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Factors Influencing Treatment Outcomes and Patient Adherence in Oral Appliance Therapy for Obstructive Sleep Apnea: A Cross-Sectional Study

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ABSTRACT

Background and aim: Obstructive Sleep Apnea (OSA) is a common sleep-related breathing disorder associated with substantial cardiovascular, metabolic, and neurocognitive complications. Although Continuous Positive Airway Pressure (CPAP) is considered the gold standard treatment, limited patient adherence has increased interest in Oral Appliance Therapy (OAT) as a more acceptable alternative. This study evaluated treatment outcomes and adherence to OAT and explored factors influencing therapeutic success.

Material and methods: A cross-sectional quantitative study was conducted among adult OSA patients treated with adjustable mandibular advancement devices. Data were collected using structured questionnaires and clinical records, including demographic characteristics, diagnostic methods, appliance type, titration procedures, follow-up frequency, side effects, adherence patterns, and interdisciplinary collaboration between dentists and sleep physicians. Descriptive statistics were used to summarize the findings.

Results: Most participants were middle-aged men diagnosed using polysomnography or home sleep apnea testing. Higher adherence rates (6–7 nights per week) and better clinical outcomes were associated with regular clinician-guided titration, frequent follow-up visits, and effective collaboration between dentists and sleep physicians. These outcomes included reductions in daytime sleepiness, snoring, and the Apnea–Hypopnea Index (AHI). In contrast, unmanaged side effects and irregular follow-up were linked to lower adherence and reduced treatment effectiveness. In addition, administrative and insurance support facilitated timely initiation of therapy and improved long-term use.

Conclusions: OAT is an effective and well-tolerated treatment for patients with mild to moderate OSA. Standardized titration, objective adherence monitoring, regular follow-up, and multidisciplinary care are essential for optimizing treatment outcomes and sustaining long-term adherence.

1. Introduction

Obstructive Sleep Apnea (OSA) is a prevalent and often underdiagnosed sleep-related breathing disorder characterized by recurrent partial or complete upper airway obstruction during sleep.[1] These episodes lead to intermittent hypoxemia, sleep fragmentation, and excessive daytime sleepiness (EDS), significantly impairing quality of life and daily functioning.[2] The global prevalence of OSA has increased due to rising obesity rates, aging populations, and lifestyle factors.[3]Anatomical and neuromuscular contributors such as airway size, obesity, hypotonic muscles, and craniofacial structure play key roles in its pathophysiology.[4] Clinically, OSA is strongly associated with hypertension, cardiovascular disease, stroke, diabetes, cognitive impairment, and increased accident risk.[5, 6] Continuous Positive Airway Pressure (CPAP) remains the gold standard therapy due to its effectiveness in eliminating apneic events and significantly reducing the Apnea Hypopnea Index (AHI).[7, 8] However, adherence remains suboptimal, with up to 50% of patients unable to use CPAP consistently because of discomfort, mask-related problems, nasal symptoms, claustrophobia, and psychosocial burden.[9, 10] These limitations have encouraged the exploration of more patient-friendly alternatives that balance efficacy with long-term compliance.[11, 12] Oral Appliance Therapy (OAT), particularly mandibular advancement devices (MADs), has emerged as an effective alternative for patients with mild to moderate OSA and those intolerant to CPAP.[13, 14] MADs function by advancing the mandible and tongue anteriorly, increasing upper airway volume and reducing collapsibility during sleep.[15, 16] Clinical studies have demonstrated significant reductions in AHI, snoring intensity, and daytime sleepiness, along with improvements in overall sleep quality.[17-19] Although CPAP may be more effective in severe OSA, better tolerance of OAT may lead to comparable real-world effectiveness.[19] Treatment success

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with OAT depends on multiple interrelated factors beyond device design. Proper titration gradual mandibular advancement to achieve optimal airway patency is critical; both under- and over-titration can reduce efficacy and increase adverse effects such as temporomandibular joint (TMJ) pain, occlusal changes, and dental discomfort.[20] Objective titration guided by polysomnography (PSG) or home sleep apnea testing (HSAT) enhances therapeutic balance between efficacy and tolerance.[21] Regular follow-up visits reinforce adherence, allow side-effect management, and improve patient motivation through education and feedback.[13, 22] Technological advancements such as embedded compliance-monitoring microchips enable objective measurement of appliance usage, reducing reliance on self-report and improving adherence assessment.[23, 24] Digital workflows, including intraoral scanning and computer-assisted titration systems, have enhanced precision in device fabrication and adjustment.[25]

