

## EDITORIAL

# Prevalence of Sleep Disordered Breathing Symptoms and Risk Factors for Chronic Diseases: Are There Differences in Countries of High and Low Income?

Commentary on Schwartz et al. Sleep disordered breathing in four resource-limited settings in Peru: prevalence, risk factors, and association with chronic diseases. *SLEEP* 2015;38:1451–1459.

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Sleep disordered breathing (SDB) is characterized by repeated apneas and hypopneas causing frequent arousals, oxyhemoglobin desaturations, and excessive daytime sleepiness (EDS). In high income countries (HIC), SDB is a highly prevalent condition with major consequences for cardiovascular health (hypertension, metabolic syndrome, coronary artery disease, heart failure, neurocognitive dysfunction, and stroke), public safety (excess motor vehicle accidents, workplace injuries, and psychiatric disturbances), increased utilization of healthcare, and loss of economic productivity and excess mortality.<sup>1–5</sup> However, the potential economic and health impact of SDB in low income countries (LIC) has been less well studied.

In this issue of *SLEEP*, Schwartz and colleagues<sup>6</sup> reported an analysis of the CRONICAS Cohort. The authors found a high prevalence of habitual snoring (30.2%), observed apneas (20.9%), and EDS (18.6%). There were regional differences in prevalence rates. Habitual snoring was greatest at sea level, while conversely observed apneas were greatest at high altitude. Demographic and anthropometric factors also influenced prevalence rates. Habitual snoring was associated with older age, male sex, body mass index (BMI), and higher socioeconomic status (SES); apneas were associated with BMI; and EDS was associated with older age, female sex, and medium SES. Importantly, cardiovascular disease, depression, hypertension, and total chronic disease burden increased progressively with the number of SDB symptoms.

These observations are an important reminder that although symptoms of SDB are ubiquitous, reported prevalence rates varies from country to country, and regionally within countries. For example, the prevalence rate of habitual snoring in four Latin American cities in the PLATINO study ranged from 54.8 to 59.6%,<sup>7</sup> but was 28.7% in the United States NHANES 2005–2006 survey<sup>8</sup> and 11.5% in China.<sup>9</sup> In part, the substantial variability relates to differences in ascertainment methodology, but dissimilarities in risk factors are likely present as well. Nevertheless, caution needs to be exercised when making comparisons of prevalence rates across countries.

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Aside from age, sex, and BMI, which are commonly recognized as important factors influencing SDB prevalence rates, there is increasing recognition that socioeconomic factors may be significant as well.<sup>10</sup> As reported by Schwartz and colleagues,<sup>6</sup> SES was variably associated with SDB symptoms. Interestingly, SES was protective of habitual snoring, but appeared to increase the risk of EDS. These findings with respect to snoring are in contrast to an analysis of 2007–2008 NHANES data suggesting that educational level and household food security, two surrogates for SES, were risk factors.<sup>10</sup> When considered with available data relating to risk factors for SDB symptoms, the data provided by Schwartz<sup>6</sup> should remind us that local socioeconomic factors are important determinants of these symptoms.

The other major finding reported by Schwartz is that symptoms of SDB are highly correlated with chronic disease in a LIC such as Peru. Thus, irrespective of the risk factors underlying the presence of these symptoms, the impact on the prevalence of chronic diseases appears to be similar in both LIC and HIC. What remains to be determined is whether the economic impact on health care delivery systems are similar. Importantly, it also is unclear whether there are disparities in the delivery of health care related to SDB related to socioeconomic factors. While the contribution by Schwartz is an essential first step in answering these questions, future studies will be needed.

## CITATION

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## DISCLOSURE STATEMENT

Dr. Quan consults for Global Corporate Challenge. Dr. Leonardo Roever has indicated no financial conflicts of interest.

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