

CAUSES OF TEETH EXTRACTION IN PATIENTS ATTENDING THE OUTPATIENT TEACHING CLINIC IN COLLEGE OF DENTISTRY, UNIVERSITY OF BASRAH FROM 2012-2014

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ABSTRACT

Background

Oral condition is a mirror of the body health and tooth loss considered as a major cause of many complications, especially those associated with eating (nutritional) in the older age group, in addition to psychological disturbances; so, by this study, we determine the causes which lead to tooth extraction ; among them dental caries, periodontitis, orthodontics, trauma and prosthodontics.

Objective

To determine the patterns of teeth extractions and the reasons for these extractions in patients attending to an outpatient teaching clinic in college of Dentistry University of Basrah during period from 2012-2014.

Materials and Methods

A descriptive and retrospective study design was followed. Data was gathered from 790 patient files to record the following variables: age, gender, type and site of a tooth extracted, chief complaint of patients and the reason for the extraction.

Results

The third molar teeth were extracted more frequently and the teeth extracted were commonly in the right sided and lower jaw. Periapical abscess was seen as the most common cause of tooth extraction and extracted teeth were more common in female than male.

Conclusions

Implementation of primary preventing programs must be the way to reduce the teeth loss frequency and also proper treatment and management of cases that lead to tooth loss.

KEYWORDS: Teeth Extraction, Dental Caries, Periodontitis

INTRDUCTION

In order to improve oral health, understanding the reasons for tooth extraction is of great importance. There are several studies investigating the reasons for tooth extraction in different countries. Knowing that oral diseases remain highly prevalent worldwide that affecting more than (3.9) billions peoples⁽¹⁾. The reason of tooth loss in a population is a

very critical point for progress of dental health services. Tooth loss is closely related with increasing age; as a result of overgrowth of certain micro-organisms; which are part of dental plaque that affect the tooth by causing caries or periodontitis ⁽²⁾. The consequence of the patient's tooth loss may be particularly harmful, leading to drifting or tilting which may lead to further complications like caries, periodontitis and even orthodontic and temporomandibular joint problem ⁽³⁾. A lot of studies show that causes of tooth loss among adults return to disease factors such as caries, periodontal disease and trauma as major causes of tooth loss, but there are also non-disease factors that are highly contributory to tooth mortality ⁽⁴⁾ like age, gender, race, education, income and geographic region ⁽⁵⁾. Availability and accessibility of care, cultural factors, the individual's attitudes, cost of care and beliefs about the perceived need for dental care and the importance of maintaining the dentition interplay in the decisions of whether or when to extract a tooth is an outcome of treatment decision as well as disease ⁽⁶⁾.

The Aim of the Study

To know the causes that lead to extract permanent teeth of adult in Basrah province population and do a comparison with data from other countries.

MATERIALS AND METHODS

Case records of patients attending dental teaching clinic in College of Dentistry in Basrah between 2012 and 2014 were retrieved from medical records. A total of 880 Teeth have been extracted from (790) patients over a three year study period, included those ages above 10 years at the time of treatment. The causes of tooth extraction were categorized according to the age, gender, type and location of the tooth. Chief complaint of patients and causes of tooth extraction was collected and analyzed. The definite diagnosis determines by clinical examination, radiography, vitality tests and histopathological examination. Data collected were entered into Microsoft SPSS program version 20, and evaluated by independent sample t- test and Chi –square analysis; $P < 0.05$ was considered as statistically significant.

RESULTS

The extractions of 880 teeth from 790 patients were recorded in this study. Mean age of the patients was (39.8 years), ranging from 10 to 87 years. The male comprised (41.9%) while female (58.1%).

For both gender and in all age groups the extracted teeth were more on the right side than left (72.6%, 27.4%) respectively, and were slightly higher in lower jaw 52.2% with no statistical significance.

Pain was the first complaint in both genders (72.6%, 27.4%), respectively but with no statistical significance. The pain was experience relatively equal in all age groups, but lower slightly in age group less than 19 years (3.9%).

In all age groups and both genders the third molar tooth was extracted more frequently than other teeth (20.9%), while the first molar has been the second frequently extracted tooth (17.8%), and central incisor was least frequently extracted tooth (6.7 %), with highly statistically significant changes, as shown in table (1).