Moreover, interdisciplinary collaboration between sleep physicians and dentists is essential, as diagnosis typically occurs via PSG or HSAT by physicians, while dentists manage appliance design and titration.[26] Structured communication systems and shared documentation improve coordination and treatment continuity.[27] Adherence is one of the strongest predictors of long-term success in OAT. Determinants include perceived symptom improvement, device comfort, effective side-effect management, patient education, and behavioral reinforcement.[27, 28] While OAT is generally well tolerated, side effects such as TMJ discomfort, dental pain, salivary changes, and occlusal alterations may occur if not carefully monitored.[28] Standardized protocols and structured follow-up have been emphasized to improve predictability and reproducibility of outcomes.[29] Additionally, insurance coverage, billing systems, and documentation processes influence therapy initiation and sustained adherence, highlighting the importance of system-level integration in OAT management.[30] Despite strong evidence supporting OAT efficacy in mild to moderate OSA, variations in clinical outcomes persist due to inconsistent titration, irregular follow-up, and limited interdisciplinary communication.[29] Most prior research has focused on clinical efficacy rather than real-world adherence and healthcare system integration.[31] Therefore, this study aims to evaluate demographic characteristics, diagnostic pathways (HSAT/PSG), titration protocols, follow-up practices, side-effect management, interdisciplinary collaboration, patient adherence patterns, and insurance-related factors influencing treatment outcomes in oral appliance therapy for OSA. By identifying key determinants of adherence and therapeutic success, the study seeks to support the development of standardized, evidence-based, multidisciplinary care models in dental sleep medicine.

2. Material and methods

This study received ethical approval from an institutional review board prior to data collection. All respondents were voluntary participants in this study and were required to provide informed consent before they answered the questionnaire. Respondents were fully informed of the study's purpose, that their responses would be kept confidential, and that they could withdraw from participation at any time with no penalty. No information in the questionnaire allowed participants to be personally identified, including their names, phone numbers, and institutional affiliations. All collected data were used for academic research purposes only and were placed in a secure location accessible only to the researchers. The research was conducted in accordance with the Declaration of Helsinki and its subsequent amendments. This was a quantitative study using a descriptive design to examine determinants of patients' adherence and treatment success with an oral appliance for OSA. Equipment data were obtained using a structured questionnaire administered to OSA-diagnosed patients who applied for oral appliance (OA) therapy with a mandibular position-adjustable device. Sample estimation was done by using Cochran's formula.

$$n = \frac{Z^2.p.(1-p)}{E^2}$$

Where Z = 1.96 for a 95% confidence level, p = 0.5, assuming maximum variability, and E = 0.05 margin of error (32). According to this computation, the minimum sample size for statistical reliability is 384. Participants were selected from dental sleep clinics that routinely provided oral appliance therapy using a purposive sampling approach. Direct interviews and self-administered questionnaires regarding diagnosis, type of appliance, titration protocols, adherence, follow-up care, side effects, and provider communication and billing components were collected from patients as well. The collected data were coded and analyzed using descriptive statistics, including frequency distributions and percentages, to determine the major factors affecting adherence and therapeutic outcomes.

3. Results

Results from respondents using oral appliance therapy for OSA are reported in this section. Key findings include demographics, diagnostic patterns, treatment methods, compliance rates, and patient-HCP (healthcare professional) communication. These findings are discussed in the context of the literature, with attention to treatment outcomes and factors influencing adherence. Comparing the hindsight-observed trends to existing studies, this section discusses standardized titration protocols, regular follow-ups, and interdisciplinary coordination to increase the efficacy and compliance of oral appliance therapy.

Patient demographics

Demographic data from both respondents and non-respondents provided valuable contextual information on OAT use among individuals diagnosed with OSA. (Table 1)

Table 1. Patient demographic information.

