

BRAZILIAN JOURNAL OF IMPLANTOLOGY AND HEALTH SCIENCES

ISSN 2674-8169

Dental and Periodontal Tissue Loss Following Psychological Trauma: Observations on Individuals Displaced After the July 15 Events Sabri Kursunlu ¹, Ali Özel ²



https://doi.org/10.36557/2674-8169.2025v7n2p1699-1707 Artigo publicado em 17 de Fevereiro de 2025

REVIEW

ABSTRACT

This study investigates the impact of forced migration on oral and dental health, focusing on individuals with high social and intellectual capital who were displaced after the July 15 events in Turkey. Despite regular oral care, many exhibited significant lower molar tooth loss and advanced periodontal breakdown. The findings highlight the relationship between psychological trauma, immune dysregulation, and oral health, with bruxism (teeth grinding) emerging as a significant contributing factor. To understand this phenomenon fully, the study delves into the psychological and physiological mechanisms behind trauma, the challenges posed by forced migration, and the specific vulnerabilities of mandibular molars.

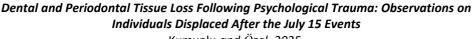
Keywords: Dental, Periodontal Tissue, Psychological Trauma.

Instituição afiliada – ¹ Dentist, Antwerpen, Belgium. ² Sociologist, Atlanta, USA.

Autor correspondente: Sabri Kursunlu, Dentist, Antwerpen, Belgium. veda2099@hotmail.com

This work is licensed under a <u>Creative Commons Attribution 4.0</u>

International License.



INTRODUCTION

Oral health is intricately linked to both physical and psychological well-being, with mounting evidence pointing to the significant role that stress and trauma play in the deterioration of dental health (1,2). Psychological trauma, especially in the context of forced migration and displacement, can manifest in various physiological and behavioral changes that negatively affect oral structures (3,4). The July 15 events in Turkey led to widespread displacement of individuals, many of whom were highly educated professionals (5,6). Despite their routine oral care practices, these individuals experienced unexpected and alarming patterns of dental loss, particularly in the mandibular molar region, as well as advanced periodontal disease (7,8). This article aimed to examine the relationship between the psychological trauma these individuals endured and its impact on their oral health, highlighting the critical interplay between chronic stress, immune dysregulation, and behaviors such as bruxism that exacerbate periodontal breakdown and tooth loss.

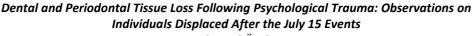
UNDERSTANDING PSYCHOLOGICAL TRAUMA

Psychological trauma refers to an emotional response to a distressing event that overwhelms an individual's ability to cope. It can stem from events such as violence, natural disasters, war, or forced displacement. Symptoms often include chronic stress, anxiety, depression, and physical manifestations such as muscle tension and immune system dysfunction (3,4,9,10).

Key Characteristics of Psychological Trauma

- Chronic Stress: Prolonged activation of the hypothalamic-pituitaryadrenal (HPA) axis increases cortisol levels, leading to systemic inflammation.
- Behavioral Manifestations: Trauma can induce habits such as bruxism, where individuals unconsciously clench or grind their teeth, often during sleep.

In the context of oral health, these physiological and behavioral responses



significantly impact periodontal structures, accelerating tissue and bone breakdown (9,10).

FORCED MIGRATION: A MULTIDIMENSIONAL STRESSOR

Forced migration occurs when individuals are compelled to leave their homes due to war, persecution, or political upheaval. Beyond physical displacement, it involves profound emotional, social, and economic disruptions, contributing to chronic stress and deteriorating health (11,12).

Challenges Faced by Migrants in Maintaining Oral Health

Disrupted Routines: Difficulty accessing dental care during

resettlement.

Economic Hardship: Limited financial resources for preventative

treatments.

Mental Health Strain: High prevalence of PTSD and depression, which

exacerbate bruxism and immune dysfunction.

These factors combine to create a "perfect storm" for oral health deterioration, particularly among vulnerable populations (13,14).

ANATOMY AND VULNERABILITY OF MANDIBULAR MOLARS

The mandibular (lower jaw) molars play a critical role in chewing and maintaining the structural integrity of the jaw. Their anatomy makes them uniquely susceptible to periodontal damage (15,16):

Anatomical Complexity:

Mandibular molars have multiple roots and furcations, which make them more difficult to clean effectively. This complexity increases the risk of plaque accumulation, leading to gum disease.

Dental and Periodontal Tissue Loss Following Psychological Trauma: Observations on Individuals Displaced After the July 15 Events

Kursunlu and Özel, 2025.

High Functional Load:

These teeth bear significant chewing pressure, making them more vulnerable to the effects of bruxism and bone loss.

• Proximity to Critical Structures:

The roots of mandibular molars are closely associated with the mandibular nerve and blood vessels, which can complicate both the progression of disease and its treatment.