The periapical abscess was the most common diagnostic causes for extracting teeth of patients under study (34%), followed by periapical granuloma (21.2%), while the pulpitis comprise (19.2%), periodontitis was (14.5%), and teeth extracted for orthodontic purposes was (1.8 %), while the periapical cyst was seen as least cause of tooth extraction in this study (0.9 %), with highly statistically significant changes, as shown in table (2).

Pulpitis was seen more common cause of tooth extraction in the age group (30-39year) with a percent of (27.2%), Periapical abscess was more frequently seen in the age group (40-49year) with a percent of (27.8 %), Periapical granuloma was seen more frequently in older age (above 50 years) with a percent of (36.9 %), Pericoronitis was seen more frequently in the age group between (20-29year) with a percent of (60.5 %), and not seen in older age group above 50year. While periodontitis was most commonly seen in old age in percent of (62.5 %) and the lowest in young age (less than 19 years) in percent of (0.8%). Teeth extracted because of impaction were seen more in the age group between (29-30year) in percent of (43.3%) and also not seen in old age. Teeth extracted for orthodontic purposes were relatively low in the general account, for (1.8%) and seen only in the younger age (less than 19year and between 20-29 year. Periapical cyst was the lowest diagnostic cause of tooth extraction shown in this study it comprised (0.9 %) and see equally in age groups lower than 19 years and age between 20-29year. With no statistical significant, as shown in table (3).

Gender Distribution of Extracted Teeth

According to gender distribution both left and right sided teeth are extracted more frequently in female patients than male, as shown in tables (4,5).

Regarding compliant of extraction surprisingly male experience pain more than female in this study group (57.3%, 42.7%) respectively.

All teeth order were shown to be extracted more commonly in female than male (58.1 %, 41.9 %) respectively. The central incisor and second premolar teeth were extracted more in male, while other teeth extracted more in females.

Regarding the causes of extraction periapical abscess, periapical granuloma, and Pericoronitis is more common in female with percent (36.2 %, 24.3% and 5.3 %,) respectively. While pulpitis, periapical cyst, periodontitis, impacted teeth and teeth extracted for orthodontic purpose are more common in male with percent of (20.3%, 1.4%, 18.4%, 4.6% and 3%) respectively and this change was statistically significant, as shown in table (7).

DISCUSSIONS

In this study, the tooth extraction in the female are comprised (57.3%), while in male (42.7%) and this agree with other studies that shows females has a higher rate of extraction than male ^(6,7,9,10,11,12), while disagreeing with others show tooth extraction is more in male than female like ^(9,25).

Pain is the main complaint of patients in both genders and it's relatively equal for all age groups, but slightly lower for age less than 19 years, because deciduous teeth are excluded from this study. Pain result mainly from caries and its sequences which are highly significant for other complain (75.34%) and this due to delay in attendance for dental treatment like restorative or root canal treatment instead of extraction., this finding agree with other studies ^(8,9,10, 13,14,15).

In this study upper and lower third molar has seen to be more extracted tooth about 184 (20.9 %) than other teeth and its mainly for age group (20 -29year); the cause of extraction due to partial eruption that cause Pericoronitis or completely impacted which lead to crowding or affecting second molar teeth or erupted with caries lesion. The reason of impaction of third molar either due to diminish of space or to the growth pattern (angulations) and this agree with ⁽¹⁷⁾.

First molar seen to be the second tooth extracted 157 (17.84%) and its more than other teeth in age group below (19years), because its first permanent tooth erupted in the oral cavity and it is at high risk of caries also because parents may think it is a deciduous tooth and neglect it and when it becomes painful no benefit of treatments, either need extraction

or may needs root canal filling and both treatment they refused because of child frightens or because of the cost of filling, this agree with ^(3,9,12).

Caries and its sequences are study separately and showed that periapical abscess is common diagnosis for extraction and its (54.5%) in age group(30-49year) and this disagree with ⁽¹⁶⁾. While periapical granuloma are common in age group above (50year) (36%) and most of these teeth are retained roots or badly caries.

Pulpitis are seen more in age group (20-39 year), those patient the pain is relieved by extraction which is cheap in comparison to restorative or root canal treatment.

Periodontitis are more in age above (50 year), this related to increase periodontal disease that related to aging process and dental caries that associated with aging and low socioeconomic states and that in agreement with all studies in this subject.

