

women, and in post- versus pre-menopausal women using AHI values across all categories of OSA severity. Improved screening methods are needed to detect women at high risk for OSA.

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## 0711

### DO POSTMENOPAUSAL WOMEN WITH INSOMNIA AND OBSTRUCTIVE SLEEP APNEA HAVE DETERIORATION IN SEXUAL FUNCTION?

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**Introduction:** Sleep problems and sexual dissatisfaction are among the most common complaints during and after the menopause transition. The prevalence of insomnia and obstructive sleep apnea (OSA) reach 31% and 44% of postmenopausal women, respectively. The sexual dissatisfaction is frequently caused by a decline in hormonal levels and urogenital atrophy, resulting in inadequate lubrication and pain during intercourse, with orgasm difficulties and low sexual. Both behaviors – sleep and sexual function - play an important part in women's wellness. The objective of this study was to investigate whether insomnia in association with OSA would increase climacteric and sexual symptoms compared with women with only insomnia or OSA.

**Methods:** Our sample comprised 47 postmenopausal women distributed into 3 groups: 1) insomnia, 2) OSA, and 3) OSA+insomnia. All participants completed the questionnaires: Insomnia Severity Index, Female Sexual Function Index, and Blatt-Kupperman menopausal index. Of the 47 participants, 34 women undergone polysomnography. The 3 groups were compared in respect of climacteric symptoms, sexual function score, and sleep.

**Results:** Our results showed that 85.1% of the postmenopausal women were classified with insomnia, 46.8% were diagnosed with OSA, and 82.9% had low sexual function. All groups had sleep efficiency of <80%, wake after sleep onset of >65 min, and a total sleep time of <6h, indicating poor sleep quality. There were no statistically significant differences among the groups in all sexual domains. The group of OSA+insomnia reported more climacteric symptoms (27.1±9.7) when compared to OSA group (15.7±9.6, P=0.03).

**Conclusion:** In our sample, the presence of insomnia and OSA associated with postmenopause revealed a low score for sexual function. Climacteric symptoms were higher in the groups with insomnia, and the association with low sexual function can lead to worsening of clinical condition.

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## 0712

### CLUSTER ANALYSIS FOR THE ASSOCIATION BETWEEN OBSTRUCTIVE SLEEP APNEA PHENOTYPES: A POPULATION-BASED LONGITUDINAL STUDY

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**Introduction:** The identification of subgroups of obstructive sleep apnea (OSA) is critical to understand disease causality and ultimately

develop optimal care strategies customized for each subgroup. In this sense, we aimed to perform a cluster analysis to identify subgroups of individuals with OSA based on clinical parameters. Furthermore, we aimed to analyze whether subgroups remain after 8 years.

**Methods:** We used data derived from the São Paulo Epidemiologic Sleep Study (EPISONO) cohort, which was followed over 8 years. All individuals underwent polysomnography, answered questionnaires and had their blood collected for biochemical exams. OSA was defined according to AHI≥ 15 events/hour. Cluster analysis was performed using latent class analysis (LCA).

**Results:** Of the 1,042 individuals in the EPISONO cohort, 68.3% accepted to participate in the follow-up study (n=712). We were able to replicate the OSA 3-cluster solution observed in previous studies: disturbed sleep, minimally symptomatic and excessively sleepy in both baseline (35.5%, 45.4% and 19.1%, respectively) and follow-up studies (41.9%, 43.3% and 14.8%, respectively). 44.8% of the participants migrated clusters between the two evaluations and the factor associated with this was a greater delta-AHI (B=-0.033, df=1, p=0.003). The optimal cluster solution for our sample based on Bayesian information criterion (BIC) was 2 cluster for baseline (disturbed sleep and excessively sleepy) and 3 clusters for follow-up (disturbed sleep, minimally symptomatic and excessively sleepy).

**Conclusion:** The results found replicate and confirm previously identified clinical clusters in OSA even in a longitudinal analysis.

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## 0713

### LONGITUDINAL SLEEP POSITION PATTERNS AND BREATHING PARAMETERS IN PREGNANCY

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**Introduction:** Supine sleep position during pregnancy has been linked to increased risk of stillbirth in retrospective studies. However, existing literature is largely cross-sectional and limited by recall bias and self-reporting of sleep position. This study aims to use objectively-measured sleep position to quantify sleep position change between trimesters and its influence on maternal respiratory health.

**Methods:** This study is a secondary analysis of data from a study investigating maternal sleep, among women with singleton pregnancies and overweight or obesity. Each participant underwent level III sleep apnea monitoring using Noxturnal T3 devices (Nox Medical, Georgia, US), in the first (0-12 weeks) and third (29-40 weeks) trimester of pregnancy. Using accelerometry, the software differentiated 5 positions including supine, right lateral, left lateral, prone, and upright. The studies were scored using AASM 2012 recommended criteria. The first non-upright position was recorded as going-to-bed position. The number of sleep position changes was calculated using only positions that lasted ≥30 seconds.

**Results:** A total of 126 women were included. Mean BMI was 34.00±5.14 and mean age was 30.46±5.40 years. Mean number of position changes was similar in early (14.19±7.82) vs. late (14.58±8.25) pregnancy. There was a significant correlation between sleep onset position and predominant sleep position in both early (p=0.001) and late (p<0.01) pregnancy. However, supine going-to-bed position predicted predominant supine sleep in only 47% of women. There was a significant change in sleep

position between early and late pregnancy ( $p=0.04$ ) with a reduction in supine sleep (51.6% to 30.2%) and an increase in left lateral sleep (24.6% to 37.3%). Only in the third trimester, there was a significant positive correlation between time spent supine and oxygen desaturation index ( $r=0.22$ ,  $p=0.01$ ), and a trend toward positive correlation with respiratory event index ( $r=0.15$ ,  $p=0.08$ ).

