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**Original Research Article**

# Occupational Health Status among Dentists: A Comprehensive Overview

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**Abstract:** Dentistry exposes practitioners to numerous occupational hazards affecting both physical and mental health. This cross-sectional study aimed to assess the prevalence of occupational diseases among Tunisian dentists. In 2024, an online survey was conducted among 105 dentists, collecting data on demographics, professional practice, and health status. Results showed that musculoskeletal disorders were the most frequently reported (76.9%), followed by psychological disorders (60.6%), sleep disturbances (37.5%), biological accidents (17.3%), hearing disorders (13.5%), and respiratory conditions (7.7%). Despite these risks, only 57.4% of participants reported adopting preventive measures, and 28.6% sought formal recognition of occupational diseases. The findings highlight a wide range of work-related health issues, with ergonomic strain, mental stress, and exposure to biological hazards as major contributing factors. These results underscore the need for greater awareness, systematic preventive strategies, and coordinated occupational health interventions to protect dentists' well-being and ensure sustainable professional practice.

**Keywords:** Occupational Diseases, Dentists, Musculoskeletal Disorders, Psychological Disorders, Prevention, Tunisia.



## INTRODUCTION

The practice of dentistry, while centered on oral health, exposes professionals to numerous occupational hazards. Dentists are regularly confronted with infectious agents, toxic substances, musculoskeletal strain, radiological exposure, and high levels of stress (Abdallaoui, n.d, Seban, 2020). These factors can significantly affect their physical and mental well-being (Bhat *et al*., 2014).

In Tunisia, as elsewhere, many dentists report professional difficulties that contribute to fatigue, discomfort, and a feeling of isolation. These challenges are compounded by increasing responsibilities, administrative constraints, and evolving healthcare policies, all of which impact work–life balance.

This study aims to explore the prevalence and nature of occupational diseases among practicing Tunisian dentists. Particular attention is given to musculoskeletal, sensory, psychological, sleep-related, and respiratory disorders, as well as biological accidents. The research also investigates the preventive measures implemented and identifies avenues for improving working conditions, with the ultimate goal of enhancing practitioner well-being and patient care quality.

## METHODS

To investigate the risks of occupational diseases in dentistry and explore potential preventive strategies, a cross-sectional survey was conducted among Tunisian dentists in 2024.

The study, titled "Survey on the Prevalence of Occupational Diseases among Dentists", was carried out over a one-month period and aimed to evaluate professional practices, working conditions, and the frequency of work-related pathologies.

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Data were collected via an anonymous online questionnaire (Supplementary File), distributed through professional Facebook groups targeting Tunisian dentists. The survey was created using Google Forms and consisted predominantly of closed-ended questions to facilitate quantitative analysis. An open-ended section was included to allow respondents to share comments, particularly regarding preventive measures or the adoption of new equipment and techniques.

Participation was voluntary, and all questions were mandatory to ensure the consistency of the sample. The questionnaire covered both demographic and professional information (gender, age, working hours, years of practice, mode of practice, average number of patients per day) as well as questions related to occupational health (presence of symptoms, previous diagnoses, work absences, and procedures for disease recognition).

## RESULTS

The survey collected 105 responses within the first two weeks of distribution. Women represented 69.5% of participants (Figure 1). Regarding age, 45.7% were under 30, 41% were aged 30–39, 6.6% were 40–49, and 6.7% were 50 and older (Figure 2).