Impaction and extraction for orthodontic treatments are more in age below (19 year) which is due to malocclusion that cause esthetic or functional problems that occur after eruption of permanent teeth so orthodontic treatment are needed with or without extraction of sound teeth specially upper premolars and other impacted teeth specially canine or supernumerary teeth ⁽¹⁸⁾.

Periapical abscess, periapical granuloma and Pericoronitis are more in females, while pulpitis, periapical cyst, impaction and extraction for orthodontic are common in male. Its observed, evidently the reasons for teeth extraction in females are when the teeth reaching the advance stage at which extractions are the only choice and most of them refuse its and this is returned to various consideration, such as security situation, economy status and other some obsolete believes which is prevented to step out females only for most important necessity in treatment of any medical problems, as well as the socio-culture which negatively reflect on females which leads to leave out their sanitary state to give oneself up to take care of their family needs ^(23,24).

Patients don't recognize that dental pain represents the late stage of dental caries,because many of them were surprised when the dentist informs them that the tooth needed a root canal treatment or extraction ⁽¹⁹⁾. One of the important reasons, for late attendance of patients to the dental clinic is poor dental health education ⁽²⁰⁾, while the other factor was the low income, especially in the absence of good dental care in primary health care centers which made the patient don't visit dental clinic even in case of pain that made him ignore his or her oral health for years ⁽²¹⁾, lower social classes have poorer dental health in comparison with high social inequalities or middle classes ^(2,4).

One of the factors that affect delay attendance of Iraqi patients to dental clinic is bad past dental history, many patients either suffer from improper dental treatment by dentist which makes them lose confidence to the other dentists, or due to local oral factors. Many persons fear of pain and feelings of anxiety when they want to visit dental clinic which naturally is unpleasant, the interaction between dentist and patients during dental treatment may influence the frequency of dental visits in the future because this interaction may increase the dental fear of the patients ⁽²²⁾.

CONCLUSIONS

Implementation of the dental health care programs, applicable not formalist, by educate the people to the important of dental care by courses, lectures and symposiums. Iraqi government efforts must be bolster to the dental health care by increase the adequacy of the dentist by courses on all the updating in dental care, also increase the number of the

skill dentist, number of early medical health centers in all province and supply it by all new machines, equipment and materials to introducing better services to people, by this people will seeking deferent dental treatment to preserve their teeth.

Table 1: The Distribution of Extracted Teeth According to Type of Teeth and Age Group

TOOTH	Age Groups					Total
	>19	20-29	30-39	40-49	<50	
central incisor	3 (5.10%)	7 (11.90%)	2 (3.40%)	12 (20.30%)	35 (59.30%)	59(6.70%)
lateral incisor	4(5.40%)	5(6.80%)	16(21.60%)	16(21.60%)	33(44.60%)	74(8.40%)
Canine	7 (9.20%)	9 (11.80%)	9 (11.80%)	18 (23.70%)	33 (43.40%)	76 (8.63%)
first premolar	5 (3.90%)	16 (12.60%)	28 (22%)	33 (26.00%)	45 (35.40%)	127 (14.43%)
second premolar	5 (4.60%)	14 (12.80%)	32 (29.4%)	29 (26.60%)	29 (26.60%)	109(12.38%)
first molar	24 (15.30%)	39(24.80%)	33(21.00%)	30(19.10%)	31(19.70%)	157(17.84%)
second molar	2 (2.10%)	18(19.10%)	29(30.90%)	21(22.30%)	24 (25.50%)	94(10.68%)
third molar	5 (2.70%)	66 (35.90%)	54 (29.3%)	42(22.80%)	17 (9.20%)	184 (20.90%)
Total	55 (6.30%)	174 (19.8%)	203(23.1%)	201 (22.8%)	247 (28.1%)	880 (100%)

P value > 0.05

Table 2: The Distribution of Extracted Teeth According to Causes of Extraction

Causes of Extraction	Total
pulpitis	169 (19.20%)
Periapical abscess	299 (33.97%)
Periapical granuloma	187 (21.25%)
periapical cyst	8 (90.00%)
Pericoronitis	43 (4.88%)
Periodontitis	128 (14.54%)
impacted	30 (3.40%0
orthodontics	16 (1.80%)
Total	880 (100%)

