



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

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### 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.

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## **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-pituitary-adrenal (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.

- **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 stress-related 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.

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