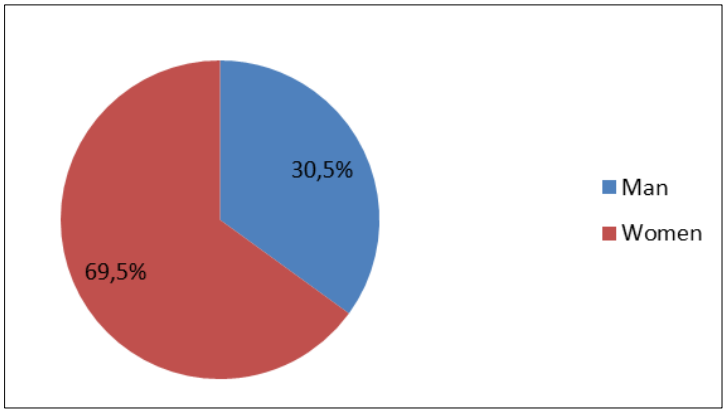


**Figure 1: Distribution by sex**

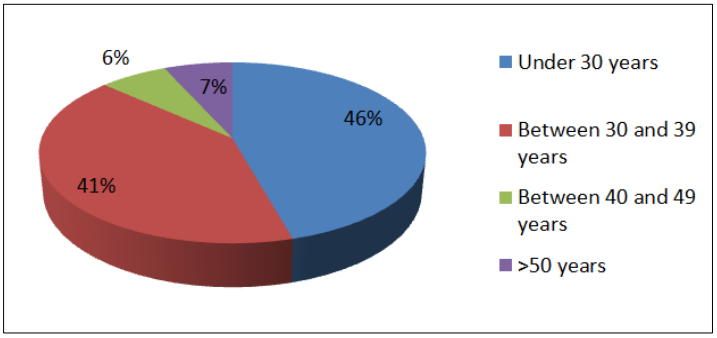


**Figure 2: Distribution by age group**

Most dentists (53.3%) reported working six days per week, 30.5% worked five days, and the rest worked fewer (Figure 3). Daily working hours varied: 65.7% worked 5–7 hours per day, 25.7% worked 8–10 hours, and 8.6% exceeded 10 hours (Figure 4).

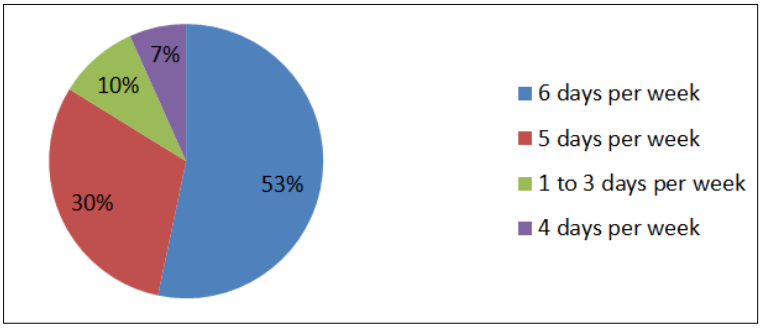


**Figure 3: Distribution of the number of working days per week**

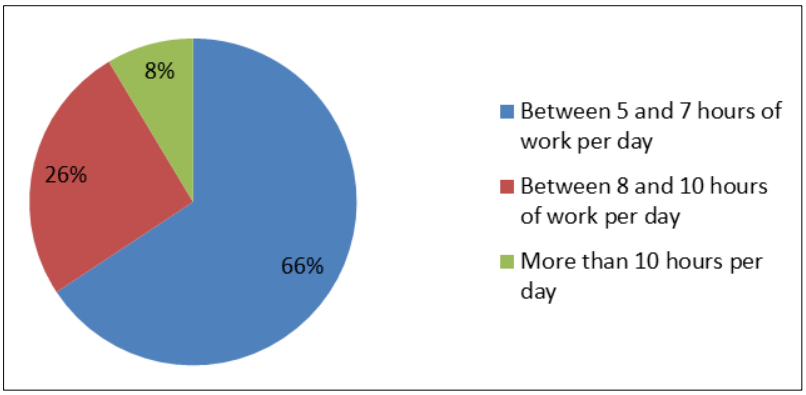


**Figure 4: Distribution of daily working hours**

Regarding professional experience, 63.8% had less than 5 years in practice. The remainder ranged from 6 to over 20 years of experience (Figure 5).

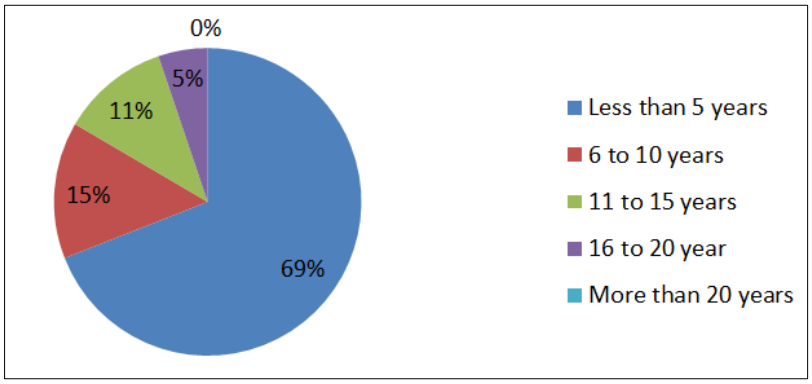


**Figure 5: Distribution by years of practice**

Most respondents worked in private practice (44.8%), followed by salaried employment (28.6%), health centers (16.2%), or other mixed arrangements (10.5%) (Figure 6).

