

PREVALENCE OF TOOTH FRACTURE AMONG ADULT POPULATION VISITING DENTAL HOSPITAL

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ABSTRACT:

Dental injuries result in functional, esthetic and psychological disturbance accompanied by great concern. Traumatic dental injuries are due to the physical impact on a tooth and its surrounding tissues which may be direct or indirect trauma to the teeth may result either injury of pulp, with or without damage of crown or root displacement of the tooth from the socket. The most frequent causes of these injuries are falls, sport activities, bicycling, traffic accidents. A cross sectional retrospective study of, study population will 100 adult patients visiting Saveetha Dental College and Hospital with tooth fracture. Data was gathered and analyzed. The data was tabulated and Chi square analysis done using IBM SPSS software version 20. With the limited population and parameters of this study, there is a more prevalence of tooth fracture in male over females. The most common tooth involved in fracture is 21. Traumatic dental injuries are recognized as a public dental health problem worldwide.

KEY WORDS:

Age; Gender; Prevalence; Tooth fracture; Tooth number.

INTRODUCTION:

Tooth fractures have been encountered by dentists all over the world daily. The severity and consequences of the fracture may vary from a minor that would need no treatment at all, to a severe situation which results in root canal therapy (RCT), or even tooth loss. (Lubisich *et al.*, 2010) One of the greatest assets a person can have is a smile that shows beautiful nature teeth. An untreated and unsightly fracture of an anterior tooth can affect the behaviour of children. (Juneja, Kulkarni and Raje, 2018)(Flores *et al.*, 2007) Traumatic dental injuries are due to the physical impact on a tooth and its surrounding tissues which may be direct or indirect trauma to the teeth may result either injury of pulp, with or without damage of crown or root displacement of the tooth from the socket (Norton and O'Connell, 2012; Juneja, Kulkarni and Raje, 2018). It is a dental emergency situation in young patients and requires immediate assessment and management because many permanent teeth continue their development (Wilson *et al.*, 1997) (Sae-Lim and Lim, 2001). Dental trauma

(traumatic dental injuries) is an impact injury to the teeth and/or other hard eg:soft tissues within and around the vicinity of the mouth and cavity.(Flores *et al.*, 2007; Ariga *et al.*, 2018)(Jain, Ranganathan and Ganapathy, 2017)

It is usually sudden , circumstantial , unexpected, accidental and often requires emergency attention.(Vijayalakshmi and Ganapathy, 2016) It is not a disease but a consequence of several unavoidable rise fractures in life.(Ganapathy, Kannan and Venugopalan, 2017)These injuries may render an individual with meticulous oral mygav and a life experience of only the standard check-up and clean with changing denticity.(Ashok *et al.*, 2014)

Coat to the injured person and the community.(Kannan and Venugopalan, 2018)Throughout the world have been substantial(Sae-Lim and Lim, 2001; Lam *et al.*, 2008) the trauma to the body inclusive of the oral cavity, is a significant public health problem world wide.(Venugopalan *et al.*, 2014) In certain groups dental trauma is almost as high as $\frac{1}{5}$ of all bodily injuries.(Andersson, 2013).(Kannan and Venugopalan, 2018) Epidemiological studies indicate that dental trauma is a significant problem in young people and that in the near future, the incidence of trauma will exceed that of dental caries and periodontal disease in young population.(Ajay *et al.*, 2017)

It has been reported that traumatic dental injuries at their conferences may exceed the burden of caries and periodontal disease in the young population.(Flores *et al.*, 2007; Andersson, 2013). A recent study revealed that 44% of crowns performed by a group of general dentists in North Carolina were done to prevent tooth fracture.(Bader, Shugars and Roberson, 1996). Studies reported frequencies ranging from 9.4%–41.6% in primary dentition . Traumatic injuries in permanent teeth have been reported to have a prevalence rate between 6.1% to 58.6%. (Norton and O’Connell, 2012)(Duraisamy *et al.*, 2019). The aim of the study was to evaluate the prevalence of tooth fracture in the adult population above 20 years of age.

MATERIALS AND METHODS:

This study was conducted in Saveetha Dental college and Hospitals between june 2019 to april 2020. This is a hospital based descriptive study where the study population was adult patients above 20 years of age who presented with tooth fractures.. Approval was received from the Institutional ethics committee. Sample size was 100 patients who experienced tooth fracture. Information about the tooth fracture was collected from hospital record maintenance software DIAS(Dental Information Archiving Software). The collected data was entered in microsoft excel. Afterproper verification the data was entered into SPSS software. Correlation between age and gender with tooth fracture was done. Chi square analysis was charted and the result was obtained.

