

Causes of Exodontia in adult dentition and its association with Age in Tertiary Dental Practice

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ABSTRACT

Objectives: To identify the causes of exodontia in adult dentition and its association with Age in Tertiary dental practice.

Study design: Descriptive study

Place and duration of study: Oral and Maxillofacial surgery department of Azra Naheed Dental College, a tertiary care dental setup in Raiwind, Lahore from Jan 2021 to June 2021.

Methodology: Different engines like PubMed, Google Scholar, and Medline as well as other Oral Surgery journals were searched for relevant articles. This Study comprised of 400 patients selected by random sampling. The consent is taken from the patients before collecting their data. Only permanent teeth extracted for different causes are included in the study. Data was analysed using SPSS 24.

Results: Among the 400 patient cases evaluated for exodontia, the chief cause for tooth extraction was because of grossly carious tooth 230 (57.50%), followed by Periodontal reasons 71 (17.75%). This study included patients whose age group range is from 11-69 years, with 62% males and 38% females. A notable difference was observed between cause of tooth extraction and different age groups.

Conclusion: Emphasis on dental education can prevent the tooth loss. Common oral diseases such as dental caries at their various stages of progression and periodontal diseases should be highlighted by the oral health promotion campaigns. In addition, consistent dental check-ups at schools, colleges and workplaces should be made compulsory. In addition, the community field trips should be organized. By doing so an increase in oral health awareness may also intimidate patient's perspective waiting until acute symptoms develop. As a follow-up to this study, it is recommended that a more representative sample of the general population be evaluated.

Keywords: Exodontia, Non-Restorable, Caries

INTRODUCTION

The concept of saving the natural tooth is being promoted at a fast rate. The on-going awareness regarding the importance of natural tooth has greatly changed the approach of dentist as well as the patient. Every day new procedures/ techniques and innovations are creating numerous options to conserve as much natural tooth as possible. The fluoridation program for the prevention of dental caries has worked wonders along with it the emphasis on oral hygiene not only at individual level but also at public health level has brought decline in tooth extraction ratio (1). Almost every dental speciality is working hard for saving natural tooth. Much advancement occurs in endodontic procedures, periodontal therapy procedure, crown preservation etc. In spite of all these advancements, many people do come to dental office for tooth extraction mostly due to unbearable tooth ache or due to grossly carious tooth. The increase in tooth extractions in this era is very alarming for the dental health professionals (2). Probably, many patients don't want to go through the lengthy procedures of saving the tooth. Still others don't want to spend money to save the tooth, so for them the easy option to get rid of diseases or grossly carious tooth and pain is extraction, which could otherwise be saved if using the resources and expertise available. An understanding of the reasons why teeth are extracted is essential to improve oral health outcomes

In developed countries there is vast improvement in preservation of natural teeth even at geriatric level. In under developed countries like Pakistan, where population is not covered under expensive dental insurance, the rate of permanent tooth extraction is still a dilemma (3). This effect the quality of life in terms of aesthetics, phonetics, mastication, TMJ disorders and on-going many other issues. Furthermore, it can lead to systemic issues.

The main aim of this study is to find out the reason behind the permanent tooth extraction in spite of full access to the tertiary care hospital. This study will also compare the gender predominance regarding the exodontia and also indicate the relationship of permanent tooth extraction with age.

The implementation of this study will definitely affect the better outcomes in terms of better oral hygiene and better awareness regarding the oral care.

METHODOLOGY

This study is carried out in Oral and Maxillofacial surgery department of Azra Naheed Dental College which is a tertiary care dental hospital in Raiwind, Lahore, Pakistan. This study is approved by the Ethical review committee of Azra Naheed Dental College. A written informed consent is taken from the patient before the research form was filled in and incomplete data forms were excluded. Only permanent teeth extractions are considered in this study. The sample decided to be 400 by using WHO sample size calculator and random sampling technique used. The study was conducted from January 2021 to June 2021. The diagnosis for tooth extraction was made by both radiographic and clinical examination. Moreover, the decision to extract the tooth was taken under the departmental Supervisor and two trained dentists just to remove the bias and also on the patient's willingness to restore or extract the tooth. Information regarding general health was also taken and risk factors such as diabetes, hypertension and smoking were investigated.

All possible reasons of exodontia are included in research forms. As mentioned above only permanent teeth extractions are considered for this study. The age range of patients starts from mixed dentition stage age to geriatric patients. Data was encoded and entered in SPSS 24. Descriptive analysis was done and results presented in frequencies.

RESULTS

Among the 400 cases evaluated and treated for exodontia, the statistical analysis of data was calculated. The female and male patient was found out to be 37.5 % and 62.5 % respectively. The tooth with the highest frequency of extraction, ignoring the cause is mandibular right and left first molar followed by mandibular third molars.