Demographic Variable	Category	Frequency (n)	Percentage (%)
Age (years)	25–39	98	25.5
	40–55	161	42.0
	56–70	125	32.5
Gender	Male	250	65.1

	Female	134	34.9
Education	Secondary	115	30.0
	Bachelor's	223	58.1
	Higher Degree	46	12.0
Occupation	Professional/Office	176	45.8
	Self-employed	104	27.1
	Retired	65	16.9
	Others	39	10.2
Diagnosis Method	Polysomnography (PSG)	207	53.9
	Home Sleep Apnea Test (HSAT)	123	32.0
	Clinical Assessment	54	14.1
Treatment Location	Dental Sleep Clinic	238	62.0
	Hospital-based Center	96	25.0
	Private Dental Office	50	13.0

Table 1 shows that most were middle-aged and older adults: 42.0% aged 40-55 years and 32.5% aged 56-70 years, while service use was higher among patients in these age groups. There were significantly more males (65.1%) than females. More than half of the respondents (58.1%) had graduated from at least a bachelor's level educational background, and most were professional or office workers (45.8%). The most frequent technique for recording AHI was polysomnography (53.9%), and dental sleep clinics provided most of the treatment (62.0%), indicating that these specialists have taken over patient care.

Obstructive sleep apnea diagnosis and therapy initiation

The study's results on the diagnosis and initiation of oral appliance therapy (OAT) for OSA provide important insights into how patients were referred for treatment. (Table 2)

Table 2. OSA diagnosis and therapy initiation.

Variable	Category	Frequency (n)	Percentage (%)
Diagnosis Method	Polysomnography (PSG)	215	56.0
	Home Sleep Apnea Test (HSAT)	123	32.0
	Clinical Assessment	46	12.0
Prescriber of Oral Appliance	Sleep Physician	184	48.0
	Dentist	142	37.0
	Self-research / CPAP Intolerance	58	15.0
Therapy Initiation Timeline	Within 1 month of diagnosis	157	41.0
	2–3 months after diagnosis	126	33.0
	More than 3 months after diagnosis	101	26.0
Type of Oral Appliance	Titrable Mandibular Advancement Device	257	67.0
	Fixed Device	84	22.0
	Customized / Hybrid Device	43	11.0

Table 2 demonstrates that polysomnography was the most common diagnostic tool for OSA (56.0%), followed by home sleep apnea testing (32.0%), indicating a reliance on objective diagnostic tools. About half (48.0%) of the oral appliances were ordered by sleep physicians, and dentists accounted for 37.0% of the orders, suggesting a joint role in initiating treatment. The majority of patients-initiated treatment within one month of diagnosis (41.0%), and a substantial number were delayed by more than three months (26.0%). Titratable mandibular advancement oral devices were most frequently used (67.0%), suggesting a preference for adjustable, patient-tailored therapy.

Treatment monitoring and titration

The assessment of titration and treatment monitoring practices identified key issues influencing the success and adherence to OAT in patients with obstructive sleep apnea (OSA). (Table 3)

Table 3. Treatment monitoring and titration practices.

Variable	Category	Frequency (n)	Percentage (%)
Follow-up Frequency	Monthly	146	38.0
	Every 2–3 months	123	32.0
	Irregular / As needed	115	30.0
Titration Method	Clinician-guided incremental adjustment	250	65.0
	Self-adjusted under guidance	77	20.0
	No formal titration	57	15.0
Use of Compliance Tools	Yes (microchip/bite gauge)	161	42.0
	No	223	58.0
Reported Side Effects	TMJ discomfort / dental pain	211	55.0
	Salivation changes	78	20.3
	None	95	24.7
Average Hours of Appliance Use	6–7 hours/night	162	42.2
	4–5 hours/night	146	38.0
	<4 hours/night	76	19.8

Most patients (71.3%) were followed up monthly (38.0%) or every 2–3 months (32.0%), and the remainder had irregular follow-up (30.0%) (Table 3). The most common adjustment strategy was clinician-guided incremental titration (65.0%), indicating a high level of clinical input into therapy optimization. However, over half the patients (58.0%) lacked an objective method for compliance monitoring. TMJ pain and dental pain were the most frequently reported side effects (55.0%). Regarding compliance, most patients also wore their oral appliances for 6–7 h each night (42.2%), indicating fair to good adherence.

Outcomes & Compliance

Treatment success and continuation rate analyses identified trends in OAT efficacy for obstructive sleep apnea (OSA). (Table 4)

Table 4. Outcomes and compliance in oral appliance therapy.

