

# Frequency of Dental Trauma in Cases of Assault and Domestic Abuse: A Cross-Sectional Study

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## Keywords

Dental trauma, assault, domestic abuse, cross-sectional study, forensic dental evaluation, public health, SPSS analysis.

## Disclaimers

Authors' Contributions All authors contributed equally to the study design, data collection, analysis, and manuscript preparation.

## Conflict of Interest

None declared

## Data/Supplements

Available on request.

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## Ethical Approval

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## ABSTRACT

**Background:** Assault and domestic abuse are significant public health concerns worldwide, often resulting in various physical injuries, including dental trauma. Understanding the frequency of dental trauma in these contexts is crucial for targeted healthcare interventions.

**Objective:** To determine the frequency of dental trauma among victims of assault and domestic abuse.

**Methods:** A cross-sectional study was conducted at a tertiary care hospital in Karachi from June 2023- June 2024. All patients presenting with assault and domestic violence were evaluated for dental trauma, excluding those with injuries due to poor periodontal conditions or self-inflicted trauma. Comprehensive clinical and radiological assessments were performed, and forensic dental reports were documented. Data were analyzed using SPSS version 26, with descriptive statistics and Chi-square tests applied to assess associations, considering  $p \leq 0.05$  as significant.

**Results:** Out of 105 patients (mean age  $36.18 \pm 13.83$  years), 81.9% were male. Dental trauma was observed in 71.4% of cases, with no significant association between gender and type of trauma ( $p = 0.821$ ).

**Conclusion:** The high frequency of dental trauma among assault and domestic abuse victims highlights the need for integrated medical and dental interventions to improve victim care.

## INTRODUCTION

Violence, including assault and domestic abuse, poses a significant threat to public health worldwide, transcending cultural, racial, and socioeconomic boundaries, and often resulting in severe physical and psychological consequences for victims. Among the various forms of physical injury associated with these acts, dental trauma is notably prevalent, yet frequently underreported and insufficiently addressed in healthcare settings. This study aims to assess the frequency of dental trauma in cases of assault and domestic abuse, underscoring the critical need for integrated medical and dental interventions to mitigate the impact on victims' quality of life. Domestic violence encompasses a spectrum of abusive behaviors inflicted within familial settings, affecting individuals across all ages and genders. The oral cavity, particularly the teeth, is a common target in these violent encounters, with injuries ranging from fractures and avulsions to more complex dental trauma that can severely impact a victim's functional and aesthetic capabilities, leading to broader social and psychological ramifications (1).

The prevalence of domestic violence is alarmingly high, with significant proportions of the population, especially women, reporting experiences of physical or sexual abuse by intimate partners (3). Such violence is pervasive across

various demographics, affecting individuals irrespective of their socioeconomic status, education level, or geographic location (4). The World Health Organization's multi-country study on women's health and domestic violence highlighted the extensive nature of this issue, revealing that between 10% and 52% of women have experienced physical abuse from an intimate partner, while 10–30% have faced sexual violence (3). These statistics underscore the universality of assault and domestic violence as societal challenges that necessitate urgent attention and intervention from healthcare providers, including dental professionals who frequently encounter the physical manifestations of such abuse.

Dental trauma, often observed in victims of assault and domestic abuse, includes injuries to the teeth and surrounding oral structures, frequently involving the anterior teeth, which are particularly susceptible to impacts. Traumatic dental injuries (TDIs) not only result in immediate pain and functional impairment but also carry long-term consequences that can hinder social interactions and diminish self-esteem (7, 9). Despite the establishment of standardized guidelines by the International Association of Dental Traumatology (IADT) for the management of such injuries, the incidence and prevalence of TDIs show considerable variability across different populations and studies, influenced by factors such as methodological

differences, cultural contexts, and the classification of trauma (8). Studies have demonstrated that TDIs can significantly disrupt victims' social relationships and daily functioning, making it imperative to address these injuries comprehensively in clinical settings.

