

common self-reported physician-diagnosed comorbidities were anxiety (44%) and depression (42%) followed by hypertension (39%), dyslipidemia (26%), and asthma (21%). Among the symptoms participants reported having had at the time of OSA diagnosis, the most common were EDS (79%), fatigue (79%), snoring (75%), and awakening with a dry mouth or sore throat (63%). Concentration/Memory problems (48%) and mood changes (46%) were also common. In the overall population, the symptoms present at the time of OSA diagnosis that were most likely to be highly burdensome were fatigue (53%), EDS (46%), snoring (35%), difficulty concentrating/memory issues (31%), and mood changes (25%).

**Conclusions.** These real-world survey data identify anxiety and depression as the most frequently reported comorbidities in a population of participants with OSA, each affecting over 40% of participants. In addition to classic OSA symptoms (e.g., EDS, fatigue, snoring, and awakening with dry mouth/sore throat), concentration/memory problems and mood changes were also common at the time of OSA diagnosis and were among the presenting symptoms most frequently reported as highly burdensome, along with fatigue, EDS, and snoring.

**Funding.** Axsome Therapeutics and Jazz Pharmaceuticals

## Excessive Daytime Sleepiness in a Real-World Study of Participants With OSA With or Without Comorbid Depression

Sairam Parthasarathy, MD<sup>1</sup>, Jerry Zhang, PhD<sup>2</sup>, Danielle Hyman, PhD<sup>2</sup>, James Doherty, PhD<sup>2</sup>, Ragy Saad, MSc<sup>2</sup>, Benjamin Fox, MS<sup>3</sup>, Nell J. Marshall, PhD, MPH<sup>3</sup> and Gregory Parks, PhD<sup>2,4</sup>

<sup>1</sup>University of Arizona, Tucson, AZ, USA, <sup>2</sup>Jazz Pharmaceuticals, Palo Alto, CA, USA, <sup>3</sup>Evidation Health, San Mateo, CA, USA and <sup>4</sup>Axsome Therapeutics, New York, NY, USA

### Abstract

**Background.** Obstructive sleep apnea (OSA) is a sleep disorder that is highly comorbid with psychiatric disorders, including depression and anxiety. Excessive daytime sleepiness (EDS) is common in psychiatric disorders and OSA. In participants with OSA, EDS can persist despite use of positive airway pressure (PAP) therapy. This analysis of real-world data aimed to describe EDS and its relationship with PAP use in participants with and without depression.

**Methods.** US residents ( $\geq 18$  years of age, self-reported physician diagnosis of OSA [from 1/1/2015 to 3/31/2020]) completed a survey in Evidation Health's Achievement app assessing subjective levels of sleepiness (Epworth Sleepiness Scale [ESS]) and self-reported PAP usage, categorized as nonuse (no PAP use), non-adherent ( $< 4$  h/night or  $< 5$  d/wk), intermediate (4–6 h/night,  $\geq 5$  d/wk), or highly adherent ( $\geq 6$  h/night,  $\geq 5$  d/wk). ESS score  $> 10$

defined EDS. A linear model assessed relationships between PAP use and ESS score. *P*-values are uncontrolled for multiplicity (nominal).

**Results.** In total, 2289 participants (EDS,  $n=972$ ; no EDS,  $n=1317$ ) completed the survey (50.3% female; 82.5% White; mean  $\pm$  standard deviation [SD] age,  $44.8 \pm 11.1$  years). Anxiety and depression were the most common comorbidities and were more common in participants with EDS (49% and 49%, respectively) than those without EDS (41% and 37%, respectively). Overall, EDS was more common among participants with comorbid depression (49%) than those without (38%), even among highly adherent PAP users (46% vs 30%, respectively). In a linear model (PAP users only), an additional 1 h/night of PAP use was associated with lower ESS scores in the subgroup of participants without depression ( $n=928$ ; estimate [SE],  $-0.42$  [0.09];  $P < 0.05$ ), but not in the subgroup with depression ( $n=661$ ; estimate [SE],  $-0.15$  [0.10];  $P > 0.05$ ). In a sensitivity analysis that excluded participants using medications that cause sleepiness, PAP use was associated with lower ESS scores regardless of depression status; however, EDS remained more common in participants with comorbid depression (46%) than in those without (36%).

**Conclusions.** In this real-world population of participants with OSA, those with EDS were more likely to have comorbid anxiety or depression. EDS was more common in participants with comorbid depression than those without, even with highly adherent PAP use. PAP use was associated with lower ESS scores in participants without comorbid depression, but not in those with comorbid depression; the use of medications that cause sleepiness may contribute to but does not fully explain this phenomenon.

**Funding.** Axsome Therapeutics and Jazz Pharmaceuticals

## Genetic Behavioral Trait Assessment Paired With Personalized Recommendations and Coaching to Support Mental Health and Wellness

David Krause, MD, Daniel VanDorn, PharmD, Harris Nguyen, PharmD and Russel Amato, PhD

Genomind, King of Prussia, PA, USA

### Abstract

**Background.** Genetics, environment, and lifestyle each contribute to human behaviors. We have developed a direct-to-consumer genetic assay (Mental Health Map) that allows users to explore their genetic behavioral predispositions and potential interventions that may positively influence mental health and wellness. Based on preliminary consumer feedback suggesting increased desire to take action on their mental health and wellness, we initiated a pilot study to assess several measures of mental health and self-care in individuals both before and after reviewing their Mental Health Map.