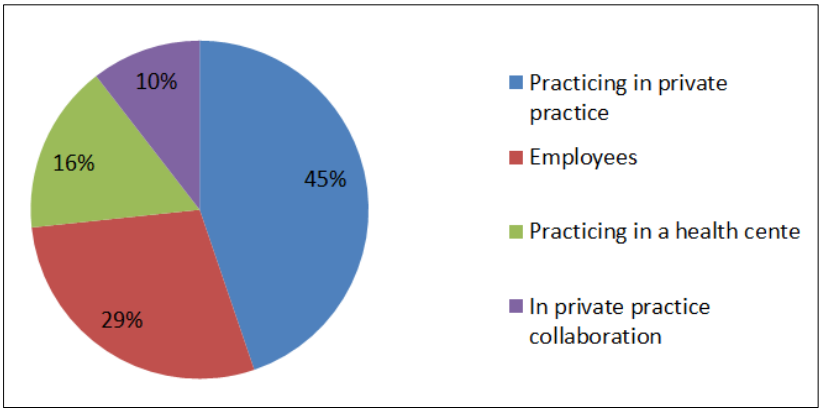


**Figure 6: Distribution by type of practice**

While 72.4% reported taking a lunch break, 52.4% worked alongside another healthcare professional, whereas 47.6% worked alone.

In terms of patient volume, 49.5% of respondents saw 5–10 patients daily, 31.4% saw 11–15, while smaller proportions saw over 16 patients per day (Figure 7).

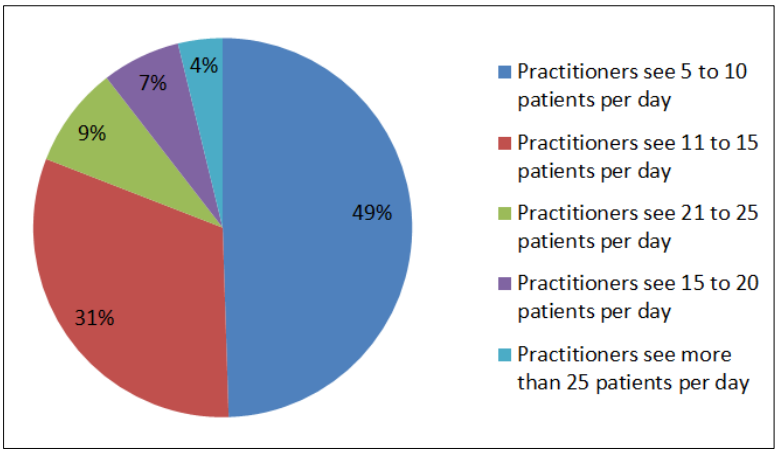


**Figure 7: Distribution by average number of patients seen per day**

Musculoskeletal disorders were the most frequently reported (76.9%), followed by psychological disorders such as stress and burnout (60.6%), and sleep disturbances (37.5%). Biological accidents were reported by 17.3%, hearing disorders by 13.5%, and respiratory conditions by 7.7%. Other less frequent conditions included digestive issues, dermatological problems, and stress-related symptoms (Figure 8).