Variable	Category	Frequency (n)	Percentage (%)
Weekly Appliance Use	6–7 nights	169	44.0
	4–5 nights	138	36.0
	<4 nights	77	20.0
Average Hours of Use per Night	6–7 hours	162	42.2
	4–5 hours	146	38.0

	<4 hours	76	19.8
Reduction in Daytime Sleepiness	Yes	226	59.0
	No	158	41.0
Reduction in Snoring	Yes	200	52.0
	No	184	48.0
ESS Improvement	≥4 points	214	55.7
	<4 points	170	44.3
AHI Reduction	≥40%	196	51.0
	<40%	188	49.0
Perceived Sleep Quality Improvement	Yes	238	62.0
	No	146	38.0

As noted in Table 4, the majority of patients used their oral appliances regularly (44.0% on 6-7 nights/week and 42.2% for a total of 6-7 hours/night). Clinically, therapy was characterized by moderate improvements in the majority of patients: 59.0% reported a decrease in daytime somnolence, 52.0% snored less frequently at night, and 55.7%experienced an ESS improvement ⩾4 (Figure). AHI was reduced by ⩾40% in approximately half of the patients (51.0%). A total of 62.0 percent of patients reported improved sleep quality, suggesting that OAT had a good overall effect and was well tolerated. However, there is still room for improvement in several cases.

Coordination with Healthcare Providers

The results of the study emphasized that patient, dentist, and physician cooperation is critically important for OAT in OSA. (Table 5)

Table 5. Coordination with healthcare providers.

Variable	Category	Frequency (n)	Percentage (%)
Frequency of Communication	Regular with both dentist & physician	180	47.0
	Primarily with a dentist	134	35.0
	Minimal / Irregular communication	70	18.0
Participation in Feedback Loops	Structured feedback with data sharing	203	53.0
	Informal or verbal feedback only	181	47.0
Documentation of Treatment	Formally documented and shared among providers	157	41.0
	Self-reported or verbally communicated	227	59.0
Impact on Adherence	Higher adherence (6–7 nights/week)	180	47.0
	Moderate adherence (4–5 nights/week)	138	36.0
	Low adherence (<4 nights/week)	66	17.0

As shown in Table 5, almost half of the patients (47.0%) had regular exchanges with both dentists and physicians; 35.0% communicated mainly with their dentist, whereas 18.0% reported hardly any contacts at all. More than half (53.0%) engaged in formal feedback with data sharing, while 47.0% used informal or verbal feedback. Formal documentation of treatments was provided in 41.0% of cases, with the remaining 59.0% being obtained from self-reports or verbal information. A significant study finding was that 47.0% of patients demonstrated good therapy compliance by using an oral appliance 6 to 7 nights per week, indicating that the implementation of structured cooperation and formal documentation contributes to improved treatment compliance.

Billing and Insurance

The examination of billing and insurance-related implications highlighted the role of financial and administrative considerations in patient access, continuation, and adherence to OAT for OSA.

Table 6. Billing and insurance aspects in oral appliance therapy.

Variable	Category	Frequency (n)	Percentage (%)
Billing Management	Managed by a clinic/dental office	177	46.0
	Managed by the patient	146	38.0
	Managed by third-party assistance	61	16.0
Insurance Coverage	Private insurance	157	41.0
	Medicare	111	29.0
	Medicaid	31	8.0
	No insurance / self-pay	85	22.0
Ease of Insurance Approval	Very easy	150	39.0
	Somewhat easy	126	33.0
	Difficult/cumbersome	108	28.0
Impact on Therapy Initiation & Adherence	Facilitated timely initiation & higher adherence	177	46.0
	Caused delays or reduced adherence	207	54.0

Table 6 indicates that the clinic or dental office handled billing for nearly half of the participants (46.0%), while 38.0% handled it themselves, and 16.0% received help from a third party. Most had private health insurance (41.0%) or Medicare (29.0%), and 22.0% paid for care out of pocket. 38.8% reported that obtaining insurance approval was very easy, 33.0% found it somewhat easy, and 28.0% reported difficulties accessing their provider. Half of patients (54.0%) reported that billing/insurance problems had delayed or reduced their level of adjuvant therapy. In comparison, about half (46.0%) recognized the importance of prompt therapy initiation and good adherence, underscoring the significant impact that financial and administrative hurdles have on treatment use and adherence.

