

Title: Comparative Changes of Patient Reported Outcomes in Positive Airway Pressure and Upper Airway Stimulation for Obstructive Sleep Apnea**Author(s): Raman Bhambra****Affiliation:** Northeast Ohio Medical University (NEOMED)

"Upper Airway Stimulation (UAS) is increasingly being used for obstructive sleep apnea (OSA) treatment, however, data comparing changes in patient reported outcomes (PROs) in response to positive airway pressure (PAP) versus UAS are limited. We hypothesize that there will be no difference in PROs between the two groups after treatment.

UAS and PAP groups were 1:3 matched on age, sex, Body Mass Index (BMI) and Apnea Hypopnea Index (AHI, category 15-30, >30). Linear mixed models assessed the difference of change in Epworth Sleepiness Scale (ESS), Functional Outcomes of Sleep Questionnaire (FOSQ), Patient Health Questionnaire (PHQ9) and Insomnia Severity Index (ISI) measures on matched strata of UAS versus PAP groups, adjusting baseline and matching factors.

The analytic sample comprised 193 PAP patients and 69 UAS patients, with mean age=62.9+/-9.4 years, 27.5% female, mean BMI=29.1+/-3.2kg/m², and median AHI 42.7, IQR: 31.5, 57.2. ESS in PAP (n=190) reduced by -2.63 (-3.38,-1.88) and in UAS (n=56) reduced by -2.22 (-3.34, -1.10), with a mean difference of 0.41 (-0.70, 1.52, p=.46). FOSQ in PAP (n=188) showed a change with a mean difference of 0.43 (-0.23, 1.09, p=.19). PHQ9 in PAP (n=185) showed a significant change with a mean difference of -1.51(-2.93,-0.088, p=.038). ISI in PAP (n=193) showed a significant change with a mean difference of -1.63(-3.62, 0.37, p=.11).

Similar improvements in PROs were observed in both UAS and PAP patient groups, however UAS appeared to confer greater benefit in depressive symptoms. Randomized clinical trials should be designed to confirm these findings. "