EVALUATION OF REQUIREMENT OF EXTRACTION OF MAXILLARY PRIMARY CANINE IN 3-5 YEAR OLD CHILDREN

ABSTRACT

Dental extraction is the process of painlessly removing a whole tooth, or root, without majorly causing trauma to the adjacent tissues and tooth structure, so that the wound heals without causing any problem during postoperative prosthetic replacement. Primary teeth extraction is mainly due to long time unattended caries in most cases. As there is a decrease in the overall caries occurrence across the world, incidence of caries in developing countries are still lots in number. This is a single centered retrospective study done within a private dental hospital. Ethical approval was obtained from the institutional review board before the commencement of the study. The data was collected from the hospital management system. Cases sheets of children within the age of 3-5 years were selected. The data were then transferred to the latest version of SPSS software for statistical analysis. Frequency distribution and chi-square tests were done. The p value was set 0.05 as the level of significance. Within the limitation of the study it is concluded that the maxillary primary canine of 4 year olds is extracted more than that of 5 year olds. It is also evident that females children who have extracted their maxillary primary canine are more compared to male children. It is also proven that dental caries is the sole reason for extraction of maxillary primary canine.

KEYWORDS: Extraction, Canine, Caries affected, Orthodontic, Innovative, Primary Teeth.

INTRODUCTION

Dental extraction is the process of painlessly removing a whole tooth, or root, without majorly causing trauma to the adjacent tissues and tooth structure, so that the wound heals without causing any problem during postoperative prosthetic replacement. It is done for a various reasons like presence of abscess, periodontal diseases, necrosed pulp, over retained deciduous tooth, orthodontic purpose, prosthetic purpose, unrestorable tooth, impacted tooth, supernumerary tooth, fractured tooth etc. extraction is contraindicated in local or systemic conditions that need to be corrected or modified, previously irradiated area etc(1). Extraction of primary teeth is a common part of pediatric dental practice, as treatment for caries, trauma, and orthodontic considerations. Primary teeth extraction is mainly due to long time unattended caries in most cases(2). As there is a decrease in the overall caries occurrence across the world, incidence of caries in developing countries are still lots in number.

Comment [M1]: Not always for prosthetic replacement or purposes. Remove prosthetic replacement and add post-operative phase instead.

Comment [M2]: Add “and” before fractured teeth.

Comment [M3]: Start sentence with capital letter.

Comment [M4]: Rephrase the sentence

Comment [M5]: Cahnge lots in number to prevalent

Primary teeth also known as the deciduous teeth are important through the process of growing. They play a major role in aesthetics, mastication, and normal occlusion of the permanent dentition. Premature, unintentional loss of primary teeth may lead to drifting, tilting, rotation, and malposition of the following permanent teeth. It also affects the feeding of the children and leads to serious health related conditions(3). Primary teeth also play a major role in the speech of the child. It maintains the arch shape, and maintains space for the following secondary teeth.

Comment [M6]: Give example of serious health related conditions

Dental caries is one of the predominant reasons for extraction of teeth. Dental caries are a common condition throughout the world. It is caused due to the imbalance in the demineralization and demineralization of the enamel matrix (4). This is caused due to the bacteria film present in the oral cavity when they act on dietary carbohydrates. Progression of this leads to cases where the tooth cannot be restored and has to be extracted. Early childhood caries had been defined as the presence of visual caries on at least one primary tooth in children of age 3-5 years(5). The occurrence of early childhood caries has a significant relationship with the social background of the children. Evidential studies suggest brushing at least once a day, visible plaque formation, and frequent consumption of sugar is involved in the development of early childhood caries(6).

Comment [M7]: rephrase

Malocclusion is another major reason extraction is considered in pediatric patients. It is necessary to provide proper arch shape for the succeeding permanent teeth. Children who suck their thumbs have a chance of developing malocclusion(7). Malocclusion changes development and growth that affect the position of teeth, which affects the aesthetics and function. Our team has extensive knowledge and research experience that has translate into high quality publications(8–20)(21–27)

Comment [M8]: has been translated

The aim of this study is to find the requirement of extraction of maxillary primary canine in 3-5 year old children.

MATERIALS AND METHODS

This is a single centered retrospective study done within a private dental hospital. Ethical approval was obtained from the institutional review board before the commencement of the study. The data was collected from the hospital management system. Cases sheets of children within the age of 3-5 years were selected. Data of children who had their maxillary primary canines were filtered. A total of 5 case sheets were segregated. The case sheets were verified. The data was tabulated in an excel sheet under the headings age, gender, tooth extracted, reason for extraction. The data were then transferred to the latest version of SPSS software for statistical analysis. Frequency distribution and chi-square tests were done. The p value was set 0.05 as the level of significance.

Comment [M9]: among which years?

Comment [M10]: Why only five cases? How was sample size calculated?

RESULTS

Out of the total 5 children, 60% of the children were 4 year olds, and 40% of children were 5 year olds(Fig. 1). 60% of the children were female and 40% of the children were male(Fig. 2). 60% of the children had their maxillary right primary canine(53) extracted, while the remaining 40% had their maxillary left primary canine(63) extracted(Fig. 3).

