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Original Research Article

Sleep of edentulous patients: A survey study among wearers of removable complete dentures in the institute of dentistry and stomatology of Dakar

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Abstract

Background/Aim: Orofacial changes associated with complete edentulism can affect the sleep quality of edentulous patients. This study aimed to evaluate the quality and quantity of sleep from removable complete denture wearers rehabilitated at the Institute of Odontology and Stomatology in Dakar.
Materials and Methods: This cross-sectional descriptive study utilized the Spiegel Sleep Questionnaire. Sociodemographic parameters (such as sex, age, and occupation) and various sleep-related variables were observed, including time to fall asleep, sleep quality, sleep duration, nocturnal awakenings and dreams, and morning fitness. Statistical analysis was conducted using Sphinx version 5 and IBM SPSS Statistics version 25.
Results: A total of 40 patients (57.5% male) participated in the survey, with a mean age of 62.3 ± 9.6 years. Among them, 65% reported falling asleep briefly or very briefly, and 87.5% of the patients stated that they either slept perfectly well or had good sleep. More than half of the participants (65%) reported sleeping for a long or very long duration. The majority (80%) rarely or never experienced nocturnal awakenings and reported having few or no dreams. Furthermore, 60% of patients reported feeling refreshed in the morning, and an average SPIEGEL score of 23.3 ± 3.7 was recorded. No significant association was found between sleep parameters and factors such as sex or age.
Conclusion: This study indicates that entirely edentulous individuals tend to fall asleep quickly and enjoy good quality sleep, waking up refreshed and in good condition.

Keywords: Edentulism, Sleep quality, Sleep apnea.

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1. Introduction

Many disruptions affecting the craniofacial area and surrounding soft tissues are associated with complete edentulism. These conditions have been shown to result in upper airway restriction, leading to the onset of respiratory disorders during sleep.[1-3] Bucca and co[1-4] concluded that a decrease in the vertical dimension of occlusion, responsible for narrowing the retropharyngeal space and/or hypotonicity of the pharyngeal muscles in edentulous individuals, can lead to airway collapse.

This phenomenon may increase the risk of developing obstructive sleep apnea (OSA), characterized by abnormally frequent episodes of complete (apnea) or partial (hypopnea) obstruction of the upper airways during sleep.

In addition to the sleep disturbances related to complete edentulism highlighted in the literature, Emami and co[5] demonstrated adverse effects on affected individuals well-being and quality of life. This study aimed to evaluate, in a subjective manner, the sleep quality of completely edentulous patients who had undergone rehabilitation with complete removable dentures at the Institute of Odontology and Stomatology (IOS) of Dakar.

2. Materials and Methods

This cross-sectional study was conducted in total edentulous patients who underwent rehabilitation with removable complete dentures (RCD) between March and July 2023.

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Participants were recruited exhaustively based on their clinical records. The study population included voluntary, consenting patients of both genders deemed suitable for RCD rehabilitation following a thorough examination by faculty members in the prosthodontics section. Patients who had previously received RCD, those with chronic respiratory diseases, individuals who had undergone upper airway surgeries, those unable to complete the questionnaire, and patients on anxiolytic or antidepressant medications were excluded from the study.

The variables studied were sociodemographic (age, sex, occupation) and related to sleep analysis (quality and quantity). Data collection used the Spiegel questionnaire,[6] which rates sleep on a scale of 0 to 30. A Spiegel score of less than 15 indicates poor quality sleep, while a score of more than 20 characterizes good quality sleep. The questionnaire was physically administered to patient or by telephone, and all personal information collected is confidential and processed based on anonymity. Data entry and analysis were carried out using Sphinx® version 5 and IBM® SPSS Statistics version 25. The Chi-2 test was used, and the risk of error was set at 5%.