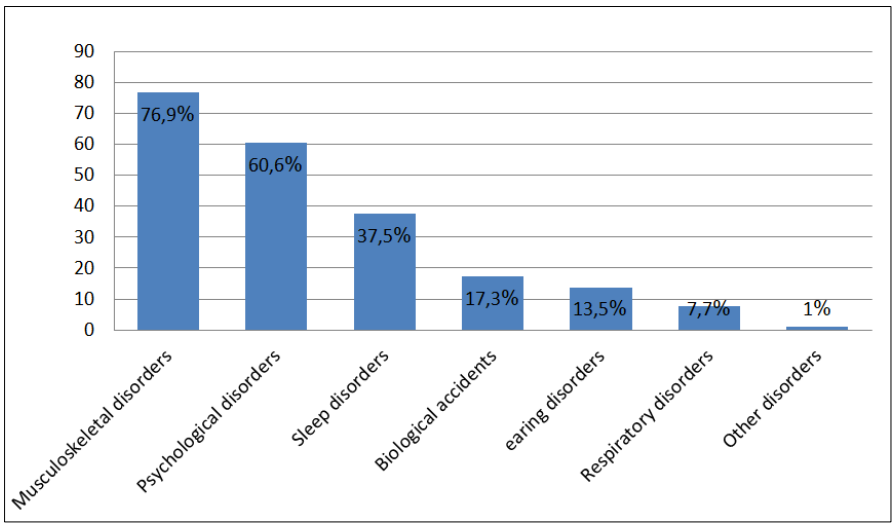


**Figure 8: Distribution of disorders reported by dentists**

In response to these health issues, 57.4% of participants reported making lifestyle or workplace adjustments. These included ergonomic improvements (adjusted posture, increased rest breaks), preventive measures (e.g., face shields, double gloving for infectious risk), reduced working hours, and physical activity or physiotherapy. The remaining participants did not report any behavioral changes.

Despite these health problems, 75.7% of affected dentists continued working without interruption. Work stoppages were reported by 24.3%, with most lasting fewer than 30 days (79.5%), 15.9% lasting 30–59 days, and 4.5% exceeding 90 days (Figure 9 and 10).

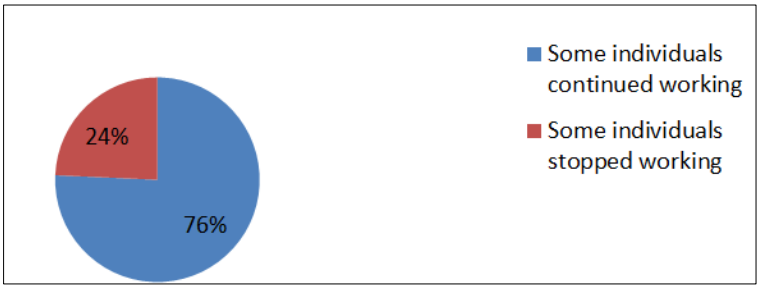


**Figure 9: Work cessation or continuation following encountered disorders**

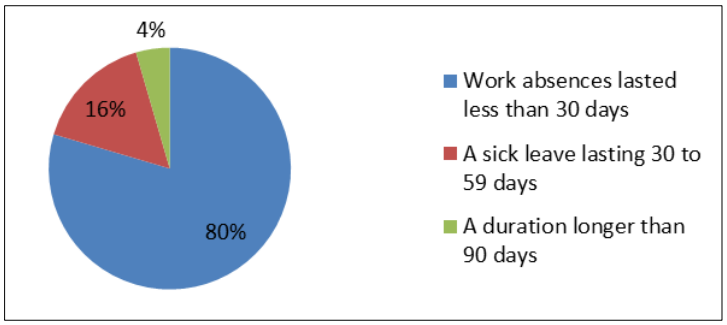


**Figure 10: Number of workdays lost due to the disorder**

Only 28.6% of respondents had applied for official recognition of their condition as an occupational.

## DISCUSSION

This study underscores the multifactorial nature of occupational diseases in dentistry, with musculoskeletal disorders (MSDs) emerging as the most prevalent. These conditions are primarily attributed to ergonomic strain from repetitive movements, prolonged static postures, and suboptimal working positions (Camelot, 2012, Safi and al, 2014, Health, Safety and Working Conditions Committee, 2010).

Common manifestations include carpal tunnel syndrome, cervical and lumbar pain, and other spinal disorders, all of which can significantly impact practitioners' physical health and professional performance (Blanc, 2014).

Sensory disturbances are also prominent, particularly visual fatigue due to constant visual focus, inadequate lighting, and exposure to bioaerosols, which may lead to ocular infections. Auditory fatigue, although often gradual, results from chronic exposure to dental equipment noise and can progress to irreversible hearing loss (Fédération des Syndicats Dentaires Libéraux, 2003).

