

Original Research**Perceived Effectiveness, Self-efficacy, and Social Support for Oral Appliance Therapy Among Older Veterans With Obstructive Sleep Apnea**

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ABSTRACT

Purpose: Obstructive sleep apnea is a prevalent sleep disorder among older adults. Oral appliances are increasingly prescribed as therapy for obstructive sleep apnea. Adherence to oral appliance therapy is highly variable. Based on value-expectancy theory and other social-psychological theories, adherence to oral appliance therapy may be influenced by patients' perceived effectiveness of the therapy, self-efficacy, and availability of social support. We examined these perceptions among older adults with obstructive sleep apnea who were prescribed oral appliance therapy.

Methods: We mailed surveys to all patients aged ≥ 65 years who had been prescribed oral appliance therapy for obstructive sleep apnea over the prior 36 months at a Veterans Affairs medical center. We examined frequencies of responses to items that assessed perceived effectiveness, self-efficacy, and

social support for nightly use of oral appliances from friends, family, or health care staff.

Findings: Thirty-nine individuals responded (response rate, 30%; mean [SD] age 71.4 [SD 6.3] years; 97% male). Thirty-six percent of the respondents perceived regular use of oral appliance therapy to be effective in managing obstructive sleep apnea; 39% agreed that they felt confident about using oral appliances regularly; 41% felt supported by people in their life in using oral appliance therapy; and 38% agreed that health care staff would help them to use their oral appliance regularly. These rates represented less than half of respondents despite the finding that 65% of patients believed that they would use their oral appliance regularly.

Implications: Although oral appliance therapy is increasingly prescribed for obstructive sleep apnea, only about one third of older adults prescribed it

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perceived it to be an effective treatment, were confident about oral appliance use, and/or believed that they would receive needed support. Future research is needed to better understand older adults' perceptions so that interventions can be designed to improve the effectiveness of oral appliances, their self-efficacy for using oral appliances, and their social support for this therapy, which may, in turn, improve oral appliance therapy adherence. (*Clin Ther.* 2016;38:2407–2415) Published by Elsevier HS Journals, Inc.

Key words: attitude to health, oral appliance therapy, patient reported measures, sleep apnea syndromes.

INTRODUCTION

Obstructive sleep apnea is prevalent among older adults.¹ In a large, multicenter study, approximately one fifth of adults aged ≥ 65 years had sleep study findings consistent with obstructive sleep apnea.² Oral appliances are increasingly prescribed as therapy for obstructive sleep apnea. The most common types of appliances are mandibular advancement devices and tongue retaining devices.³ Mandibular advancement devices treat sleep apnea by advancing the mandible forward to expand airway size.³ Custom fabricated mandibular advancement devices are manufactured in a laboratory according to dental impressions and the dentist–prescriber's requested advancement positions. These devices are titratable, allowing for small adjustments/advancements of the mandible. Prefabricated devices are made in large quantity without a specific patient in mind and subsequently may be molded or shaped for a specific patient in a dental clinic setting. These prefabricated devices may also be titratable. Tongue retaining devices fit over the tongue and advance the tongue forward.³ Tongue advancement may be achieved through slight negative pressure in the lingual compartment of the device.⁴ Oral appliances are commonly used in lieu of a positive airway pressure device in the treatment of obstructive sleep apnea, particularly in patients unable to tolerate positive airway pressure due to conditions such as claustrophobia or in patients who prefer a smaller medical device that does not require electricity.³

Although positive airway pressure therapy is considered first-line treatment for obstructive sleep apnea, oral appliance therapy may be considered in those unable to

tolerate positive airway pressure therapy. A systematic review and meta-analysis of data on oral appliances for obstructive sleep apnea found that oral appliance therapy reduced the apnea–hypopnea index (AHI) by 7 events/h compared with control appliances.⁵ Several studies have compared oral appliance and positive airway pressure therapies, and one meta-analysis of data from those studies found that although both therapies reduced the AHI significantly, positive airway pressure devices produced a larger reduction in AHI than did oral appliances (25 vs 9 events/h)⁶ Another meta-analysis found that positive airway pressure devices decrease the AHI by 6 events/h and improved the oxygen nadir (lowest oxygen saturation value) by 2.9% compared with that in oral appliances.⁵ Oral appliance therapy may improve clinical outcomes such as blood pressure. A meta-analysis found that oral appliance therapy was associated with a 1.7–mm Hg decrease in diastolic blood pressure.⁷ Moreover, studies suggest that many patients who use oral appliances are satisfied with their therapy.⁸ These data support the use of oral appliances in those unable to tolerate positive airway pressure.

Similar to positive airway pressure therapy, patients who use oral appliances may experience side effects. The use of oral appliances may cause dry mouth, excessive salivation, discomfort, and malocclusion, which can be barriers to regular use of the oral appliances. Furthermore, because oral appliances for obstructive sleep apnea are removable, successful therapy requires that patients remember to reinsert the appliance nightly prior to sleep.³ Unfortunately, adherence to oral appliance therapy for obstructive sleep apnea is highly variable.^{9,10}

Consistent with value-expectancy theories of behavior (which posit that the importance and perceived outcomes of specific behaviors affect choice, persistence, and performance¹¹), adherence to oral appliance therapy is hypothesized to be more likely if patients perceive therapy to be effective, have social support from others (eg, encouragement and assistance from friends, family, and health care providers with adhering), and are confident that they can adhere.¹² Although an increasing number of older patients are being diagnosed with obstructive sleep apnea and prescribed oral appliance therapy, studies examining older patients' perceptions, self-efficacy, and social support for oral appliance therapy are lacking. These types of studies may be useful for

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