Table- 1: Frequency of different extractions

Sr. No.	Cause of Extraction	Frequency	Percentage
1.	Grossly carious	230	57.50%
2.	Periodontal reasons	71	17.75%
3.	Impacted tooth	60	15%
4.	Failed RCT	9	2.25%
5.	Prosthetic issues	6	1.50%
6.	Fractured tooth/ BDR	14	3.50%
7.	Others	10	2.50%

The arithmetic assessment of cause of tooth extraction is shown in table-1. According to the statistical analysis it is evident that the grossly carious tooth was the main reason of extraction of

tooth. Prosthetic reason for the extraction of tooth came out to be minimum observed cause. Some other causes of extraction are periodontal issues in advanced stage with excessive bone loss, impacted or unerupted retained tooth, failed root canal treatment or those patients who cannot go for root canal treatment because of committed life style or due to financial reasons.

The less common causes include extraction due to orthodontic treatment, dentoalveolar or maxillofacial fracture, extraction of supernumery or crooked and rotated teeth.

In this study we also noticed and compared the exodontia ratio among different age groups.

Table 2: Association of Age with Reason of Exodontia.

Age group	Reason of Exodontia						
	Grossly carious	Periodontal issues	Impacted tooth	Failed RCT	Fractured tooth/BDR	Prosthetic issues	Others
11-19	06	07	16	01	00	00	00
20-29	60	15	17	07	03	02	03
30-39	72	10	13	03	08	09	05
40-49	20	10	00	03	03	08	05
50-59	15	20	00	00	05	09	01
60-69	07	12	00	00	10	10	05

DISCUSSION

Caries was once much unknown disease when majority of population was in habit of eating raw vegetables, fruits and had no concept of processed and junk food, still dental caries is one of the former infections of humans. The incidence increased considerably in post-industrial societies with increasing wealth and prosperity and in particular with the availability of processed sugar (4). Poor oral hygiene is also the important factor for tooth loss especially in young population (5). With the extraction of tooth, the socket and surrounding tissue undergoes many changes. The alveolar bone got resorbed and this in turn results in functional and cosmetic damage to the patient. It is possible to limit the future extractions if the cause is identified and also preventive measures are taken like water and food fluoridation.

An evident statistic regarding the extraction of young permanent is very alarming (6). The major age group underwent extraction was 30-39 years followed by the twenties age group. This predicament according to the obtained results anticipates more complaints of future missing teeth.

In this study total of 400 cases evaluated for the extraction, the percentage of female and male patients was found out to be 37.5 % and 62.5 % respectively, depicting that male have more prevalence rate for dental caries than the females. This gender ratio according to the acquired results is not related to the other studies done during recent past.

The literacy rate and occupation of the participants under study were variable. They all have easy access and provision to tertiary care health and dental setup.

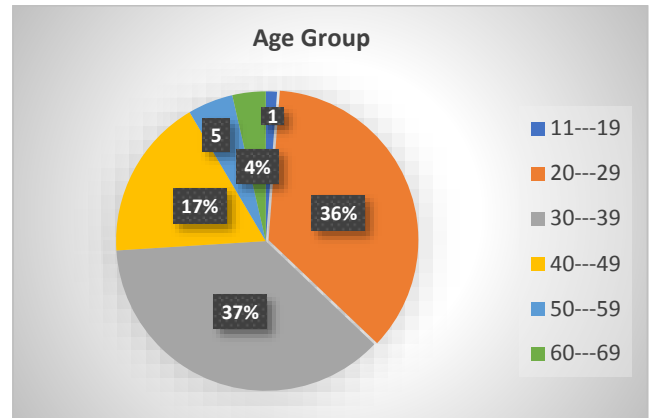


Fig 2: Different age groups undergoing extraction.