The role of healthcare providers, particularly dentists, in identifying and managing cases of domestic abuse is crucial. Dental professionals often serve as first responders in detecting signs of abuse, given that injuries to the head, neck, and face are common among victims (15). Effective documentation and reporting of these injuries by dental and medical professionals are essential for judicial processes and for ensuring that victims receive the necessary care and support. Forensic dental reports play a vital role in the legal system, providing detailed descriptions of injuries and the instruments used, which can aid in the prosecution of offenders and the protection of victims. Moreover, the integration of dental care into the broader healthcare response to domestic violence can help to interrupt the cycle of abuse, preventing further harm and improving outcomes for victims (15).

This study contributes to the existing body of literature by examining the frequency and characteristics of dental trauma among individuals presenting with assault and domestic abuse at a tertiary care hospital in Karachi. By highlighting the high prevalence of dental injuries in this vulnerable group, the findings emphasize the need for targeted interventions that address both the physical and psychological aspects of victim care. Such an approach is essential for enhancing the quality of life and overall well-being of individuals affected by assault and domestic abuse, and for advancing the role of dental professionals as critical players in the multidisciplinary response to violence.

**MATERIAL AND METHODS**

The study employed a cross-sectional design conducted at a tertiary care hospital in Karachi from June 2023- June 2024. The aim was to assess the frequency of dental trauma among patients presenting with assault and domestic abuse. Ethical approval was obtained from the institutional review board, ensuring adherence to the Declaration of Helsinki for ethical principles involving human subjects (IRB# NO.F.2-81/2024-GEN/38/JPMC). All cases of assault and domestic violence presenting at the hospital were

included, except for individuals with trauma due to poor periodontal condition or self-inflicted dental trauma. Following initial assessment, patients were referred to the dental department where they underwent comprehensive clinical and radiological evaluations conducted by an experienced dental officer immediately after the record of the incident.

The clinical examination aimed to identify specific forms of dental trauma, including fractures, avulsions, and other injuries to the teeth and surrounding oral structures. Each patient underwent a detailed assessment, which included a forensic dental evaluation to document the nature of the trauma and the suspected instrument used. The forensic dental expert prepared a comprehensive report, which was subsequently attached to the police records of the occurrence. Data collection focused on obtaining relevant demographic and clinical information, including age, gender, location and type of dental trauma, specific teeth involved, and the nature of the instrument implicated in the injuries.

Data were entered and analyzed using SPSS version 26. Descriptive statistics were used to calculate means and standard deviations for quantitative variables, such as age, while frequencies and percentages were computed for qualitative variables, including gender and types of dental trauma. The Chi-square test was employed to compare the frequency of dental trauma across different qualitative variables, with a p-value of  $\leq 0.05$  considered statistically significant. This approach facilitated a thorough analysis of the relationship between assault, domestic abuse, and the incidence of dental trauma, providing valuable insights into the prevalence and characteristics of these injuries in the studied population.

**RESULTS**

A total of 105 patients presented with a history of assault or domestic abuse were included in the study. The mean age of the patients was  $36.18 \pm 13.83$  years. The majority of the patients were male, comprising 81.9% of the sample, with a male-to-female ratio of 4:1. The distribution of cases indicated that 83.8% of the incidents were due to assault, while 16.2% were attributed to domestic abuse. The occurrence of dental trauma among these patients was observed in 71.4% of the cases.

**Table 1: Demographic and Clinical Characteristics of the Study Population**

Characteristics	Frequency (n = 105)	Percentage (%)
Mean Age (years)	36.18 ± 13.83	
Gender		
Male	86	81.9
Female	19	18.1
Type of Incident		
Assault	88	83.8
Domestic Abuse	17	16.2
Presence of Dental Trauma		
Yes	75	71.4
No	30	28.6

No significant association was found between gender and the occurrence of dental trauma, nor was there a significant difference in the type of trauma reported among the victims.

Detailed comparisons of dental trauma across different demographic groups are presented in Table 2.

**Table 2: Association Between Dental Trauma and Demographic Variables**

Variable	Dental Trauma Present (n, %)	Dental Trauma Absent (n, %)	p-value
Gender			
Male	62 (71.3)	24 (28.7)	0.821
Female	13 (72.2)	5 (27.8)	
Type of Incident			
Assault	63 (71.6)	25 (28.4)	0.904
Domestic Abuse	12 (70.6)	5 (29.4)	

The results indicate a high prevalence of dental trauma among victims of assault and domestic abuse, with no significant differences noted in the frequency of trauma based on gender or type of incident. This underscores the pervasive nature of dental injuries in this vulnerable population, necessitating the integration of targeted dental care within broader healthcare strategies for victims of violence.