RESULT AND DISCUSSION:

There is a high prevalence of tooth fracture in male population (63.6%) compared to females (36.4%) (Figure 1)There is a high prevalence of tooth fracture in 11 (34.3%) and 21 (37.4%) compared to other teeth (Figure 2).There is a high prevalence of tooth fracture in ages 27 (9.1%)and 30 (7.1%) compared to other age groups(Figure 3). Among females among females 15 of them had fractures of 11, this was followed by 14 of them with fracture in 21, 3 of them had fracture in 31, 2 of them had fracture in 12, 2 of them had fracture in 22. Among male population 23 patients had fractures of 21, 19 of them had fractures in 11, 6 of the patients had fractures of 12, 6 patients had fractures of 22, 2 patients had fracture of 13, 2 participants had fractures of 31 and 2 of them had fractures of 42,patient had fracture of 42, 1 had fracture of 24, 1 had fracture of 23 and 1 had fracture of 41. Males appear to have suffered more tooth fractures than females ,however this was not statistically significant.(Pearson Chi square test; $P = 0.635$, $P > 0.5$). (Figure 4)

WHO has classified Injuries to the hard dental tissues and the pulp as ,enamel infraction, enamel fracture, enamel- dentin fracture, complicated crown fracture ,uncomplicated crown- root fracture ,complicated crown-root fracture and root fracture.Injuries to the periodontal tissues are classified as concussion, subluxation, extrusive luxation , lateral luxation, Intrusive luxation and avulsion Injuries to supporting bone are classified as comminution of the maxillary alveolar socket , comminution of the mandibular alveolar socket, fracture of the maxillary alveolar socket, fracture of the mandibular alveolar socket , fracture of the maxillary alveolar process, fracture of the mandibular alveolar process, fracture of the maxillae and fracture of the mandible (Organisation mondiale de la santé *et al.*, 1995)Injuries to gingiva or oral mucosa are classified as laceration of gingiva or oral mucosa, contusion of gingiva or oral mucosa and abrasion of gingiva or oral mucosa .(Andreasen, Andreasen and Andersson, 2019)

In the present study with the limited number of populations it is evident that the prevalence of tooth fracture is more in the upper anterior tooth region.(Subasree, Murthykumar and Dhanraj, 2016) It was observed that the overall prevalence of anterior tooth fracture was 14.85% in 2000 patient of the south indian population.(Hegde and Sajnani, 2015)

Another study conducted by Hegde and Shabin in the same geographic location during the year 2010 and 2011 the overall prevalence of anterior tooth fracture was due to trauma is 11.5%

The present study reveals that there is a high prevalence of fracture of the tooth in male population that is male 63.6%(Ashok and Suvitha, 2016; Ganapathy, Kannan and Venugopalan, 2017). This is correlated with the previous studies . (Ganapathy *et al.*, 2016)(Basha, Ganapathy and Venugopalan, 2018) (Hegde and Sajnani, 2015)The prevalence of anterior tooth fracture with respect to gender was found to be greater in Males 53.9% and Female 46.1%.Many studies showed,among all the anterior teeth prevalence for fracture and caries was maximum in maxillary central incisors.(Hegde and Sajnani, 2015)(Jyothi *et al.*, 2017)(Selvan and Ganapathy, 2016)There is a high prevalence of maxillary central incisors fracture reported by many researchers. (Ashwitha *et al.*, 2013),(Hegde, Malhotra and Hegde, 2014),(Castro *et al.*, 2005; Hegde, Malhotra and Hegde, 2014), (Andrade *et al.*, 2010),(Hecova *et al.*, 2010; Selvan and Ganapathy, 2016)

CONCLUSION:

In the present study with the limited population, we noticed that there was a high prevalence of tooth fracture in Male population more than female. There was a high prevalence of tooth fracture in Maxillary Arch. The most commonest tooth affected in the adult population was the maxillary anterior teeth.

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CONFLICT OF INTEREST: The authors declare no conflict of interest.

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Gender distribution involved in tooth fracture

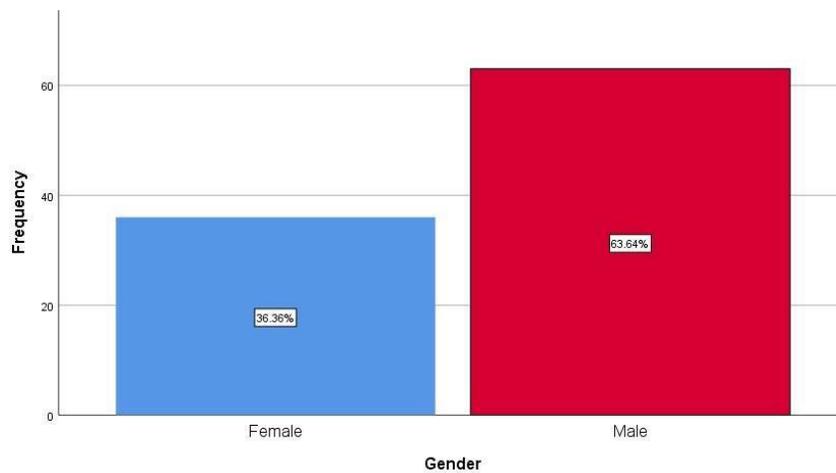


Figure 1: Bar diagram showing Gender distribution involved in tooth fracture X axis represents Gender and Y axis shows the number of people with fractured teeth. There is a high prevalence of tooth fracture in male population (63.6%) compared to females (36.4%) .