**Conclusion:** Going-to-bed position predicts predominant sleep position in less than half of women with overweight and obesity. Time spent supine in late pregnancy correlates with measures of sleep-disordered breathing. More prospective studies are needed to evaluate the potential for sleep position changes over time as a potentially modifiable risk factor for maternal and neonatal health outcomes.

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### 0714

#### POPULATION-LEVEL SNORING AND PROBABLE SLEEP-DISORDERED BREATHING ASSOCIATED WITH GREATER SEDENTARY ACTIVITY

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**Introduction:** Increased frequency of snoring can be an indicator of sleep-disordered breathing, which is associated with a myriad of comorbidities, including increased cardiovascular disease risk. Previous studies have shown that sleep-disordered breathing is associated with less physical activity, but few studies examined this at the population level, or relative to primary snoring.

**Methods:** This analysis used a linear regression analysis on the 2017- March 2020 data collected from the National Health and Nutrition Examination Survey (NHANES) to explore the relationship between the minutes of sedentary activity and the frequency of snoring. Participants were asked how often they snored in the last 12 months. Responses were categorized as “Never”, “Rarely-- 1-2 nights/week”, “Occasionally-- 3-4 nights/week”, or “Frequently--  $\geq 5$  nights/week.” Self-reported sedentary activity was measured in minutes during a typical day. A modified STOP-BANG score was created based on NHANES measures of snoring, daytime tiredness, snorting/gasping during sleep, hypertension, body mass index, age, and gender (no measure of neck circumference). Reported results were unweighted; weighted results forthcoming.

**Results:** Significant unadjusted results indicate that those who reported snoring frequently had 19.2 minutes more sedentary time ([7.98,30.4],  $p<0.0001$ ); and those with estimated sleep apnea had 16.2 more minutes of sedentary time than those without sleep apnea ([7.19,25.2],  $p<0.001$ ). When adjusted for sex, age, race, education level, and marital status, the estimated difference between frequent snorers and those that reported never snoring increased to 35.9 minutes of more sedentary activity ([24.4,47.3],  $p<0.0001$ ) a day. After adjusting for covariates, those with probable sleep apnea showed 43.9 more minutes of sedentary activity compared to those without sleep apnea ([34.1,53.6],  $p<0.001$ ).

**Conclusion:** Overall, those who snore frequently (5 or more nights a week) or have a high risk of sleep apnea show a larger number of sedentary minutes per day than those that don't snore or have probable sleep apnea. These relationships may be bidirectional, and directionality should be addressed in future studies.

**Support (If Any):**

### 0715

#### DIAGNOSIS OF SLEEP DISORDERED BREATHING IN PATIENTS WITH INTERSTITIAL LUNG DISEASE: A RETROSPECTIVE EVALUATION OF POLYSOMNOGRAM AND HOME SLEEP APNEA TESTING USING PERIPHERAL ARTERIAL TONOMOMETRY

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**Introduction:** Previous studies have shown that sleep disordered breathing (SDB) is common in patients with Interstitial Lung Disease (ILD), and oximetry is often used for screening prior to further diagnostic testing. Current guidelines recommend polysomnography (PSG) for diagnosis of SDB in patients with significant pulmonary disease, however, home sleep apnea tests (HSAT) are increasingly used in clinical practice for a variety of reasons despite lack of evidence regarding accuracy in this population. In this study, we evaluate the correlation between screening oximetry, a commercial brand HSAT (WatchPAT®) and PSG to examine the diagnostic accuracy of this HSAT technology in patients with ILD.

**Methods:** The institution electronic medical record was screened for patients with a diagnosis code for ILD who underwent screening oximetry followed by PSG or HSAT using peripheral arterial tonometry from July 1, 2012 to present. Clinical review confirmed presence of ILD according to American Thoracic Society guidelines. Among the respective cohorts, Paired Wilcoxon Test was used to compare the oximetry 4% oxygen desaturation index (ODI) to the HSAT ODI and PSG apnea-hypopnea index (AHI) as well as percent time spent below oxyhemoglobin saturation of 89%. Spearman correlation was used to correlate the oximetry ODI and parameters of SDB on HSAT and PSG.

**Results:** Data was analyzed for 25 patients who had undergone oximetry/HSAT and for 25 patients who had undergone oximetry/PSG. Oximetry ODI showed no significant difference from PSG AHI ( $p = 0.2635$ ) or between HSAT ODI ( $p = 0.0755$ ), and no difference was seen in hypoxic time between oximetry and PSG ( $p = 0.9789$ ). Hypoxic time on HSAT was significantly longer than that on oximetry ( $p < 0.001$ ). Using HSAT ODI as the standard, HSAT AHI and respiratory disturbance index (RDI) showed rs of 0.9638 and 0.8913 respectively, while oximetry ODI was 0.3893. Compared to PSG AHI, the PSG RDI and oximetry ODI rs were 0.9759 and 0.7407 respectively.

**Conclusion:** Among patients with ILD, screening oximetry appears to correlate more strongly with indices of SDB and hypoxic time on PSG rather than HSAT. Further studies are warranted to evaluate efficacy of additional HSAT testing modalities in this patient population.

**Support (If Any):**

### 0716

#### RISK FOR HEART FAILURE WITH PRESERVED EJECTION FRACTION IN PATIENTS WITH OR WITHOUT OBSTRUCTIVE SLEEP APNEA

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**Introduction:** Approximately two out of three patients with Heart Failure with preserved Ejection Fraction (HFpEF) have co-morbid sleep apnea, but the risk of HFpEF in patients who test positive for obstructive sleep apnea (OSA) is unknown.