EDITORIAL

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# Understanding obstructive sleep apnea

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## ABSTRACT

Obstructive sleep apnea (OSA) is defined by repeated episodes of partial or complete upper airway collapse, obstructing breathing during sleep. OSA is a dangerous health condition with high mortality and morbidity. Due to the rising prevalence of obesity, OSA is on the rise in developing countries. Nevertheless, the exact number of OSA prevalence among Indonesian people is unrecognized for several reasons; for instance, low awareness of sleep disorder issues, unawareness of the symptoms and impact of OSA, limited access to polysomnography examinations, and considering snoring as a common condition. Long-term health effects, decreased sleep quality, psychological issues, and cognitive impairment are all linked to untreated OSA. Nurses can contribute to the management of OSA by conducting screening and assessment, providing health promotion to patients, and coordinating with other healthcare providers. This paper explores the prevalence of OSA, society's perception of OSA, diagnostic or screening procedures, and treatment options for the effective management of OSA.

**Keywords**: obstructive sleep apnea; OSA; perception; polysomnography; sleep; sleep-disordered breathing

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Obstructive sleep apnea (OSA) manifests repetitive episodes of partial and complete airway obstructions during sleep, resulting in repeated breathing pauses, oxygen desaturation, and awakening from sleep (Franklin & Lindberg, 2015; Rundo, 2019). OSA is one of the most frequent types of sleep-related breathing disorders (SRBD) or sleep-disordered breathing (SDB), while another type is central sleep apnea (CSA) (Aini, Chu, et al., 2023), which is caused by a lack of brain signals controlling breathing (Newsom & Singh, 2023). OSA can reduce sleep quality and trigger various health problems (e.g., coronary artery disease, atrial fibrillation, congestive heart failure, metabolic diseases, inflammation, atherosclerosis, etc.) and psychological problems (i.e., depression and anxiety) (Ralls & Cutchen, 2019; Walia, 2019). Additionally, OSA negatively impacts excessive daytime sleepiness, cognitive impairment, poor quality of life, inattention, fatigue, and drowsy driving,

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increasing the risk of accidents and medical disability (Walia, 2019).

The precise number of prevalence OSA in Indonesia is unknown due to the limited research on OSA, limited health facilities or hospitals that conduct polysomnography tests, and the high price for this examination (Aini, Marta, et al., 2023; Fardizza, 2021); therefore, more research is needed for accurate data (Fardizza, 2021). A study by Susanto (2016) found that 17.2% (16 respondents) of 93 police officers were suspected of OSA; Mastan (2014) found from 55 people, 31% of patients suffered from OSA, and they had a body mass index of obesity and pre-obesity. Most Indonesian people are unaware of the symptoms and impact of OSA, especially those who sleep alone, and no one pays attention to the intensity of snoring; thus, few people see a doctor regarding their OSA complaints (Fardizza, 2021). Indonesian society also has a low awareness of sleep disorder issues, and snoring is considered a usual condition (Suleha, 2019). Moreover, a qualitative study by Aini, Marta, et al. (2023) discovered participants' perceptions of OSA as a common complaint, their belief that OSA does not pose a health risk, and their lack of action to reduce OSA symptoms. Indeed, snoring during sleep does not necessarily indicate obstructive sleep apnea (OSA). However, someone should be alert if the snoring sounds loud and is followed by brief pauses in breathing (Suleha, 2019).

A diagnosis of OSA is made by assessing the number of apneas and/or hypopneas per hour of sleep, which is measured using polysomnography (Ralls & Cutchen, 2019). Polysomnography is the gold standard diagnostic of OSA, but it has limited availability, is time-consuming, expensive, and requires trained personnel (Amra et al., 2018). Alternatively, simple and low-cost screening questionnaires, for instance, Berlin questionnaire (BQ), STOP-Bang Questionnaire (SBQ), STOP Questionnaire (SQ), and Epworth Sleepiness Scale (ESS) can be used (Amra et al., 2018). However, according to a systematic review by Amra et al. (2018), SQ and SBQ are reliable tools with the highest sensitivity for OSA screening. OSA is defined when the apnea-hypopnea index (AHI) is ≥5 (Franklin & Lindberg, 2015). OSA symptoms can appear both during the day and at night; symptoms at night include snoring, tossing and turning during sleep, experiencing a sudden urge to urinate upon waking, breathing through the mouth while sleeping, and fragmented sleep. In contrast, daytime symptoms of sleep apnea comprise waking up feeling tired, experiencing daytime sleepiness, frequent fatigue, morning headaches, dry or sore throat, problems with memory or impaired intelligence, impotence or decreased sex drive, and mood disturbances (Newsom & Singh, 2023; Rundo, 2019). Snoring is one of the most common symptoms of OSA during sleep, while common daytime symptoms are fatigue and excessive daytime sleepiness (Rundo, 2019).

