



Incidence of dental traumatic injuries among teenagers and adults

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ABSTRACT

Injury to the teeth or any other hard tissue or soft tissue surrounding the teeth in the oral cavity is called as dental trauma. Dental trauma is sudden and accidental. It requires attention and immediate treatment. This is a major issue due to its rate of occurrence and its prevalence all over the world. Preventing dental trauma will reduce the cost of its treatment and adequate knowledge about it should be taught to the public. This study aims to find the incidence of dental traumatic injuries among teenagers and adults. This was a retrospective study done under a hospital setting. All the patients' records were collected from June 2019 to March 2020 and were reviewed. The data included patients who had a history of dental traumatic injuries and were above the age of 13 years. The data was tabulated and entered in excel and the data were analysed using SPSS package software. $p < 0.05$ was considered to be the level of statistical significance, in the study. Within the limitations of the study, the incidence of dental traumatic injuries among teenagers and adults was found. It was higher in young adults. Incidence of dental trauma was seen more in young adults - 19 to 35 years, with Male predilection. The mean age for Dental Trauma being 28.58 ± 13.52 years.



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INTRODUCTION

One of the best assets an individual can have is to have a beautiful smile which shows their healthy

and natural teeth (Patel and Sujan, 2012). An injury to the teeth and/or to the soft or hard tissues surrounding the teeth is called as dental trauma (Lam, 2016). Dental trauma can be accidental and unexpected, it requires emergency attention. It is very common among other injuries of the body (Jose et al., 2020).

Among the bodily trauma which occurs to the body, dental trauma accounts for 5.0% of it, albeit the oral cavity accounts for 1% of the bodily area (Anderson, 2013). Dental trauma or injury may occur throughout one's life, but usually it is said to be a very significant problem of youngsters (Reddy et al., 2017). Any injury to the anterior teeth is usually unaesthetic and non-desirable. This might sometimes affect the personality development of

the child. It can lead to psychological and social limitations which may induce or cause difficulty in social relationships, can cause state of irritations, inability to have or maintain a balanced emotional state (Enabulele *et al.*, 2016). Trauma to anterior teeth could be due to physical activity related injuries in the young adults, it can be due to road traffic accidents like car accidents. Dental trauma due to violence has also been reported (Marcenes *et al.*, 1999).

There are different types of injury which can occur to the dental tissues. Trauma to the teeth can occur with damage to either the crown or the root and also may or may not result in injury of the pulp. Its severity also can be from enamel infarctions to avulsions, which are said to be more severe. Also, the most commonly occurring type of dental injury is uncomplicated crown fracture (Caliskan and Turkun, 1995) and the most common teeth to get traumatized are the maxillary central incisors (Spinas and Altana, 2002). Fractures involving the jaw are rarely seen in patients with any oral injury.

Dental traumatic injury is a major public issue due to its high rate of occurrence and association with car accidents and physical activities. This has become one of the most prevalent dental health problem since the decrease of dental caries (Petersson and Bratthall, 1996). According to age there could be different dental traumatic injuries which the person can get. Most of the victims of dental injuries are children due to their frequent falls, collisions and accidents. Young adults can get dental trauma due to traffic accidents, aggression and sports related injuries. The main reason behind accidents like fights during sports are associated with biological, socioeconomic, psychological and behavioural factors (Gutmann and Gutmann, 1995). Dental injuries can have an impact on the quality of life of the patients by impairing normal day to day functions like chewing, phonation and esthetics. A slight fracture to their anteriors can have an impact on day to day life and affect the behavior of the people.

Dental injury, due to its treatment cost and its occurrence irrespective of age is one of the public health problems as sometimes the treatment duration can be for the patient's entire lifetime. Cost of treatment to the community throughout the world has been substantial (Lam *et al.*, 2008). The prevalence of dental trauma has been studied in many parts of the world and a wide range of incidence of dental trauma has been noted between different countries and also within a country. Important knowledge about prevalence of dental trauma will help in establishing preventive strategies and also for man-

agement in the given population.

Dental trauma and its characteristics depend upon the demographics and the socioeconomic status. Also, its etiological factors vary upon different countries and age of the patients. It has various implications for the public. This study is necessary to increase the knowledge of the people and to change epidemiological data towards more favorable outcome in the future. It is also to think on how to prevent dental injuries, how to be prepared for dental injury or what to do in the case of dental injury and the best way organize emergency dental care. The efficiency of diagnostic aids also plays an important role for management (Janani *et al.*, 2020). Managing dental trauma varies and presents a challenge to the dentist (Kumar and Antony, 2018). Knowledge of Dental Trauma and its etiology and management is important for the establishment of preventive action and treatment so as to reduce associated costs and improve the quality of life of the population.

