

Comparative study of extraction / non extraction among Nepalese male and female orthodontic patients

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Abstract

Objective: Compare extraction/ non extraction among Nepalese male and female orthodontic patients

Materials and methods: 750 patients who have done orthodontic treatment between June 15, 2007 to June 15, 2010 in The Orthodontic Center were considered. Out of that 500 (250 male and 250 female) were randomly selected. Pearson Chi-Square test was performed to see the correlation between extraction and gender

Results: Non Extraction (54.2 %) dominates extraction (45.8 %) by 8.4 %. The extraction rate for Nepalese is higher (45.8%) when compared to Caucasians (28%). Statistical test of p value at the level 0.05 shows that there is no clinically significant difference between extraction/non extraction with sex.

Key words: Extraction, Non extraction, Gender, Sex

Introduction

Angle believed that "the best balance, the best harmony, the best proportion of the mouth can be achieved with full complement of teeth. He advocated that every patient involved in expansion of the dental arches and extraction for orthodontic purpose was not necessary for stability of result or esthetics. On the other hand Calvin Case argued that although arches could always be expanded so that the teeth could be placed in alignment neither esthetics nor stability would be satisfactory in the long term for many patients. Due to this reason till date the extraction-nonextraction debate is one of the earliest and most lasting controversies of orthodontic practice¹⁻⁷.

Although many malocclusions do not require extraction, it is often necessary to extract teeth for a variety of reasons. The extraction decision must be determined by the practitioner for each individual patient based upon a number of factors. These include features of the malocclusion, objectives of treatment, and the technique selected to accomplish desired results.

When the term "orthodontic extraction" arises, the tooth that immediately comes to mind is the first premolar. This is the tooth sacrificed in most extraction cases for a number of reasons⁸: (1) it usually erupts before any of the other posterior teeth with the exception of the

first permanent molar; (2) its extraction allows eruption of the permanent canine; and (3) it is in the center of each half of the arch and therefore the space provided by its extraction can alleviate anterior and/or posterior crowding.

The wide range of extraction treatment frequency has been reported by Perlow⁹, Salzmann¹⁰, and Peck and Peck¹¹. It reveals a frequency range from 6.5% to 83.5%. Their data period ranges from 1913 to 1979. According to Proffit¹², the total extraction percentage was 30% in 1953, peaked at 76% in 1968, and declined again to 28% in 1993. In 1996 Sheldon Baumrind¹³ clearly stated that extraction non extraction ratio for different clinicians differ specially in borderline cases¹³.

The changes in extraction patterns in recent years have not been documented and it is necessary to have contemporary data on the general prevalence of orthodontic extractions at least for Nepalese population which has not established yet.

The purpose of this study is to provide information about extraction/non extraction percentage among Nepalese orthodontic patients. The specific goals of this project were to compare extraction/ non extraction among sex.

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Materials and methods

All patients visited to The Orthodontics Center, Katmandu Plaza for the treatment between June 15, 2007 to June 15, 2010 were considered as subjects for this research. Out of 750 patients 500 patients (250 male and 250 female) were selected randomly.

Patients who met the following criteria were only included in this study.

- (1) Presence of a normal complement of permanent teeth and
- (2) No history of prior orthodontic treatment.

Statistical Analysis

All data were fed into SPSS software 13th version. A Pearson chi-square test was conducted to examine the correlation between extractions and gender.

The level of significance was set at 0.05.

Results

The most relevant data of this study are presented in tables 1 and 2.

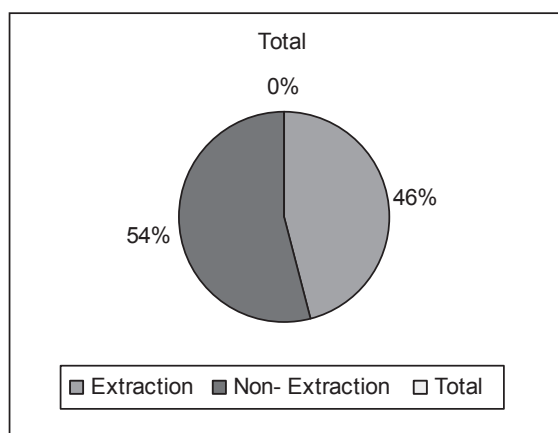


Fig1: Prevalence of Extraction / Non extraction

Discussion

Table II and Fig 1 indicate that non extraction (54.2%) dominates non extraction (45.8%) by 8.4 %. This data is very close to the extraction rate of North Carolina rate (50%) during 1963. Vig and co-workers¹⁴, in 1898 using data from 5 practitioners in Michigan, showed that the average extraction rate was 53.4% which is very close to present findings (46%). The data clearly disagree with the Proffit⁹ who has mentioned that the extraction rate is 28% in 1993. It is surprising finding by David L Turpin¹⁵ that the extraction rate in his practice is only 22%. Similarly the extraction percentage by James L Vaden¹⁶ is 60.4%. If the extraction trend goes according to Proffit's view of 45years experience, then in Nepal the extraction rate will go still higher in coming next few years.

The extraction rate for Nepalese is higher when compared to Caucasians. This may be due to that the normal Nepalese has convex skeletal profile (ANB-3.4⁰) than the Caucasian (ANB-2⁰)¹⁷. Because of this if the Orthodontists try to do the orthodontic treatment as non extraction in Nepalese people then the degree of dental protrusion will be higher and the lip incompetent will be more. Another reason could be that the interincisal Angel for Nepalese according to Down's analysis¹⁸ is 131.1 degree while the Caucasian is 135.5 degree respectively. The inter incisal angle shows the more proclination of Nepalese teeth than the Caucasians. Thus the author's assumption is that the extraction rate differs from one ethnic group to another.

Lastly most patients were not referred until they had their second molars erupted. David L. Turpin¹⁹ also agrees that the percentage of extraction decreases in his practice because he does two phases of treatment in almost 60% of his cases.

With the p-value of 0.928, Table II indicates that there is no clinically significant different of extraction among Nepalese males and female orthodontic patients (p=.928, p>0.5).

Table 1: Extraction/Non Extraction percentage

Extraction/Non Extraction	Male	Female	Total
Extraction	115(46%)	114(45.6%)	229 (45.8%)
Non- Extraction	135(54%)	136(54.5%)	271 (54.2%)
Total	250(100%)	250(100%)	500 (100%)

Table 2: Chi-Square test of significance

Ext/non ext	Male	Female	p-value	Significance
Extraction	115	114	.928	NS
Non Extraction	135	136	.928	NS

Conclusion and Summary

1. Non extraction (54.2%) dominates extraction (45.8%) by 8.4%.
2. Extraction rate for Nepalese is higher (45.8%) when compared to Caucasians (28%).
3. There is no clinically significant difference of extraction among sex.

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