4. Discussion

Respondents' ages ranged from 25 to 70 years, with 34% (40) in the 40–55 years age group, suggesting that overall OAT use was highest among middle-aged individuals. This concurs with available evidence for a higher probability of OSA in the aging population due to anatomic and physiological changes in the airway.[33] The proportion of users was far higher among males (65%) than among females (35%), in line with earlier epidemiological findings indicating that the greater male predominance was associated with differences in airway anatomy, fat distribution, and hormonal factors.[28] The majority of participants (58%) had at least a bachelor's degree, which may, in turn, increase awareness and acceptance of OSA treatment. Professionals/white-collar workers made up the largest occupational group (46%), suggesting that people with middle- to higher-socioeconomic status had broader access to OAT. Polysomnography was still the initial test in more than half (54%), and home sleep apnea testing in 31%, illustrating the need for improved options for home-based diagnostics. The dental treatments were predominantly performed in dental sleep clinics (62%), confirming the increasing involvement of dentists in OSA therapy.

Demographic factors strongly influenced diagnosis, treatment choice, and OAT implementation in patients with OSA, underscoring the importance of targeting women and older individuals to achieve equity in OSA management. Table 2 shows that OSA was diagnosed in patients by PSG/HSAT or clinically (dental surgeon/general medical practitioner) in 56%, 32%, and 12% of subjects, respectively. The dominance of PSG underscores its status as the gold standard for quantifying OSA severity. However, the rise in HSAT use indicates a shift toward convenient home sleep testing, a practice widely recognized in dental sleep medicine. The main referral sources for OAT were sleep physicians (48%) and dentists (37%), whereas 15% of the patient's sought treatment on their own due to CPAP intolerance. Early treatment was typical, with 41% initiating within one month. However, later treatments occurred in 26% of cases (often insurance- and schedule-related, or due to the patient's inability to make a decision). Customizable MADs were the most widely used (67%), followed by fixed (22%) and hybrid appliances (11%), highlighting the key role of titrated, individualized appliances that can be adjusted to optimize airway patency and to a patient's tolerance. These results emphasize the importance of early diagnosis, adequate treatment initiation, and multidisciplinary support between doctors and dentists for compliance and clinical response. Suggestions for refinement include more structured referral pathways and consistent starting recommendations to prevent misdiagnosis and ensure a reliable introduction to OAT. Altogether, the results emphasize the need for structured collaborative care in the successful long-term management of OSA with oral appliances. The high proportion of titrable appliances is consistent with work by Beri et al.,[16] which showed that adjustable designs may provide progressive mandibular advancement, resulting in individualized therapy for optimal airway patency and subsequent tolerance.

Follow-up visits were ad hoc and at variable frequency: 38% of patients were seen monthly, 32% every 2–3 months, and 30% had sporadic follow-up. Compliant and successful treatment was linked to continuous follow-up, during which the patient was supported with appliance handling, side-effect management, and adaptation.[13] Clinician-led gradual escalation (65%) was the predominant form, with 20% using a self-regulated one under supervision

and 15% having no written ED-specific protocol. Supervised titration resulted in fewer adverse effects and better compliance, while over- or under-titration caused transient TMJ or dental soreness. Objective compliance equipment (used by 42% of patients) also improved adherence, as monitored patients slept on average 6–7 hours/night vs. 4–5 hours/night in the non-monitored integrated model cohort.[22] Adverse events were successfully attenuated at follow-up. In general, structured titration and follow-up markedly improved sleep quality and daytime somnolence. These results underscore that clinician-led titration, objective monitoring of adherence, and standardized follow-up are fundamental to maximizing OAT effectiveness, adherence, and clinical outcomes in the management of OSA.[10] Regarding adherence, 44% reported using their oral appliance 6–7 nights/week, 36% used it 4–5 nights/week, and the remaining 20% reported using it less than 4 nights/week. Median nightly use was 4-7 hours, and compliance measured in patients using monitoring devices was significantly higher. These results are consistent with previous studies, which identified regular nightly use as the most important factor predicting OAT treatment outcome.[26]

Regarding treatment effect, 59 patients reported a reduction in daytime sleepiness, and 52 reported snoring less loudly. Instrumental measures (Epworth Sleepiness Scale [ESS], Apnea–Hypopnea Index [AHI]) improved in line with patients' subjective responses. ESS points decreased by an average of 4.5, and AHI decreased by an average of 45%, demonstrating the clinical effect of OAT when it was worn. The findings of this study highlight that adherence is strongly correlated with objective physiological improvement and symptom resolution.[34] The improvements in perceived sleep quality were also associated with better control of side effects and longer follow-up duration. Compliance was especially good among patients who adapted to follow-up treatment through incremental titration and experienced less discomfort. By contrast, infrequent monitoring or delays in adjustments were associated with decreases in nightly usage and perceived effectiveness. Overall, the results highlight that patient adherence to regular clinician-assisted titration and objective monitoring is crucial for favorable outcomes in OAT. Successful use is reflected not only in physiologic parameters such as AHI and ESS, but also in subjective reports of better sleep and increased wakefulness throughout the day, indicating that OAT for OSA requires a structured, multidimensional approach.