MATERIALS AND METHODS

Study Setting

This present study was conducted as a retrospective cross-sectional study among the patients visiting the dental clinic of Saveetha Dental College, Chennai, Tamil Nadu. The study setting was a hospital setting. The present study was ethically approved by the Institutional Ethical Committee. The study was done in the time period of June 2019 to March 2020. The age group of the patients were categorized as teenagers- 13 to 18 years old, young adults- 19 to 35 years, middle aged adults- 36 to 55 years and old adults- above 55 years. The study sample included both male and female genders and also had a wide age range availability but were mostly South Indian population due to geographic limitations.

Data Collection

This study was done by examining 86000 records of patients who underwent treatment at Saveetha Dental College during the time period of June 2019 to March 2020. The inclusion criteria for this study were patients who had reported dental trauma and visited the dental clinic with history of it and whose case sheets records were completely filled and exclusion criteria for the study were patients without reports of dental trauma and blank case sheet records. Sampling bias was done to minimize by simple random sampling. The final study sample was a total of 271 patients visiting the hospital with the history of dental trauma. The data collected from the patients were demographic data (Age, Sex, Marital Status, Occupation, Address). Then clinical exam-

ination was done both intraoral and extraoral. Any incomplete data was verified from the concerned department or the patient. Any gross data which had the possibility of bias and could affect the studies were not included. All the data collected was cross verified by photographic and radiographic examination.

Data Analysis

The verified data was collected and was tabulated in excel according to S.no, PID, Age, Gender, Dental Traumatic Injury. The dependent variable being the dental traumatic injury and the independent variable being age, gender and type of accident. The data which was collected was analysed using Statistical Package for Social sciences (SPSS) software, version 1.0.0.1347 64 bit (IBM corp., NY, USA). The data were assessed by being subjected to descriptive analysis with the help of frequencies, percentages, means and the data was also analysed by running descriptive statistics in the form of crosstabs.

The type of analysis done was correlation and association. A nonparametric test - Chi-square test of Independence was performed using the same SPSS software to find the statistical significance of the current study. In this present study, $p < 0.05$ was considered to be as the level of statistical significance.

RESULTS AND DISCUSSION

The total number of patients in the current study was 271 patients. All the patients had visited the dental clinic of Saveetha Dental College and Hospital and had reported and had chief complaints and history of dental trauma or accident. Among this study sample, 200 out of 271 were male and 71 out of 271 were female. The age distribution among the patients was teenagers (13 to 18 years) were 38 patients, young adults (19 to 35 years) were 152 patients, middle aged adults (36 to 55 years) were 70 patients and old adults (above 55 years) were 11 patients out of 271. The age range of the study was 13 to 65 years old patients. The mean age of the study was 28.58 ± 13.52 years which was similar to the study done by [Enabulele et al. \(2016\)](#). Both teenagers and adults were taken.

In the total study, 14.02% were teenagers (13 to 18 years), 56.09% were young adults (19 to 35 years), 25.83% were middle aged adults (36 to 55 years), 4.06% were old adults (above 55 years) [Figure 2]. The common age group for dental traumatic injuries in Young Adults - 19 to 35 years. The preponderance of dental trauma among young adults coincides with the study done by [Bastone et al. \(2000\)](#). The reason for this could be due to their increased risk-

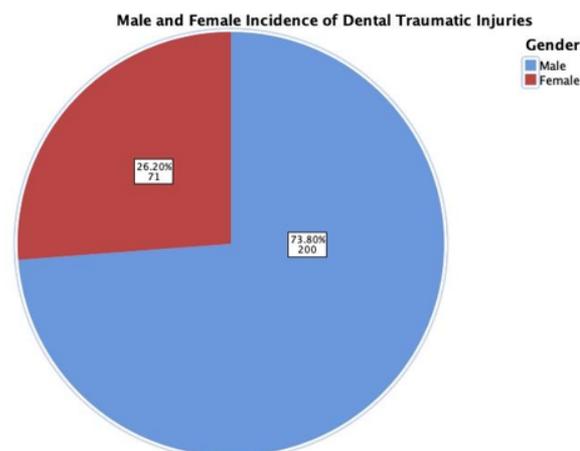


Figure 1: Pie chart showing the gender distribution in the patients with dental traumatic injuries across the scale of patient count. (Chi-square test, $p \leq 0.05$)

