

# Increasing incidence of obstructive sleep apnea in patients with HIV: A nationwide database analysis

Armaghan-e-Rehman Mansoor, MD<sup>1</sup>; Varun M. Badami, MD<sup>2</sup>; Sunil S. Sharma, MD<sup>2</sup>; Arif R. Sarwari, MD<sup>1</sup>

<sup>1</sup>Department of Medicine; <sup>2</sup>Section of Pulmonary, Critical Care & Sleep Medicine, Department of Medicine, West Virginia University

## Introduction

More than half of all patients living with HIV (PLWH) in the United States are over the age of 50<sup>1</sup>. Fatigue and disturbed sleep are often reported in this cohort. These symptoms could potentially be secondary to undiagnosed sleep apnea. The incidence of sleep apnea in PLWH remains unknown, with small-scale studies reporting estimates ranging from 20-70%<sup>2</sup>. No large-scale analyses on the incidence, associated risk factors and outcomes of sleep apnea in PLWH exist

## Objectives

The National Inpatient Sample (NIS) database was used to determine the reported incidence of OSA in patients with HIV, as well as associated risk factors, during inpatient admissions within the United States

## Methods

All index admission from 2007 to 2016 reported in the NIS were included. ICD-9 and ICD-10 coding was used to identify a diagnosis of OSA and/or HIV.

We used logistic regression models to determine the demographic and logistic factors associated with a diagnosis of OSA within the HIV population. A second logistic regression model was generated using the AHRQ comorbidity identifiers to determine comorbidities associated with a reported diagnosis of OSA

## Results

Comorbid	RR	95% CI	P-Value
Obesity	12.77	12.33-13.21	<0.001
Hypertension	1.97	1.90-2.04	<0.001
Diabetes	1.98	1.90-2.05	<0.001
Congestive heart failure	1.92	1.84-2.01	<0.001
Chronic lung disease	1.97	1.91-2.04	<0.001
Peptic ulcer disease	2.06	1.10-3.87	0.024
Arthritis	1.41	1.24-1.60	<0.001
Depression	1.65	1.59-1.72	<0.001
Lipodystrophy	6.84	6.02-7.77	<0.001
Restless leg syndrome	7.90	7.10-8.78	0.039

21,413 of 1,361,514 patients with a diagnosis of HIV had concurrent OSA. The proportion of patients with HIV and OSA increased from 0.5% in 2007 to 2.7% in 2016 (p-value <0.001)

Female patients (OR 1.40), patients in the Midwest (OR 1.59) and Western US (OR 1.14) were more likely to be diagnosed with OSA. African-Americans, Hispanics and Asian/Pacific Islanders were less likely to have a diagnosis of OSA compared to the Caucasian population (OR 0.88, 0.77, 0.28)

A significantly lower percentage of patients with HIV and OSA were obese (16.0%) compared to the general population (18.7%). Results of logistic regression for associated comorbidities are noted in Table 1 above.

## Discussion

Our results show a significant increase in the number of patients with HIV and concurrent OSA. We postulate that this increase is likely secondary to an increasing overall recognition of OSA in recent years, as well as a reflection of the increasing age of the PLWH cohort. Despite the rising trend of OSA in inpatient PLWH, the incidence reported in our study is potentially underestimated, and is likely to be much higher in the community setting.

A lower proportion of patients with OSA and HIV had an associated diagnosis of obesity compared to the general population. One explanation for this could be the increased risk of visceral adiposity in patients with HIV compared to non-HIV patients, regardless of BMI.

This study highlights the need for proactive screening for OSA in an aging population of PLWH

## References

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**Please direct correspondence to:**

Armaghan-e-Rehman Mansoor, MD; am0244@hsc.wvu.edu  
Health Sciences Center, 1 Medical Center Drive, Morgantown WV 26506