Impact of Bruxism on Mandibular Molars

In individuals with bruxism, mandibular molars experience excessive occlusal (biting) forces. Over time, this leads to (17,18):

- Enamel erosion.
- Microfractures in the roots.
- Accelerated bone resorption around the tooth socket.

OBSERVATIONS IN MIGRANT POPULATIONS

Clinical Findings

- Widespread Periodontal Breakdown: Inflammation, deep periodontal pockets, and alveolar bone loss were common.
- High Rate of Molar Loss: Mandibular molar teeth were particularly affected, with significant losses even in individuals practicing regular oral hygiene.
- Prevalence of Bruxism: Many patients reported symptoms such as jaw pain, headaches, and worn-down teeth, indicative of stressrelated bruxism.

PATHOPHYSIOLOGICAL MECHANISMS

2.Stress and Immune Dysregulation

Chronic stress leads to an overactive inflammatory response, impairing the



body's ability to combat periodontal infections. Elevated cortisol levels suppress protective immune cells, allowing harmful bacteria to proliferate (19,20).

Periodontitis Progression in Trauma-Affected Individuals

- Initial Stage: Gingival inflammation and mild pocket formation.
- Moderate Stage: Connective tissue breakdown and early bone resorption.
- Advanced Stage: Extensive alveolar bone loss, leading to tooth mobility and eventual tooth loss (21,22).

RECOMMENDATIONS FOR PREVENTION AND TREATMENT

a) Psychological Interventions (23)

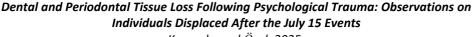
- Trauma-focused cognitive-behavioral therapy (CBT) to manage stress and reduce bruxism.
- Relaxation techniques such as meditation and biofeedback.

b) Oral Health Strategies (24)

- Preventative Care: Regular scaling and root planing to prevent plaque accumulation.
- **Bruxism Management**: Custom night guards and physiotherapy for jaw relaxation.

c) Holistic Care (25,26)

 Collaboration between dentists, psychologists, and primary care physicians to address the interconnected aspects of trauma and oral health.





CONCLUSION

The findings of this study underscore the profound effects that psychological trauma and forced migration have on oral health, with a specific emphasis on the vulnerability of mandibular molars. Despite regular oral hygiene practices, the displaced individuals in this study experienced significant periodontal breakdown and tooth loss, exacerbated by stress-induced behaviors like bruxism. The complexities of immune dysregulation caused by chronic stress further contribute to the accelerated progression of periodontitis. These insights suggest that dental care for trauma-affected populations must extend beyond traditional oral hygiene interventions, incorporating psychological support and stress management techniques to mitigate the broader health impacts of displacement and trauma. By fostering interdisciplinary collaboration between dental professionals and mental health practitioners, we can offer more comprehensive care to vulnerable populations facing the dual challenges of psychological and physical health decline.

REFERÊNCIAS

- Fiorillo L. Oral Health: The First Step to Well-Being. Medicina (Kaunas). 2019;55(10):676.
 Published 2019 Oct 7. doi:10.3390/medicina55100676
- Wong FMF, Ng YTY, Leung WK. Oral Health and Its Associated Factors Among Older Institutionalized Residents-A Systematic Review. Int J Environ Res Public Health. 2019;16(21):4132. Published 2019 Oct 26. doi:10.3390/ijerph16214132
- Vromans L, Schweitzer RD, Brough M, et al. Persistent psychological distress in resettled refugee women-at-risk at one-year follow-up: Contributions of trauma, post-migration problems, loss, and trust. Transcult Psychiatry. 2021;58(2):157-171. doi:10.1177/1363461520965110
- Steel JL, Dunlavy AC, Harding CE, Theorell T. The Psychological Consequences of Pre-Emigration Trauma and Post-Migration Stress in Refugees and Immigrants from Africa.
 J Immigr Minor Health. 2017;19(3):523-532. doi:10.1007/s10903-016-0478-z
- 5. https://en.wikipedia.org/wiki/2016_Turkish_coup_attempt
- 6. https://europa.eu/rapid/press-release_MEMO-16-3639_en.htm
- 7. Banihashem Rad SA, Esteves Oliveira M, Maklennan A, Castiglia P, Campus G. Higher



Dental and Periodontal Tissue Loss Following Psychological Trauma: Observations on Individuals Displaced After the July 15 Events

Kursunlu and Özel, 2025.

