMI of females ( $34.74 \pm 5.41$  kg/m<sup>2</sup>) was found to significantly higher than that of males ( $31.26 \pm 3.42$  kg/m<sup>2</sup>). Higher proportion of females were found to have Psychiatric features than males.

Though neck circumference among male patients ( $16.43 \pm 1.26$ ) was higher than that of female patients ( $15.94 \pm 1.12$ ) but the difference was statistically non-significant.

Data indicated no statistically significant association between Mallampati score and personal habits between the genders. Though all the biochemical parameters like LDL cholesterol, HDL cholesterol and triglycerides were high in male patients as compared to females still the difference was statistically non-significant for all the parameters.

## Discussion

OSAS affects about 2-4% of adult population and is reported to be twice more common in males than females<sup>4</sup>. Few studies suggests that postmenopausal<sup>5</sup> females and those with morbid obesity<sup>6,7</sup> have higher incidence of OSA. Women with sleep apnea are less likely to be diagnosed compared to men. Our study was done to evaluate the differences in clinical presentation between the genders.

Snoring and excessive daytime sleepiness are considered to be the most common presenting complaints in OSAS. In our study this was found to be significantly more common in males than females. whereas females reported more of early morning headaches and malaise. This may be attributed to sociocultural environment leading to underreporting in females. Ambrogetti et al<sup>8</sup> also reported Insomnia to be more common in women than in men. therefore, the diagnosis of OSAS should be entertained in women who present with sleepiness and complaints of insomnia. This was contrary to the study done by Young et al who did not observe significant gender-related differences in snoring, self-reported breathing pauses, depression, restless legs, or nightmares in subjects with an AHI of  $\geq 15$ .

In our study, Mean BMI was found to be higher in females than in males. We also evaluated these patients for Psychiatric Manifestations using HAD score. Females

were found to have higher prevalence of psychiatric features than males. This is comparable to the findings of Smith et al,<sup>9</sup> who also reported that women with OSAS were more likely to have been treated for depression compared to their population controls than were men with OSAS when compared to their controls. Pillar et al<sup>10</sup> also found significantly higher scores for both depression and anxiety in women compared with men. In our study, no significant difference was found in Mallampatti grade and personal habits between the two genders. Although Males had a higher neck circumference than females but it was not significant. Biochemical parameters like LDL, HDL and triglycerides also did not show any significant association.

Our study concluded that OSA which was once considered rare in females is more prevalent, often underreported in females . A higher degree of suspicion is needed while evaluating females with sleep disorders as they present differently with lesser complaints of snoring and EDS but with insomnia and depression.

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