

The most frequently extracted teeth type: a retrospective cross-section study at Ndola teaching hospital, low cost dental clinic, Zambia

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ABSTRACT

Background: The purpose of this study was to investigate the most commonly extracted teeth type at Ndola teaching hospital low cost dental clinic from March 2017 to April, 2017. **Methods:** During a 3-month period, data on the number of extractions done was collected, including the number of extractions for each teeth type, both on the mandible and maxilla. **Results:** The highest percentage of extractions was on the mandible (62.3%), and the remaining 37.7% was on the maxilla. The molar teeth were found to be the most frequently extracted (73.2%), with an increased number of extracted 38. Premolars were found to be the second most frequently extracted (18.1%). The canines and incisors both had 4.3% each. **Conclusion:** From the research findings, it indicates that third molars were the most frequently extracted type of teeth at Ndola Teaching Hospital low cost dental clinic from March 2017 to May 2017. but it does not tell if the trend would be uniform for the other months of the year. In conclusion, further studies would have to be done for longer periods to ascertain the trend.

Key words: Most frequently extracted teeth type, Zambia.

Introduction

Loss of teeth has continued to be a major public health problem worldwide. Many reasons have been given to explain these extractions, which include the presence of caries, periodontal disease, orthodontic treatment, trauma, and prosthetic procedures [1]. Many studies have reviewed that caries is the most frequent reason for tooth extraction, followed by periodontal disease [2]. Anterior teeth, especially in the mandible, represent the highest percentage of extractions resulting from periodontal involvement [2]. Different reasons have been stated in the literature to explain for the considerable difference in maxillary tooth loss observed between males and females.

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For, instance maxillary premolars and molars in males were mainly extracted as a result of periodontal disease, unlike the case for caries; the presence of caries was the main reason for loss of all maxillary teeth in females [3].

Statement of problem

Tooth loss has continued to be a major public health problem in many parts of the world, including Zambia, and Ndola in particular. However, there is no established data in Zambia to assess the extent of tooth extraction, type of teeth mostly extracted and reasons for extraction. Therefore, the aim of this report is to highlight the type of teeth mostly extracted at Ndola Teaching Hospital from March 2017 to April 2017 as this will form the foundation upon which further research can be carried out.

Justification

The aim of this study is to determine the type of teeth most frequently extracted at Ndola Teaching Hospital low cost dental clinic from March 2017 to April 2017. Since there is no data about the extent of tooth extraction, the type of teeth mostly extracted and

reasons for extraction, this study will form the foundation for further studies regarding type of teeth mostly extracted in different parts of Zambia. Based on the information from this report, further studies can be conducted to ascertain the reasons for extraction of each tooth type. The information gathered could be used by Ministry of Health and other stakeholders involved in provision of oral health services at Ndola Teaching Hospital and other places to formulate policies on oral health promotion.

Literature Review

Going by the research done in Saudi Arabia, the most frequently extracted teeth type in all age groups were the molars (60%), followed by premolars (30.8%) and anterior teeth (9.2%)[4]. The most frequently extracted posterior teeth were the third mandibular molar (19.4%), the third maxillary molar (16.4%), the first maxillary premolar (13.2%) and the first mandibular molar (10.9%)[4]. The type teeth which showed the lowest number of extractions was the maxillary lateral incisor (0.7%)[14]. The premolars were mostly extracted because of orthodontic problems (47%), where as the molar teeth were extracted mainly due of dental caries (56%), followed by eruption problems, such as impaction (27%)[4].

Other studies that have been done elsewhere still showed that molar teeth are the most frequently extracted teeth in Tanzania[5], and the third molar is the tooth most often extracted in western regions of Germany[6]. The presence of pain was shown to be the major reason for extraction, while periodontal disease was the most frequent cause of tooth extraction for persons over 40 years of age[6]. For example, in Hong Kong, caries was reported to be the main reason given by dentists for tooth extractions in all age groups[7]. Presence of caries is also the most important cause of tooth extraction, and is predicted to remain the most important challenge for the Hungarian dental service during the upcoming decades [8]. An assessment of tooth loss data from a range of countries is essential for evaluating the adequacy of dental care, as well as being important for the establishment of oral health programs and understanding the various factors which cause tooth loss.

Objective

To determine the most frequently extracted type of teeth at Ndola Teaching Hospital low cost dental clinic from March 2017 to April 2017.

Methodology

Study Design

This was a retrospective cross-sectional study.

Study Site

Ndola Teaching Hospital, low cost Dental department.

Data Collection Method

Data was collected manually.

Data Analysis

Data was analyzed manually.

Equipment and Materials

- ✓ Paper
- ✓ Pens
- ✓ Laptop
- ✓ Calculator
- ✓ Printer
- ✓ Patient Register

Inclusion Criteria

- ✓ All patients who attended Ndola Teaching Hospital low cost Dental department for tooth extraction from March 2017 to April 2017.

Exclusion Criteria

- ✓ All patients who attended Ndola Teaching Hospital low cost Dental Clinic for other services apart from tooth extraction from march 2017 to April 2017.
- ✓ All patients who did not attend Ndola Teaching Hospital low cost dental clinic for tooth extraction from march 2017 to April 2017.