3. Results

The sample consisted of 40 patients, 57.5% of whom were men, resulting in a sex ratio of 1.35. The mean age of the participants was 62.3 years, with a standard deviation of 9.6 years, and ages ranged from 34 to 85 years (**Table 1**). Among the sample, 60% reported being engaged in professional activities

Concerning sleep characteristics, 65% of patients reported falling asleep quickly, either in a short or very short time (**Figure 1**). Additionally, 87.5% of patients indicated that they either slept well or very well (**Figure 2**). Furthermore, 65% of the patients described their sleep duration as long or very long (**Figure 3**), and 80% reported rarely or never waking up during the night (**Figure 4**). Notably, 67.5% of the participants stated that they had no dreams at all (**Figure 5**). In the morning, 60% of the sample felt that they were in good shape (**Figure 6**).

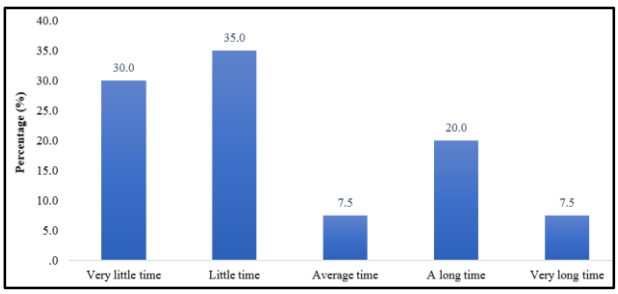

Figure 1: Distribution of sample according to sleep time

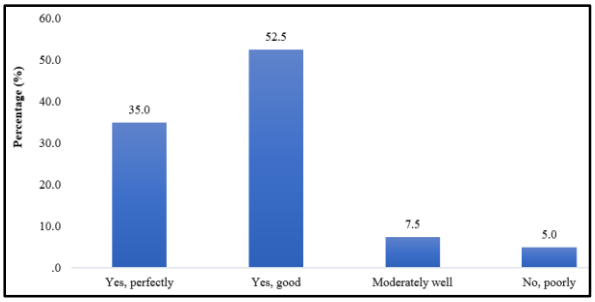

Figure 2: Sample distribution by sleep quality

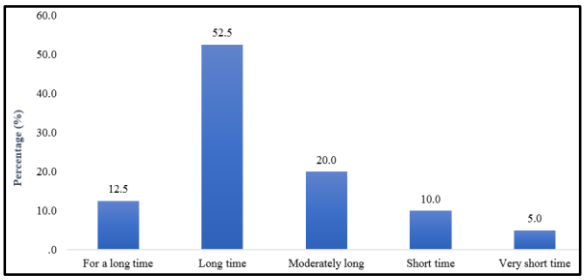

Figure 3: Sample distribution by sleep duration

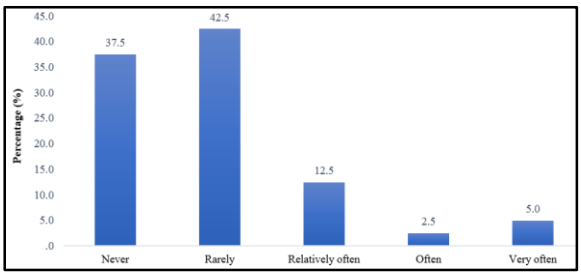

Figure 4: Sample distribution according to night-time awakenings

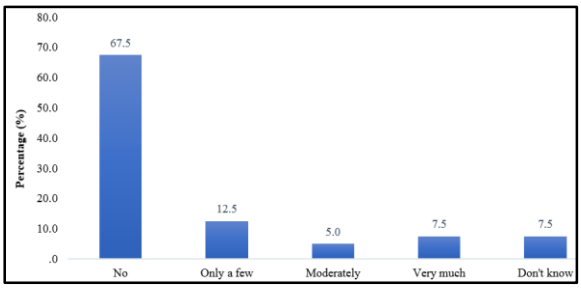

Figure 5: Distribution of sample by dream during sleep

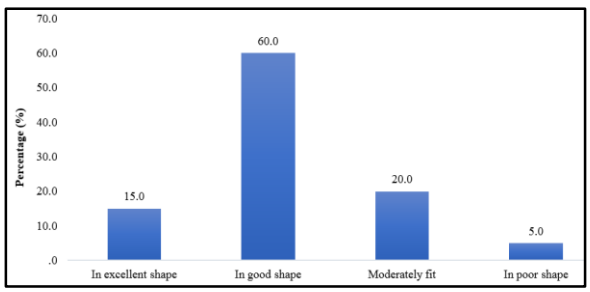

Figure 6: Distribution of sample according to morning fitness level

Table 1: Distribution of the sample according to Spiegel score intervals

	Number (n)	Percentage (%)
≤ 15	1	2,5
16 – 20	9	22,5
21 – 25	17	42,5
26 – 30	13	32,5
Total	40	100

The average Spiegel score was 23.3, with a standard deviation 3.7, and scores ranged from 14 to 30. Patients with scores between 21 and 30 made up 75% of the sample (**Table 1**). The analysis of associations between sleep parameters and sex and age yielded p-values greater than 0.05, indicating no significant relationships.

4. Discussion

The Spiegel questionnaire's choice is justified by its ease of use and straightforward local adaptation. The sample consisted of patients who sought rehabilitation at the IOS due to RCD, which explains its small size. Additionally, self-reported responses could introduce measurement bias in the results.

The predominance of male participants aligns with data from the National Agency for Statistics and Demography.[7] The average age of the sample is similar to the trends reported in studies by Gueye and co[8] and Kamara and co,[9] which noted a high prevalence of edentulism in older individuals.

Age is recognized as a risk factor for periodontal disease, which is a leading cause of tooth loss. Almost two-thirds of subjects reported experiencing a short delay before falling asleep, indicating that they quickly found sleep once in bed.[10,11] This finding is consistent with results from Emami and co,[12] which revealed similar short sleep delays. However, Ancoli-Israel and co[13] reported that half of senior population experience difficulty sleeping, which is a significant risk factor for morbidity in the older population.