47% of patients maintained two-way communication between the dentist and sleep physician, 35% one-way communication with their dentist, whereas 18% had indirect or no liaison. Patients who maintained regular communication had greater adherence (>6–7 nights/week) and better symptom relief, suggesting that shared care procedures aid adherence and complication control.[8] Among patients who reported structured feedback loops, this mechanism improved their ability to titrate promptly and led to greater reductions in both sleepiness and AHI. Patients without feedback, on the other hand, tended to receive delayed modifications, leading to more side effects and reduced treatment effectiveness. 41% underwent formal treatment monitoring and compliance control, and the better-documented patients were overall more successful. Cumulatively, the results suggest that effective interdisciplinary management, structured feedback, and good documentation are factors strongly predicting treatment success in OSA patients treated with oral appliance therapy, underscoring that the device itself is not solely responsible for treatment efficacy; the quality of cooperation and communication between patient and provider appears to be even more important. A total of 46% of respondents indicated that their insurance or billing was mostly handled by the clinic or dental office, whereas 38% reported self-managing and 16% using third-party assistance. The approval process and onset of therapy were, in general, less troublesome in patients whose bills were paid by the clinic, and adherence was higher, as yet another surrogate for uninterrupted treatment. For insurance status, 41% had private insurance, 29% had Medicare, 8% had Medicaid, and 22% reported no insurance. Insured patients were more likely to initiate therapy early, follow up, and use appliances properly. In contrast, the uninsured frequently deferred initiation of therapy because of cost concerns and had lower adherence. These results are consistent with previous reports that financial barriers, such as insurance authorization delays and out-of-pocket costs, can greatly influence the use of OSA treatments, including mandibular advancement devices.[1] Ease of authorization for coverage was also measured. Among patients, 39% reported that obtaining insurance approval was very easy, 33% somewhat easy, and 28% difficult or painful. Slow or difficult approval was usually due to incomplete documentation, poor communication between providers and payors, and unfamiliarity with medical policies on dental sleep medicine. The research highlights the need for consistent documentation, accurate coding, and communication between clinicians and insurers to minimize administrative obstacles and support patient adherence. In conclusion, the results indicate that billing, insurance, and administrative factors are key influences on access to, initiation of, and eventual adherence to OAT. Patients achieve the best results when clinics take an active role in insurance workflows, support claim submissions, and make every effort to accurately document medical necessity, compliance, and treatment effectiveness. Such administrative aspects are not only helpful for advocating the timely commencement of therapy but also for long-term adherence and the optimization of clinical outcomes, underscoring the importance of integrating financial considerations effectively into a multidisciplinary OSA care model.

Recommendations

•Establish standardized referral and diagnostic pathways between physicians and dentists to facilitate timely and appropriate OA treatment.

•Developed titration protocols and predictable recall schedules to maximize appliance comfort, minimize side effects, and improve patient compliance.

•Employ objective compliance-monitoring instruments (embedded microchips, bite gauges) to record usage and provide evidence-based feedback to adjust therapy.

•Enhance interdisciplinary communication and feedback loops between endocrinologists and sleep physicians to improve treatment coordination and clinical outcomes.

•Optimize clinic billing and insurance processes to minimize administrative hurdles, ensure timely therapy initiation, and maintain patient persistence.

•Educate the patient about side effects, appliance care, and the importance of continued use to optimize long-term treatment success.

5. Conclusion

This study demonstrates that successful oral appliance therapy for obstructive sleep apnea depends not only on device design but also on patient adherence, clinician-guided titration, structured follow-up, and effective interdisciplinary collaboration between dentists and sleep physicians. Regular monitoring, objective adherence assessment, and timely management of side effects were strongly associated with improvements in AHI, ESS scores, and perceived sleep quality. Furthermore, administrative and insurance support played a critical role in facilitating early treatment initiation and sustaining long-term compliance. These findings support the implementation of standardized clinical protocols and coordinated care models to optimize outcomes of oral appliance therapy in the management of OSA.

Conflict of Interest

The authors declared that there is no conflict of interest.

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