Teeth involvement in fracture

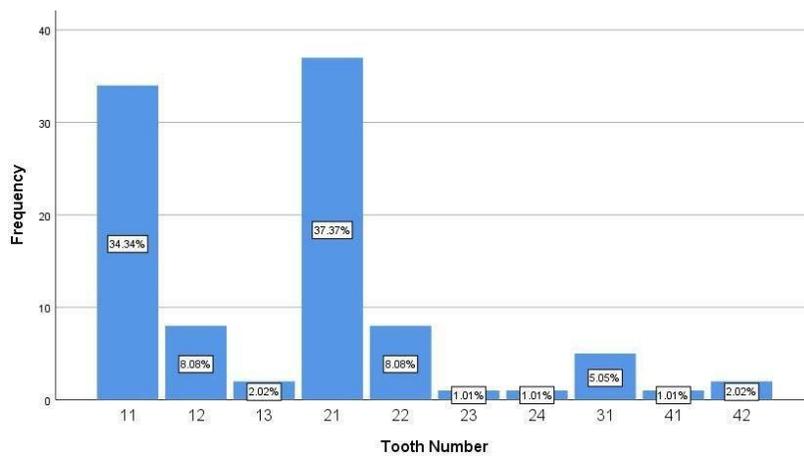


Figure 2: Bar diagram showing teeth involved in fracture X axis represents Fractured teeth and Y axis shows the number of people with fractured teeth. There is a high prevalence of tooth fracture in 11 (34.3%) and 21 (37.4%) compared to other teeth.

Tooth fracture in age groups

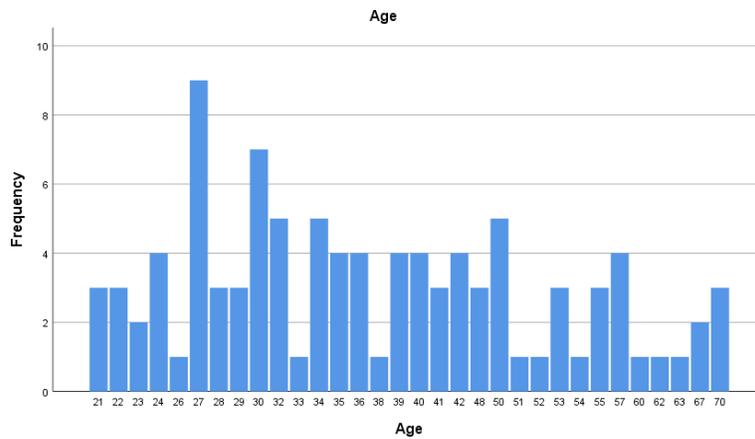


Figure 3: Bar diagram showing tooth fracture in age groups .X axis represents age group distribution with fractured teeth and Y axis shows the number of people with fractured teeth. There is a high prevalence of tooth fracture in ages 27 (9.1%) and 30 (7.1%) compared to other age groups.

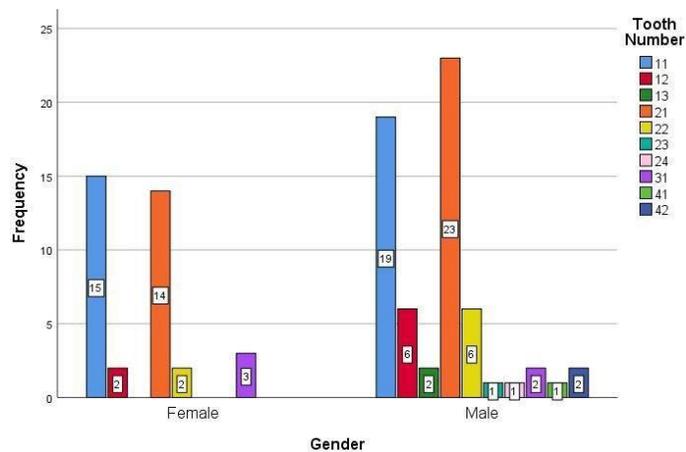


Figure 4: Bar chart showing association between tooth fracture and gender were X axis represents Tooth number and Y axis represents Gender prevalence. Males appear to have suffered more tooth fractures than females ,however this was not statistically significant.(Pearson Chi square test; P = 0.635, P > 0.5).