- prevalence of dental caries and periodontal problems among refugees: A scoping review. J Glob Health. 2023;13:04111. Published 2023 Sep 15. doi:10.7189/jogh.13.04111
- 8. Solyman M, Schmidt-Westhausen AM. Oral health status among newly arrived refugees in Germany: a cross-sectional study. BMC Oral Health. 2018;18(1):132. Published 2018 Aug 3. doi:10.1186/s12903-018-0600-9
- 9. Tahan M, Taheri H, Saleem T. Review of psychological trauma: theory, practice, policy and research. Riv Psichiatr. 2021;56(2):64-73. doi:10.1708/3594.35764
- 10. Wilde L. Background Feelings of Belonging and Psychological Trauma. Psychopathology. 2022;55(3-4):190-200. doi:10.1159/000518327
- 11. Grech H. Impact of Forced Migration on Communication and Social Adaptation. Folia Phoniatr Logop. 2019;71(4):137-145. doi:10.1159/000497057
- 12. National Academies of Sciences, Engineering, and Medicine; Division of Behavioral and Social Sciences and Education; Committee on Population, Majmundar MK, Olson S, eds. Forced Migration Research: From Theory to Practice in Promoting Migrant Well-Being: Proceedings of a Workshop. Washington (DC): National Academies Press (US); December 10, 2019.
- 13. Lauritano D, Moreo G, Carinci F, Campanella V, Della Vella F, Petruzzi M. Oral Health Status among Migrants from Middle- and Low-Income Countries to Europe: A Systematic Review. Int J Environ Res Public Health. 2021;18(22):12203. Published 2021 Nov 20. doi:10.3390/ijerph182212203
- 14. Hoang H, Feike S, Lynden T, Barnett T, Crocombe L. Oral health needs of older migrants with culturally and linguistically diverse backgrounds in developed countries: A systematic review. Australas J Ageing. 2020;39(3):193-208. doi:10.1111/ajag.12759
- Al-Rammahi HM, Chai WL, Nabhan MS, Ahmed HMA. Root and canal anatomy of mandibular first molars using micro-computed tomography: a systematic review. BMC Oral Health. 2023;23(1):339. Published 2023 May 29. doi:10.1186/s12903-023-03036-5
- Aung NM, Myint KK. Three-Rooted Permanent Mandibular First Molars: A Meta-Analysis of Prevalence. Int J Dent. 2022;2022:9411076. Published 2022 Mar 28. doi:10.1155/2022/9411076
- 17. Beddis H, Pemberton M, Davies S. Sleep bruxism: an overview for clinicians. Br Dent J. 2018;225(6):497-501. doi:10.1038/sj.bdj.2018.757
- 18. Bulanda S, Ilczuk-Rypuła D, Nitecka-Buchta A, Nowak Z, Baron S, Postek-Stefańska L.



Dental and Periodontal Tissue Loss Following Psychological Trauma: Observations on Individuals Displaced After the July 15 Events

Kursunlu and Özel, 2025.

- Sleep Bruxism in Children: Etiology, Diagnosis, and Treatment-A Literature Review. Int J Environ Res Public Health. 2021;18(18):9544. Published 2021 Sep 10. doi:10.3390/ijerph18189544
- 19. Liu Y, Tian S, Ning B, Huang T, Li Y, Wei Y. Stress and cancer: The mechanisms of immune dysregulation and management. Front Immunol. 2022;13:1032294. Published 2022 Oct 5. doi:10.3389/fimmu.2022.1032294
- 20. Dhabhar FS. Effects of stress on immune function: the good, the bad, and the beautiful. Immunol Res. 2014;58(2-3):193-210. doi:10.1007/s12026-014-8517-0
- 21. Tonetti MS, Greenwell H, Kornman KS. Staging and grading of periodontitis: Framework and proposal of a new classification and case definition [published correction appears in J Periodontol. 2018 Dec;89(12):1475. doi: 10.1002/jper.10239]. J Periodontol. 2018;89 Suppl 1:S159-S172. doi:10.1002/JPER.18-0006
- 22. Nasiri K, Amiri Moghaddam M, Etajuri EA, et al. Periodontitis and progression of gastrointestinal cancer: current knowledge and future perspective. Clin Transl Oncol. 2023;25(10):2801-2811. doi:10.1007/s12094-023-03162-0
- Cohen JA, Mannarino AP. Trauma-focused Cognitive Behavior Therapy for Traumatized Children and Families. Child Adolesc Psychiatr Clin N Am. 2015;24(3):557-570. doi:10.1016/j.chc.2015.02.005
- 24. Yap AU, Chua AP. Sleep bruxism: Current knowledge and contemporary management. J Conserv Dent. 2016;19(5):383-389. doi:10.4103/0972-0707.190007
- Kalhan AC, Wong ML, Allen F, Gao X. Periodontal disease and systemic health: An update for medical practitioners. Ann Acad Med Singap. 2022;51(9):567-574. doi:10.47102/annals-acadmedsg.2021503
- 26. Al-Nasser L, Lamster IB. Prevention and management of periodontal diseases and dental caries in the older adults. Periodontol 2000. 2020;84(1):69-83. doi:10.1111/prd.12338