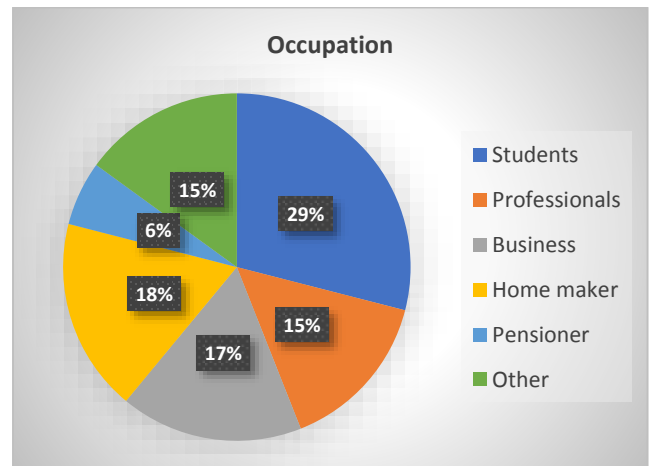


Fig 3: Occupation of participants in study

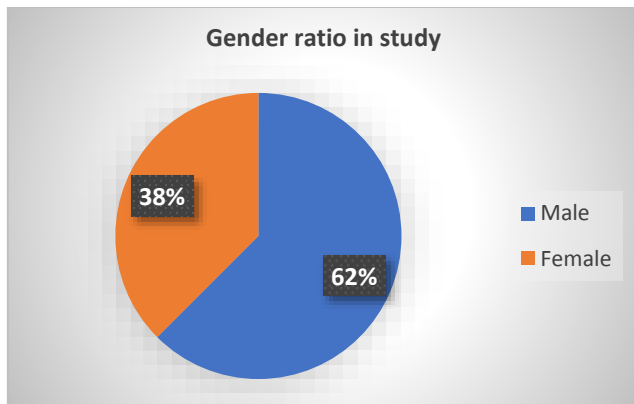


Fig 1: Gender ratio participated in study

In this study the grossly carious tooth comes out to be the most common cause of tooth extraction. Similar studies have very closely related result in this regard (7). This is also consistent with the research work done on patients in tertiary care dental setup in Rawalpindi area (6). There is a relationship between poor dental health and lengthy working hours (8). Lahore is famous for one of the world's most epic street food cities and an easy access to

refined sugars. With a busy life and insufficient time to present to dental and medical office, majority of population has oral and systemic health problems, obesity, indigestion problem and high cholesterol (9). The statistical analysis showed dental caries as number one cause of tooth extraction (7) in turn shows that population is not taking these issues seriously which results in continuation of minor carious lesion to ultimately destruction of the tooth structure. A key construct in health psychology is attitude due to their central role in influencing and altering behavior (10). Promoting a positive lifestyle change is a challenge in this busy and fast life. In our setting of semi-rural population, patients are usually ignorant of oral health care measures and show a poor attitude to dental diseases and their treatment needs. Lack of awareness due to poor educational level leads to poor level of motivation. There should be proper dental education and awareness with the help of media or dental camps so that dental care became significant part of health care from a very young age.

The second most common cause of extraction in this study came out to be Periodontal issues, which goes along with the research done in population of Jordan, where 30 general dentists were asked to record the reasons of exodontia (11). They found that dental caries remains the number one cause for exodontia followed by the periodontal reasons in patients aged 40 years or above and more commonly related to the pocketing (11). Periodontitis can cause teeth to loosen and eventually leads to the tooth loss. Periodontitis is frequent but largely avoidable. Generally, the bacteria in the mouth became reason for periodontitis which in turn infect the tissue around the teeth. Components that increase the probability of disease include smoking, diabetes, HIV/ AIDS, family history, and certain medications.

The third common reason for the exodontia in this study was impacted teeth as opposed to the result of study of Northwestern Nigeria (12). With the change in life style and eating habits, people are consuming more refined and processed food. As, the muscles are not working properly like they used to be, the jaws size is becoming smaller and wisdom teeth find it difficult to erupt so it remains either unerupted, partially or completely impacted in majority of the cases these days (13). This results in inability to maintain a good oral hygiene resulting in pericoronitis and eventually the extraction of tooth. Moreover, there is an increased incidence of angulated impacted teeth, these results in external resorption of adjacent molars (14).

Some other causes include extraction due to prosthodontic reasons. This includes mostly geriatric patients with compromised teeth having multiple problems like combined carious and perio issues etc. The fractured and broken-down roots are also very frequent cause of tooth extraction. In city life people are more prone to traumatic injuries like road traffic accidents, sports injuries, physical bullying etc. (15). People from low socio-economic areas prefer to visit quacks for the tooth extraction rather qualified dentists to avoid expensive treatments and they end up with broken roots inside the socket (16). Root canal treatment is a common procedure to save the tooth, still population demand for tooth extraction. This clearly shows that there is a lack of awareness to save the natural tooth.

This study shows that most frequent teeth extracted were lower molars i.e., mandibular right and left first molar followed by mandibular third molars, this fact goes along with the research done in Tehran, Iran (17). There seems to be a logical reason behind it since the anatomy of posterior teeth is such that there are cusps, pit n fissures where there are more chances of food accumulation and also the tooth brush bristles cannot reach these places easily.

After the extraction of tooth, the series of changes occur like the proper alveolar bone resorption occur both buccally as well as lingually. So, in order to replace the tooth with implant supported fixed prosthesis, socket preservation is necessary to mimic the natural bone (18).

The limitation of the study was the time constraints but was able to collect and manage data of the required sample.

It is suggested that a similar study should be conducted in different areas of same city and even in the different cities so that the causes of tooth extraction should be scrutinised and proper measures be taken. Strategies should be formulated according to need based. There should be fluoridation of water where its level is less than one part per million. Dental education should be strong enough to spread dental awareness messages to the people and especially to the far away communities. A very high number of teeth extractions at a very young age shows bizarre situation and lack of seriousness level regarding the importance of teeth among the society.

CONCLUSION

Even though the variance in race, ethnicity; culture etc. regarding oral health will remain, still it is seen that major cause of tooth extraction is caries. In past few years, the number of cases of teeth extraction has increased because of the above-mentioned observed causes. It is necessary at the governmental level as well as individual dentist level to aware the societies, communities and patients regarding the importance of saving a natural tooth.

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