



EDITORIAL

Comorbid insomnia and sleep apnea as a potential predictor of suicide and self-harm. Commentary on Udholm et al. Obstructive sleep apnea and risk of suicide and self-harm: a Danish Nationwide Cohort Study

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Insomnia and obstructive sleep apnea (OSA) are the two most common sleep disorders and frequently co-occur. Comorbid insomnia and sleep apnea (COMISA) is a highly prevalent condition that is associated with worse morbidity compared to insomnia-alone or sleep apnea-alone [1]. Indeed, up to 50% of people with OSA report co-occurring insomnia symptoms, including difficulties initiating sleep, maintaining sleep, and/or early morning awakenings from sleep, with associated daytime impairment [1]. People with COMISA also have increased depression prevalence and severity [2], worse sleep, and reduced quality of life [1], compared to people with OSA alone. A study by Choi et al. previously found that among 117 sleep clinic patients with untreated OSA, insomnia symptoms were positively associated suicidal ideation after controlling for age and gender [3].

Udholm et al. recently reported on the association between diagnosed OSA and risk of suicide and self-harm in a Danish Nationwide cohort [4]. Compared to age- and gender-matched people with no OSA diagnosis, people with a diagnosis of OSA had an increased risk of self-harm (composite variable), and death by suicide, over a mean follow-up of 12.5 years. Of interest, positive airway pressure (PAP) therapy appeared to moderate this association, with a trend for reduced risk of suicide, and a significant reduction in risk of self-harm among the diagnosed

group treated with PAP, compared to those without PAP. This research makes an important contribution to knowledge of relationships between sleep disorders and mental health, and raises important avenues of future scientific investigation to reduce the very high personal, societal and economic cost of sleep disorders, depression, self-harm, and suicide risk.

This study aligns with previous research investigating the association between depression, suicide risk, and clinical sleep disorders. For example, longitudinal associations between increasing severity of OSA and depression symptoms have been reported in the Wisconsin Sleep Cohort study [5]. Bishop et al. investigated US Department of Veterans Affairs electronic records and reported that sleep disorders (OSA, insomnia, and nightmares) are associated with increased suicide risk, and that treatment of sleep disorders may moderate this relationship [6]. The bidirectional association between insomnia and depression is well established in scientific literature [7]. Finally, randomized controlled trial data indicate that PAP therapy is associated with a reduction in depression symptoms in patients with OSA, with remission comparable to some antidepressants [8]. Of interest, the effect of PAP therapy on reducing depression appears to be independent of reductions in daytime sleepiness, and is strongest among people with preexisting depression [8].

The study by Udholm et al. highlights the importance of linking and investigating large-scale data to identify risk factors for suicide, associations with sleep disorders, and potential avenues for early prevention. There are several potential clinical characteristics and comorbidities of OSA that may contribute to the relationship between OSA, suicide risk, and self-harm. It is possible that the association between OSA and suicide reported by Udholm may have been moderated by symptoms of comorbid insomnia. Insomnia symptoms are a consistent risk factor for incident depression [9], and treating insomnia with cognitive behavioral therapy for insomnia (CBTi) has been found to reduce symptoms of both insomnia and depression [7]. Emerging evidence suggests that among people with COMISA, treating insomnia symptoms with CBTi improves insomnia symptoms and may increase subsequent acceptance and use of PAP therapy [1]. Given randomized controlled trial (RCT) evidence that both CBTi and PAP therapy independently reduce depression severity, the effect of combination CBTi and PAP therapy on reduction of suicide/suicidal ideation among people with COMISA is an important area for future research.

The study by Udholm et al. [4] stimulates several additional avenues for further investigation. Firstly, this work highlights the importance and utility of large-scale data-linkage exercises to improve understanding and prevention/management of health problems. Measuring and linking data on other comorbid conditions (e.g. insomnia, pain, depression, cardiovascular disease), sociodemographic information, and treatments/management approaches (non-PAP therapies, antidepressant medicines, etc.) would help to identify specific people at increased risk of suicide, and potential preventative measures/interventions. To help identify people with COMISA, and facilitate investigation of COMISA in future data-linkage exercises, sleep clinics could immediately implement standardized measures of insomnia (and circadian rhythm dysfunction) into baseline/intake questionnaire batteries. Secondly, there is a high rate of undiagnosed OSA in the general population. In addition to the association between suicide risk and diagnosed OSA reported by Udholm et al., future research should also investigate associations between undiagnosed OSA and mental/physical health problems, to account for the impact of symptomatic versus asymptomatic OSA, and any potential referral bias. Given the high cost of polysomnography, it may be possible to use self-report OSA-screening tools, or simple noninvasive wearable/nearable sleep monitors to identify people with probable OSA at scale. Noninvasive wearable/nearable measures may also provide opportunity for long-term monitoring, to avoid the potential for misclassification due to night-to-night variability during single-night polysomnography [10]. Finally, due to the large scale of many data-linkage activities, more granular data from overnight sleep studies is often overlooked. Incorporating fine-grained sleep study information such as apnea-induced sleep fragmentation, hypoxia, daytime sleepiness, cerebral gray matter structural changes, and metabolic abnormalities, all of which may be reversed by PAP therapy, may help identify the features of OSA that are most closely linked to depression and suicidal ideation.

We would like to thank Udholm et al. for this important report, which will promote further recognition of the importance of good sleep for positive mental health, and stimulate further research in the area of sleep disorders, mental health, and suicide risk.

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None declared.

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