This study didn't find a significant relationship between age and sleep delay, contrasting with Trembley and co,[14] who argued that insomnia is prevalent among older adults. Almost all subjects reported sleeping well, indicating good sleep quality among the completely edentulous. This finding aligns with conclusions reached by Emami and co,[5] who suggested that completely edentulous patients have generally good sleep quality.

However, the study by Bucca and co[1-4] concluded that a decrease in ventilation periodontal (VOD) in edentulous individuals could restrict airflow, potentially increasing the risk of obstructive sleep apnea (OSA). This contradiction may be explained by the observation that melanoderma patients tend to have more toned muscles than Caucasians.[15] Some studies[16,17] have identified higher prevalence rates of OSA among young and older Afro-American males.

The development of OSA may be hereditary in certain ethnic groups. For Asian patients with OSA, craniofacial malformations are common, while at the same time, an increase in the size of upper airway soft tissue structures is significant for Afro-Americans with OSA.

About two-thirds of the sample reported sleeping for long durations, with four out of five subjects stating they rarely or never woke during the night and experienced few or no dreams. These results suggest that most edentulous individuals enjoy peaceful sleep without nighttime disturbances. Findings from Emami and co[18] further support this, indicating that both edentulous and healthy older adults are generally good sleepers.

Regarding their physical condition in the morning, three-quarters of the patients felt well upon waking, indicating adequate and restful sleep, as morning fatigue is a clinical sign often observed in patients with OSA. The study did not find a statistically significant link between sex and the Spiegel sleep score, contradicting other studies[19,20,21] that reported a significant relationship between sleep parameters and sex. The average Spiegel score being more critical than 20 confirms the sound sleep quality in the sample.

5. Conclusion

This study found that complete edentulism affects sleep quality. It revealed that individuals with total edentulism can achieve peaceful, sufficient, and high-quality sleep, leading to a positive waking experience. To consolidate the results of this study, it would be interesting to make an evaluation using objective methods of the actual effect of wearing a complete removable prosthesis on night sleep.

6. Conflicts of interest

My co-authors and I declare that we have no conflict of interest.

7. Source of Funding

None.

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