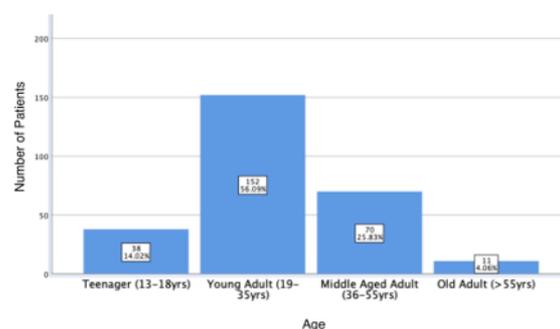


Figure 2: Bar graph showing different age groups in dental traumatic injured patients across the scale of age group in the x-axis and number of patients in the y-axis. (Chi-square test, $p \leq 0.05$)

taking behaviour and also increased physical activity. It was noted that fall was frequent cause of dental trauma in patients of age 15-30 years ([Hegde and Sajjani, 2015](#)). It can also be due to their extracurricular activities. It's a dental emergency in young individuals as their permanent teeth will be developing in those ages and hence it requires immediate attention and management ([Hegde and Sajjani, 2015](#)). The prognosis of some injuries depend on early management because a pulp which is vital has a better results in long term when compared to pulp without any blood supply ([Zaleckiene et al., 2014](#)). Chi-square test of the age distribution among dental trauma patients was $p < 0.05$ and hence this finding was statistically significant.

In this study, 73.80% were males and 26.20% were

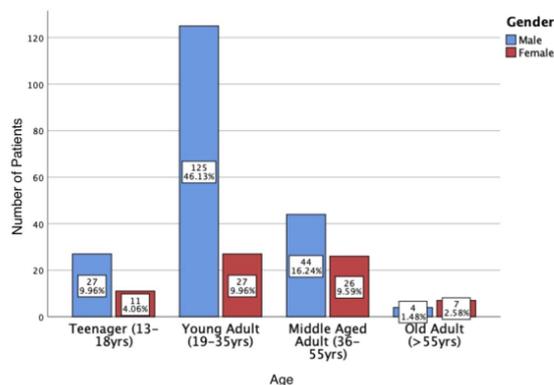


Figure 3: Bar graph showing different age groups in male and female patients with dental traumatic injuries across the scale of age group in the x-axis and number of patients in the y-axis. (Chi-square test, $p \leq 0.05$)

female, $p < 0.05$ [Figure 1]. This male predilection coincided with studies done by Lauridsen *et al.* (2012). Among males, the age distribution of dental trauma was 13.05% teenagers, 62.50% young adults, 22% middle adults and 2% old adults [Figure 3]. The age distribution among females was 15.49% teenagers, 38.03% young adults, 36.62% middle adults, 9.86% old adults [Figure 3]. A study done in the South Indian population suggests that the most common cause for dental trauma is fall and it is of higher incidence in males (Hegde and Sajjani, 2015). The reason for this could be due to the social setup and can also be because of cultural reservation among females (Gupta *et al.*, 2018). This contrasted against the study done by Garcia-Godoy *et al.* (1985). Bijella stated that there is insignificant gender distribution with dental traumatic injuries (Bijella *et al.*, 1990).

Traumatic dental injury is a serious dental health problem for the public and educational campaign and other measures should be taken to increase knowledge and awareness of the public. Importance of immediate treatment must be taught to them to minimize the consequences of dental injuries. Immediate treatments like management of fractured teeth, care for avulsed teeth and others should be also included in first aid kits.

The study was limited by a few factors. The limitations in the study were due to geographic limitation of south Indian population as a majority. This study was a cross sectional and uncentered study. The duration of the study can be expanded for better results. For further research, a larger sample size and inclusion of different ethnicity could give better results. This study further suggests the need

to establish an evidence base to manage traumatic dental injuries. Longitudinal studies can help in creating knowledge for management of dental trauma and creates an evident base.

The statistical software SPSS was used for the descriptive and inferential analysis. Using the non-parametric test - chi-square test we found the statistical significance of the study between the variables age and gender. The P-value was found to be $P < 0.05$ which was considered to be the level of statistical significance. Hence the study was statistically significant.

CONCLUSION

Dental traumatic injuries have an unfortunate impact to the teeth and the surrounding tissues and can be due to any day to day activity. Within the limitations of the study, we found that Dental Trauma was seen more in Young Adults - 19 to 35 years, with Male predilection. The mean age for Dental Trauma being 28.58 ± 13.52 years.

Conflict of Interest

The authors declare that there is no conflict of interest for this study.

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