P value < 0.01

Table 3: The Distribution of Extracted Teeth According to Causes of Extraction and Age Group

Causes of Extraction	Age Groups					Total
	>19	20-29	30-39	40-49	<50	
Pulpitis	16	44	46	36	27	169
	9.50%	26.00%	27.20%	21.30%	16.00%	19.20%
Periapical abscess	15	50	80	83	71	299
	5.00%	16.70%	26.80%	27.80%	23.70%	33.97%
Periapical granuloma	4	24	46	44	69	187
	2.10%	12.80%	24.60%	23.50%	36.90%	21.25%
periapical cyst	4	4	0	0	0	8
	50.00%	50.00%	0.00%	0.00%	0.00%	90.00%
Pericoronitis	2	26	12	3	0	43
	4.70%	60.50%	27.90%	7.00%	0.00%	4.88%
Periodontitis	1	10	11	26	80	128
	0.80%	7.80%	8.60%	20.30%	62.50%	14.54%
Impacted	1	13	8	8	0	30
	3.30%	43.30%	26.70%	26.70%	0.00%	3.40%
orthodontics	12	3	0	1	0	16
	75.00%	18.80%	0.00%	6.30%	0.00%	1.80%
Total	55	174	203	201	247	880
	6.30%	19.80%	23.10%	22.80%	28.10%	100.10%

P value > 0.05

Table 4: The Distribution of Extracted Teeth According to Sides and Gender

		Gender		Total
		Male	Female	
	Right	273(42.7%)	366 (57.3%)	639(100.%)
	Left	96 (39.8%)	145 (60.2%)	241 (100.%)
Total		369 (41.9%)	511 (58.1%)	880 (100%)

P value > 0.05

Table 5: The Distribution of Extracted Teeth According to Jaw and Gender

		Gender		Total
		Male	Female	
Jaw	upper	181 (43.3%)	237 (56.7%)	418 (100%)
	lower	188 (40.7%)	274 (59.3%)	462(100%)
Total		369 (41.9%)	511 (58.1%)	880(100%)

P value > 0.05

Table 6: The Distribution of Compliant of Patient s and Gender

		Gender		Total
		Male	Female	
compliant	pain	273(42.7%)	366 (57.3%)	639(100%)
	no pain	96 (39.8%)	145 (60.2%)	241 (100%)
Total		369(41.9 %)	511 (58.1%0	880 (100%)

P value > 0.05

Table 7: The Distribution of Causes of Extraction and Gender

		Gender		Total
		Male	Female	
Diagnosis	pulpitis	75(44.4%)	94 (55.6%)	169 (100%)
	Periapical abscess	114(38.1%)	185(61.9%)	299 (100%)
	Periapical granuloma	63(33.7%)	124 (66.3%)	187 (100%)
	periapical cyst	5(62.5%)	3 (37.5%)	8 (100%)
	Pericoronitis	16 (37.2%)	27 (62.8%)	43 (100%)
	Periodontitis	68 (53.1%)	60 (46.9%)	128 (100%)
	impacted	17(56.7%)	13 (43.3%)	30 (100%)
	orthodontics	11 (68.8%)	5(31.2%)	16 (100%)
Total		369(41.9%)	511(58.1%)	880 (100%)

P value <0.05

REFERENCES

1. Derek Richards. Oral diseases affects some 3.9 Billion people. Evidence-Based Dentistry 14,35 (2013).
2. Morita M, Kimura T, Kanegae M, Ishikawa A, Watanabe T. Reasons for extraction of permanent teeth in Japan. Community Dent Oral Epidemiol. 1994;22(5 Pt 1):303-06.
3. Nasreen T. and Haq. M.E. Factors of tooth extraction among adult patients attending in exodontia department of Dhaka Dental College and Hospital. Ban J Orthod and Dentofac Orthop, Oct 2011; Vol-2, No. 1, p 7-10.
4. Jovino-Silveira RC, Caldas Ade F Jr, de Souza EH, Gusmão ES. Primary reason for tooth extraction in a Brazilian adult population. Oral Health Prev Dent. 2005;3(3):151-7.
5. Warren JJ, Watkins CA, Cowen HJ, Hand JS, Levy SM, Kuthy RA. Tooth loss in the very old: 13-15 year incidence among elderly Iowans. Community Dentistry and Oral Epidemiology. 2002; 30: 29-37.