When compared between age and the tooth extracted, it was found that 40% of 4 year olds and 20% of 5 year olds had their maxillary right primary canine(53) extracted respectively and 20% of both 4 year olds and 5 year olds each had their maxillary left primary canine(63) extracted(Fig. 4).

When compared between gender and the tooth extracted, it was concluded that 60% of female children had their maxillary right primary canine(53) extracted and 40% of male children had their maxillary left primary canine(63) extracted(Fig. 5).

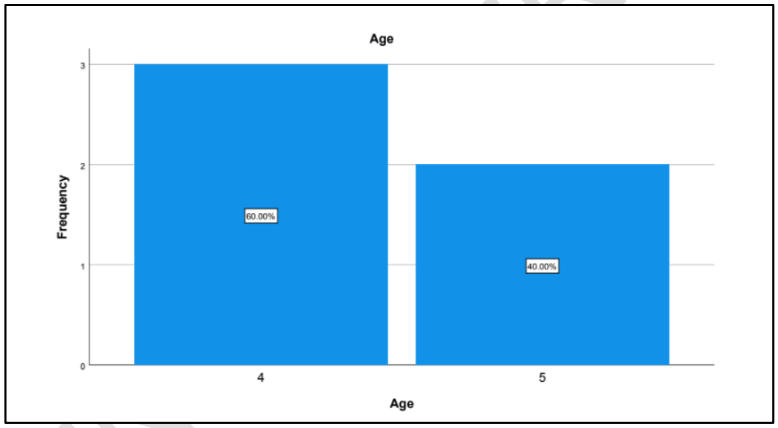

Fig. 1: The bar graph represents the total percentage distribution of children of different ages.

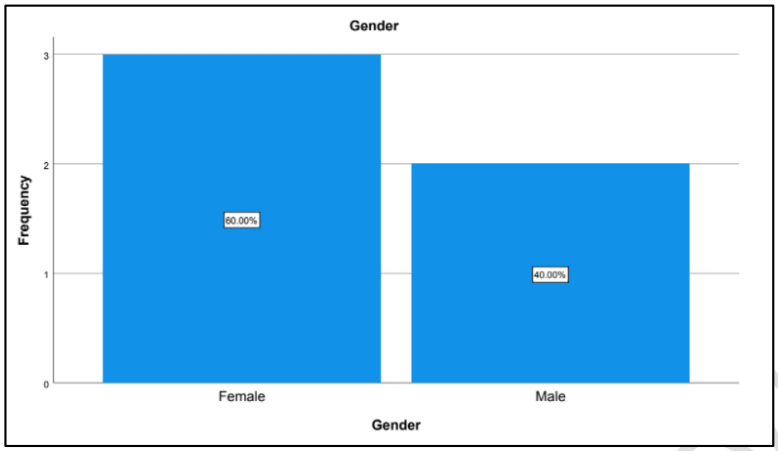

Fig. 2: The bar graph represents the total percentage distribution of children of different gender.

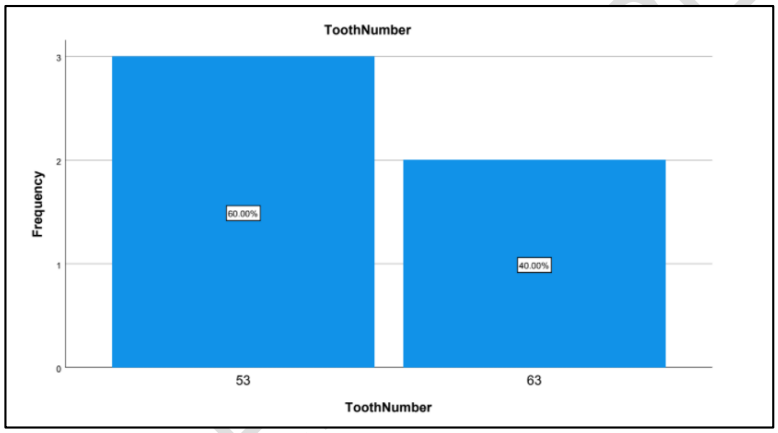

Fig. 3: The bar graph represents the total percentage distribution of the tooth extracted.