Ethical Consideration

- ✓ To maintain patient confidentiality, no patient names, addresses or file numbers were used in the data collection for this report.
- ✓ To ensure integrity of hospital records, the patient register was handled only by the group members assigned to carry out this research.

Possible Ethical Concerns

- ✓ Compromised patient confidentiality.
- ✓ Compromised integrity of hospital records.
- ✓ Unauthorized publication of report results.

Ethical approval

Ethical approval for the study protocol was sought from the Tropical Diseases Research Centre (TDRC) ethics committee before beginning the study. Furthermore, authorization from the relevant authorities as well as informed consent from study participants was sought. Confidentiality was fully upheld.

Results

From the data collected, it shows that of the total number of extractions recorded were 138, of which 52 were maxillary teeth which is 37.7% and the remaining 86 were mandibular teeth giving us 62.3% of the total extractions recorded. From the maxilla, of the total number of 52 extractions, 5 were incisors, giving us

9.6% of the total maxillary extractions, 5 were canines, which is 9.6%, 16 were premolars, which is 30.8% and 26 were molars which gives us 50% of the maxillary extractions. From the mandible, of the total number of 86 extractions, there was only one extraction of an incisor, giving us 1.2%, one canine also giving us 1.2%, 9 premolars which is 10.5% and 75 molars

giving us 87.2% of the mandibular extractions. From the overall number of extractions, i.e. both maxillary and mandibular which is 138, 6 were incisors giving us 4.3%, 6 were canines, 4.3%, 25 were premolars which is 18.1% and 101 were molars, which is 73.2% of the total number of extractions done in April 2017.

Table 1: Maxillary Teeth

Tooth number	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28	Total
Number of extractions	4	4	5	6	6	1	1	2	1	1	4	1	3	6	2	5	52

Table 2: Mandibular Teeth

Tooth number	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38	Total
Number of extractions	8	10	6	3	0	1	0	1	0	0	0	2	4	16	16	19	86

Table 3: Overall Extractions

Type of teeth	Molars	Premolars	Canine	Incisors
Number of extractions	101	25	6	6

Table 4: Teeth extractions in percentage Maxillary Teeth

Type of teeth	Molars	Premolars	Canines	Incisors
Percentage of extractions	50%	30.8%	9.6%	9.6%

Table 5: Mandibular Teeth

Type of teeth	Molars	Premolars	Canine	Incisors
Percentage of extractions	87.2%	10.5%	1.2%	1.2%

Table 6: Percentage of overall extractions

Type of teeth	Molars	Premolars	Canine	Incisors
Percentage of extractions	73.2%	18.1%	4.3%	4.3%

Discussion

Ndola Teaching Hospital is a third level hospital located on the Copperbelt Province. It offers specialized treatment to patients from the northern region of Zambia which includes Luapula, North western, Muchinga, Copperbelt itself and parts of central provinces. The hospital also offers specialized dental services such as oral and maxillofacial surgery. The study tends to agree with studies done in Saudi Arabia in which the most frequently extracted teeth type were the molars with 60% as compared to this study which showed that the most frequently extracted

teeth type were the molars with 73.2% [4]. This was followed by premolars at 30.8% compared to 18.1% for Ndola, while for the anterior teeth, in Saudi Arabia, it was at 9.2% compared to 8.6% for Ndola.

Even studies done in Germany and Tanzania tend to agree with this study which revealed that the most frequently extracted teeth type were the molars [4]. From the studies done in Saudi Arabia, reasons given for the extractions mostly were, due to caries, especially molars at 56%, and then premolars were mostly due to orthodontic problems at 47%, while other extractions were due to eruption problems such as impaction [4].

Other similar studies have also reviewed that molar teeth are the most frequently extracted [2, 9]. For, instance, a study done by wahab reviewed that the most frequently extracted teeth due to caries were the molar [10]

In our setup, there can be a number of assumptions as to the reasons for extractions. Ndola teaching hospital being a referral hospital, receives more difficulty extractions such as molars while the simple ones like anterior teeth are done at the local clinics. Another assumption would be due to poor accessibility on cleaning of the molars as compared to the anteriors leading to higher caries incidence. Molars also have a broader surface area with pit and fissures making them more susceptible to plaque accumulation and caries formation. Conservative treatment is also easier for the anterior teeth as compared to molars, while the easiest treatment option for the molars is extraction. Since the first molar is the earliest tooth to erupt and centrally located it is the longest serving and does the most grinding action respectively, making it prone to caries and erosion.

Limitations

There were no identifiable limitations to carry out the research as adequate time was allowed to do the work, the records were availed on time by the dental department clerk and the costs were affordable to carry out the project.

Conclusion

From the research findings, it indicates that third molars were the most frequently extracted type of teeth at Ndola Teaching Hospital low cost dental clinic from March 2017 to May 2017, but it does not tell if the trend would be uniform for the other months of the year. In conclusion, further studies would have to be done for longer periods to ascertain the trend.

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