6. Presson SM, Niendorf WJ, Martin RF. Tooth loss and need for extractions in American Indians and Alaska Native Dental Patients. *Journal of Public Health Dentistry*. 2000; 60: 267-272.
7. Ban F. Al-Ddroubie. Causes of tooth extraction in Al Mushahda village. *J Bagh College of Dentistry*. Vol. 18(3), 2006.
8. Reghunathans Preethananath: "reasons for tooth extraction in urban and rural population of Saudi Arabia". *Pakistan Oral & Dental Journal*. Vol. 30. No. 1, 2010.
9. Bushranaaz Fathima Jaleel¹, Ramesh Nagarajappa², Ashok Kumar Mohapatra³, Gayathri Ramesh. Risk Indicators Associated With Tooth Loss among Indian Adults. *OHDM - Vol. 13 - No. 2 - June, 2014*.
10. Upadhyaya C. Humagain M. The pattern of tooth loss due to dental caries and periodontal disease among patients attending dental department (OPD), Dhulikhel Hospital, Kathmandu University Teaching Hospital (KUTH), Nepal. *Kathmandu University Medical Journal (2009)*, Vol. 7, No. 1, Issue 25, 59-62.
11. P. Sessa Reddy¹, A. Swaroop Kumar Reddy, Ashish. R. Jain, R. Pradeep. Tooth Loss Prevalence and Risk Indicators in an Isolated Population of Kadapa- South India. *American Journal of Public Health Research*, 2014, Vol. 2, No. 6, 221-225.
12. Raad Salih Al-Ani, B.D.S., H.D.D., M.Sc., PhD. Tooth Loss in Adult Urban Population in Ramadi City, Iraq. Vol.7,No.1,June 2009, ISSN: 2070-8882.
13. Brennan DS, Luzzi L, Roberts-Thomson KF. Dental service patterns among private and public adults in Australia. *BMC Health Serv Res*. 2008;8:1. [PMC free article] [PubMed]
14. Nuttal NM, Davies JA. The frequency of dental attendance of Scottish dentate adults between 1978 and 1988. *Br Dent J*. 1991;171:161-5. [PubMed]
15. Kay EJ, Blinkhorn AS. The reasons underlying the extraction of teeth in Scotland. *Br Dent J*.1986;160:287-91.
16. Hargreaves KM, Cohen S (editors), Berman LH (2010). *Cohen's pathways of the pulp (10th ed.)*. St. Louis, Mo.: Mosby Elsevier. pp. 529-555. ISBN 978-0-323-06489-7.
17. Sundus Abdul Wadood. A Comparison between clinical and radiographical appearance of lower third molar. *Bas J Surg*, June, 21, 2015 39.
18. H Travess, D Roberts-Harry & J Sandy. Extractions in orthodontics. *British Dental Journal* 196, 195 - 203 (2004).
19. VanPalenstein Helderma WH, Davda SV, Fazal SR.: Reasons for delayed demands for dental treatment and expectations regarding dental treatment among patients in Tanzania. *Odentostomatol. Trop.*, submitted.
20. Regant GA: Relationship between dental knowledge and tooth cleansing behavior. *Community Dent. Oral Epidemiol.*1979;7:191-4.
21. Peterson PE: Social inequalities in dental health towards a theoretical explanation. *Community Dent. Oral Epidemiol.* 1990;18:153-8.
22. Hans V, Horst G Ter, Prins PJM, Veerkamp J: General method for analyzing dentist-patient interaction. *Community Dent. Oral. Epidemio.* 1989: 173-6

23. Dr Poul Erik Petersen. Oral health in the developing world. World Health Organization. Global Oral Health Programm Chronic Disease and Health Promotion Geneva – Switzerland. October 2009. Prepared as part of an education project of the Global Health Education. Consortium and collaborating partners.
24. Brand, Tamara Diane Drenttel. The Gendered Effects of Violence: War, Women's Health and Experience in Iraq. the university of Arizoa 2010.
25. Sam Thomas, Summer Eyad Al-Maqdassy. Causes and Pattern of Tooth Mortality among Adult Patients in a Teaching Dental Hospital. Ibmossina Journal of Medicine and Biomedical Sciences 2010, 2(4):160-167.