In developing countries, obesity impacts increasing OSA prevalence (Benjafield et al., 2019). The public health impact of sleep apnea is significant, and it is predicted to become more pronounced over the next two decades. The rising rates of obesity and the rising incidence of chronic illnesses are linked to the increased prevalence of this condition (Kaufmann et al., 2017). Additionally, there is generally a lack of awareness of OSA in developing countries; diagnostic and treatment options are also often unavailable (Benjafield et al., 2019; Jehan et al., 2018). The prevalence of OSA was estimated to be higher in more recent population-based studies, ranging from 5% to 23% for women and 14% to 50% for men (Balagny et al., 2023). in the United States with OSA, it is estimated that 82% of men and 93% of women with OSA are undiagnosed since OSA is highly underrecognized (Rundo, 2019).

Both unmodifiable and modifiable factors affect the risk of OSA. Unmodifiable risk factors include race, age, and male sex (Rundo, 2019). Males show greater upper airway collapsibility than women; this is correlated with males having longer airways and larger volume of soft tissues on the lateral pharyngeal walls (Kim & Taranto-Montemurro, 2019). Slow-wave sleep, or deep sleep, which protects against SDB and airway collapse, may be reduced with aging, which increases the risk of OSA (Rundo, 2019). The Sleep Heart Health Study found a slightly increased risk of moderate to severe OSA in American Indians (23%) and blacks (20%) than in whites (17%). Differences in the OSA prevalence among racial groups may be related to variations in craniofacial anatomy (Rundo, 2019). In addition, modifiable risk factors consist of obesity, muscle-relaxing drugs and narrowing of the airway (alcohol, opiates, benzodiazepines), medical comorbidities, smoking, and nasal obstruction (Rundo, 2019). Obesity decreases the airway diameter and lowers lung and chest wall

compliance (Aini, Chu, et al., 2023). OSA is linked with several medical comorbidities, for instance, hypertension, stroke, atrial fibrillation, myocardial infarction, congestive heart failure, hyperlipidemia, glucose intolerance, diabetes, and depression (Rundo, 2019).

Effective OSA treatments comprise behavioral and lifestyle changes, medical devices, and surgery. Behavioral and lifestyle changes include abstinence from alcohol, regular aerobic exercise, weight loss, and avoiding a supine sleep position. Sleeping in a supine position reduces inspirational volume, creates an unfavorable airway geometry, and restricts muscles' ability to dilate the airway (Gottlieb & Punjabi, 2020; Panahi et al., 2021). Other positions are sleeping with head-up at a 30 to 60-degree angle and side sleeping. Sleeping in a head-up position can limit how much gravity pulls the tongue and other tissues into a position where they can block the airway (Fardizza, 2021; Pacheco & Singh, 2023). Additionally, side sleeping is more beneficial than back sleeping for reducing sleep apnea and significantly lowering breathing disturbances (Pacheco & Singh, 2023). Medical devices indicated for patients with AHI ≥15 events per hour of sleep; an example of these devices are positive airway pressure (PAP), continuous positive airway pressure (CPAP), and mandibular advancement device (MAD), which can be used for patients who do not tolerate CPAP. Moreover, surgery is often recommended for symptomatic patients unable to tolerate PAP therapy, CPAP or MAD (Gottlieb & Punjabi, 2020; Panahi et al., 2021).

Health professionals, especially nurses in OSA management, are vital in improving patients' sleep quality, reducing associated health risks, and enhancing overall well-being. Nurses can contribute to OSA management through various roles, such as screening, assessment, and health education. Moreover, effective management often requires a multidisciplinary approach to address the multiple aspects of the condition.

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*None*

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