On the psychological level, occupational stress and burn-out are critical concerns. High patient load, emotional demands, and lack of control over workload contribute to mental exhaustion, cynicism, and reduced efficiency (French Health Authority, 2015). These conditions are frequently associated with sleep disturbances, anxiety, depression, and risky coping behaviors, which in turn affect professional performance and personal well-being.

Respiratory disorders are another major concern, resulting from chronic inhalation of chemical vapors, aerosols, and particulate matter from dental materials and procedures. These exposures can lead to occupational asthma, bronchial inflammation, and other pulmonary complications (Haute Autorité de Santé, 2019, Inocente, 2010, National Research and Safety Institute, 2007).

Finally, the risk of biological accidents, such as needle-stick injuries and contact with infectious bodily fluids, exposes dental professionals to blood-borne pathogens like hepatitis B and C, and HIV. Such risks demand rigorous compliance with hygiene protocols and safety measures.

In conclusion, the findings highlight the extensive range of occupational health hazards faced by dentists. Preventive strategies, including ergonomic interventions, mental health support, respiratory protection, and stringent infection control protocols, are essential to safeguarding practitioners' health and ensuring sustainable professional practice.

## CONCLUSION

This study provides a comprehensive overview of the spectrum of occupational diseases affecting Tunisian dentists, derived from a representative sample of practitioners. The findings underscore the profound impact of dental practice on both physical and psychological health, with a marked prevalence of musculoskeletal disorders, sensory impairments, psychological conditions, respiratory ailments, sleep disturbances, and biological hazard exposures.

The analysis of these conditions, along with current therapeutic interventions and preventive strategies, highlights the critical role of primary prevention. Emphasis on ergonomic optimization of workstations, promotion of healthy lifestyle behaviors, and effective management of occupational stress emerges as essential for safeguarding the health and professional longevity of dental practitioners.

The principal aim of this research is to raise awareness regarding the identification and mitigation of occupational health risks within dentistry. The results unequivocally point to an urgent need for enhanced educational and training initiatives to foster preventive practices and elevate the quality of occupational health among dentists.

In summary, addressing the health challenges faced by dental professionals necessitates a multidisciplinary, coordinated approach involving practitioners, academic institutions, healthcare

authorities, and occupational safety bodies (Brassaert, 2020, Gaultier, 2015, Abdolalizadeh and al, 2015, Ricquart, 2016, Reyt, 2018). Only through collective commitment and targeted interventions can the sustainability and well-being of the dental workforce be assured (Jean, 2002).

**Supplementary File: Survey on the Prevalence of Occupational Diseases among Dentists**

Dear Colleague,

As part of my thesis, I am conducting a survey on the prevalence of occupational diseases among dentists. I thank you in advance for taking the time to complete the attached questionnaire. Please be assured that all information provided will be treated confidentially and anonymously.

I look forward to your response and send my best regards.

- You are: *
- Female
- Male
- What is your age? *
- <30 years
- 30–39 years
- 40–49 years
- ≥50 years
- How many days do you work per week? *
- 1–3 days
- 4 days
- 5 days
- 6 days
- How many hours do you work on average per day? *
- 5–7 hours
- 8–10 hours
- More than 10 hours
- How many years have you been practicing? *
- 0–5 years
- 6–10 years
- 11–15 years
- 16–20 years
- >20 years
- What is your practice type? *
- Private practice
- Private collaboration
- Employee
- Health center
- Do you systematically take a lunch break during your work? *
- Yes
- No
- Do you practice alone or with other healthcare professionals? *
- Alone
- With healthcare professionals
- Approximately how many patients do you see per day? *
- 5–10θ
- 11–15θ
- 16–20θ
- 21–25θ
- >25
- Have you ever experienced any of the following disorders? *
- Musculoskeletal disorders (wrist, elbow, shoulder, spine…)
- Biological accident
- Psychological disorder: stress, anxiety, burnout…
- Respiratory disorder
- Hearing disorder
- Sleep disorder
- Other
- If yes, did this condition lead to sick leave?
- Yes
- No
- If you took sick leave, what was the duration?
- <30 days
- 30–59 days
- 60–89 days
- ≥90 days
- Have you applied for official recognition as an occupational disease? *
- Yes
- No
- Afterward, did you change your behaviors related to this condition?
- Adoption of preventive behaviors, use of new equipment… Please specify which ones:

**Conflict of Interest:** The authors declare that they have no conflict of interests.

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