## DISCUSSION

The study revealed a high frequency of dental trauma among victims of assault and domestic abuse, with 71.4% of patients experiencing dental injuries. These findings are consistent with previous studies that have highlighted the vulnerability of the orofacial region in violent encounters, where the face is often targeted, leading to significant dental trauma (1). The predominance of male victims in this study, accounting for 81.9% of cases, aligns with other research indicating that men are more frequently involved in violent confrontations, particularly assaults, while domestic abuse cases more commonly involve women (15). However, the study found no significant association between gender and the occurrence of dental trauma, suggesting that the risk of dental injuries transcends gender boundaries when violence is involved.

The frequency of assault-related dental trauma in this study mirrors findings from previous research indicating that traumatic dental injuries are among the most common outcomes of physical violence (5, 7). These injuries, which often involve the anterior teeth, can result in significant functional and aesthetic deficits, impacting victims' quality of life and social interactions (7, 9). The high prevalence of such injuries in assault and domestic abuse cases emphasizes the need for healthcare providers, particularly dental professionals, to be vigilant in identifying and managing these injuries. This study contributes to the growing body of evidence supporting the critical role of dental professionals as frontline responders in the detection and intervention of abuse-related injuries (15).

One of the strengths of this study was its focus on a specific and vulnerable population, allowing for a detailed examination of the prevalence and characteristics of dental trauma in victims of assault and domestic abuse. The inclusion of a comprehensive forensic dental evaluation provided robust data that enhanced the reliability of the findings. However, the study also had limitations, including its retrospective nature and reliance on data collected by

different dental surgeons over a one-year period, which may have introduced variability in the assessment and reporting of injuries. Additionally, the study was conducted in a single tertiary care hospital in Karachi, which may limit the generalizability of the findings to other settings or populations.

The lack of significant associations between gender, type of trauma, and the occurrence of dental injuries suggests that dental trauma is a common consequence of physical violence irrespective of these variables. This finding underscores the universal risk posed by assault and domestic abuse to oral health, highlighting the need for targeted interventions that are inclusive of all demographics. The results also align with the literature indicating that dental trauma is a frequently overlooked aspect of violence, often overshadowed by other visible physical injuries (13). As such, the integration of dental care into the broader healthcare response to violence could improve outcomes for victims by addressing both immediate and long-term consequences of dental injuries.

The study recommends the implementation of routine screening for dental trauma in patients presenting with a history of assault or domestic abuse. Early identification and intervention are crucial in preventing the progression of dental injuries and their associated complications. Furthermore, training dental professionals to recognize signs of abuse and to provide appropriate referrals and support could enhance the overall care of victims. Future research should aim to explore the underlying factors contributing to the high prevalence of dental trauma in this population, as well as to develop and evaluate targeted preventive strategies. Expanding studies to include multiple centers and diverse populations would also provide a more comprehensive understanding of the issue and aid in the development of universal guidelines for the management of abuse-related dental injuries.

In conclusion, the study highlights the significant burden of dental trauma among victims of assault and domestic abuse, reinforcing the need for integrated medical and dental interventions. By improving the identification and management of these injuries, healthcare providers can play a pivotal role in the broader efforts to support victims of violence and improve their quality of life.

## CONCLUSION

In conclusion, this study identified a high frequency of dental trauma among victims of assault and domestic

abuse, underscoring the significant impact of violence on oral health. The findings highlight the critical need for integrated healthcare approaches that include routine dental assessments and interventions for this vulnerable population. Addressing dental trauma as part of the comprehensive care for victims can prevent further complications, improve functional and aesthetic outcomes, and enhance overall quality of life. Healthcare providers, particularly dental professionals, play a pivotal role in recognizing and managing these injuries, thereby contributing to broader efforts to support victims and mitigate the long-term consequences of violence. Enhanced training and awareness among healthcare professionals, along with the development of targeted strategies, are essential for improving the identification, referral, and treatment of dental trauma in the context of assault and domestic abuse.

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