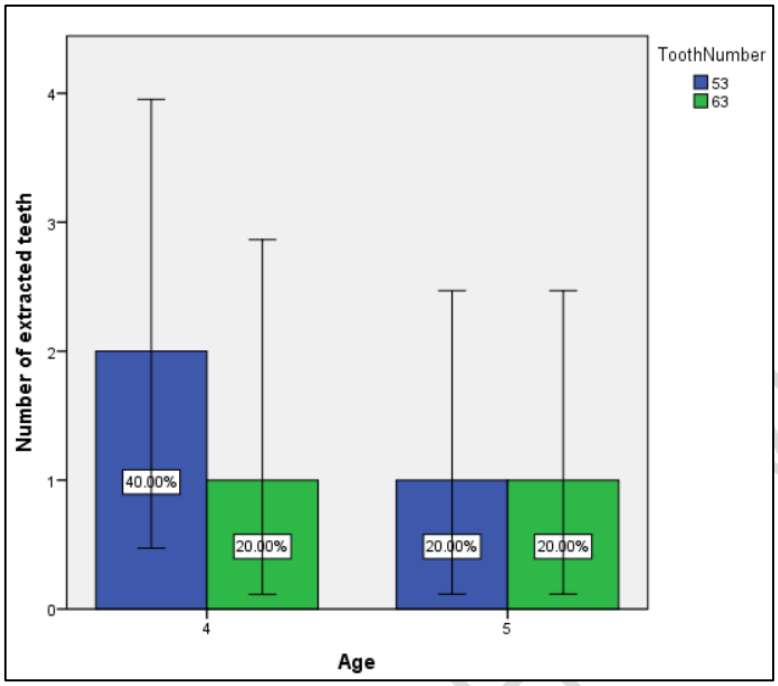

Fig. 4: The bar graph represents the age wise distribution of different teeth extracted. The p value was 0.709(>0.05) which was statistically insignificant.

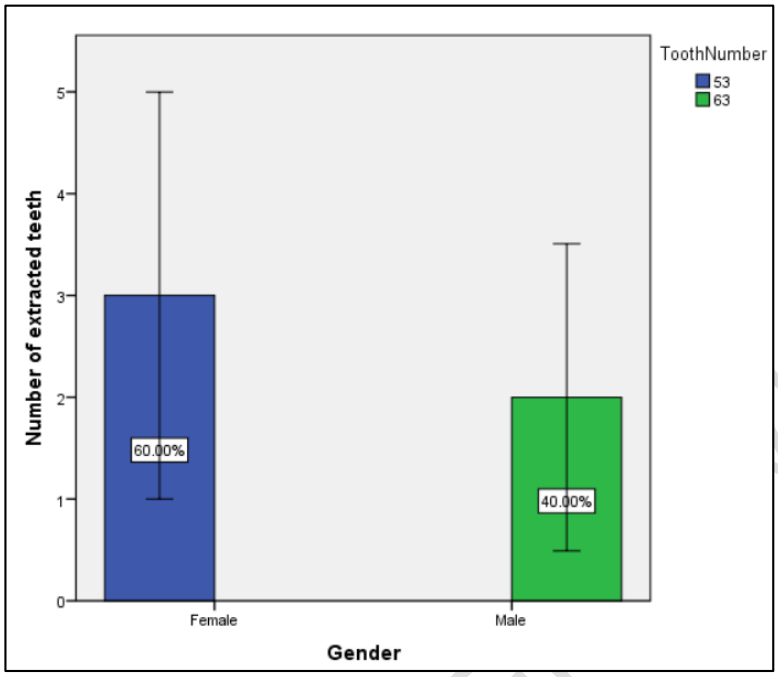

Fig. 5: The bar graph represents the gender wise distribution of different teeth extracted. The p value was 0.25(>0.05) which was statistically insignificant.

DISCUSSION

Though dental extraction is a frequent procedure followed in pediatric dentistry, a lot of investigation is done only on reasons for and pattern loss tooth in different parts of the world mainly focuses on permanent dentition(28). Research done on primary tooth mortality is very scarce in India, and other parts of the world. From this research we can see that not a lot of extraction is done for children within the age 3-5 years. It is also evident that the major reason for extraction of the tooth is caries. The behavior of children aging 3-5 years is very volatile and is a major difficulty to control eating habits(29). Children of this age are also exposed to a lot of carbohydrates in the form of chips, chocolates, candy etc. This is also an age where the brushing of teeth is also not done very properly to constrain the incidence of caries. Due to lack of knowledge among parents they don't tend to maintain a proper oral hygiene of the child which leads to unattended caries at early stage. Such unattended dental caries progress to severe stages where the tooth cannot be restored and hence need to be extracted(30). Primary canine is one of the most important teeth in the anteriors for tearing food. In a study done by Srivastava VK, it was found that prevalence of caries in mesial aspect maxillary right primary canine were seen most in 4 year olds followed by 3 years and 5 years. It was also found that caries in maxillary left primary canines were seen more in 3 year olds which is contradicting to our study as there

Comment [M11]: How can you make this comment on basis of five patients data?

weren't any 3 year olds with caries. The study also states that it is not very common to get caries in maxillary primary canines unless for very poor oral hygiene. In an article published by Mukhopadhyay and Roy it was found that out of the total population of 121 between the age 0-5 years, 1.9% of children had maxillary primary canines extracted. Out of which 105 were due to incidence of caries(2).

The potential limitation of the study is small sample size, and lack of knowledge of parents to bring their children to dentists for oral hygiene.

CONCLUSION

Within the limitation of the study it is concluded that the maxillary primary canine of 4 year olds is extracted more than that of 5 year olds. It is also evident that females children who have extracted their maxillary primary canine are more compared to male children. It is also proven that dental caries is the sole reason for extraction of maxillary primary canine.

ETHICAL CLEARANCE : Taken from Saveetha Institute Human Ethical Committee.

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