COMPARATIVE STUDY OF CLASS 2 CARIES REQUIRING STAINLESS STEEL CROWN AND RESTORATION IN MAXILLARY ARCH AMONG CHILDREN AGED BETWEEN 2 TO 6 YEARS

ABSTRACT

Introduction: Dental caries is a global public health issue, especially among young children. In both developing and developed countries, it is a major public health problem. Dental caries can start early in life, develop quickly in those at high risk, and go untreated often.

Materials and method: This was a retrospective study done in a university hospital in Chennai. Children fulfilling the inclusion and exclusion were included in the study

Results :88.89% patients had stainless steel crown compared to 11.11% of them have chosen restoration as a treatment option. Class II restorations were found to be more in older children. Children in the age group 1-2 did not receive class II restorations

Conclusion: Stainless steel crowns were found to be the preferred choice of restoration in children aged 2-6 years with class II caries in maxillary teeth

Keywords: stainless steel crown, restoration, class 2 cavities , durable , strength

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INTRODUCTION:

Dental caries is a global public health issue, especially among young children. In both developing and developed countries, it is a major public health problem. Dental caries can start early in primary dentition and often go untreated affecting the quality of their life. Its

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repercussions may have an immediate and long-term impact on the child's family's quality of life, as well as major social and economic ramifications beyond the immediate family. The interaction of bacteria, primarily Streptococcus mutans, and sugary foods on tooth enamel causes dental caries, the most common chronic infectious disease of childhood(1). Dental caries may start soon after eruption, initially on the smooth surfaces, spreads quickly, and has a long-term negative effect on the dentition. Children who develop caries as babies or toddlers have a significantly higher risk of developing caries later in life in both their primary and permanent teeth(2). Dental caries is common in infants and young children around the world, with prevalence rates ranging from 33 percent to 61%. The lifetime of the dentition, infant feeding practises related to sugary beverages, and breast feedingpractises are all currently linked to dental caries in infants.

Stainless steel crowns were introduced into pediatric dentistry in 1950 by Humphrey(5). They were the best technique to restore the broken down, caries containing, pulpotomy treated,pulpectomy treated primary teeth. Stainless steel crowns have given excellent results for multi surface carious lesions where various restorative materials have often failed. These crowns are also indicated in children with high caries risk

The management of class II caries in children has often been a debate. stainless steel crowns have shown high durability as well higher longevity compared to other restorative materials. However young children may often be uncooperative and the placement of a crown may often become difficult. Hence this study was undertaken to evaluate

MATERIALS AND METHOD:

This was a retrospective study undertaken in a university hospital setting in Chennai. Data records of children aged 1- 5 years visiting the department of pediatric and preventive dentistry was analysed from the digital archives information system from January 2020 to May 2020. Children visiting the department within the time period and had class II caries were included in the study. Children outside the age group and those requiring pulp therapy were excluded. The collected data were subjected to statistical analysis using the SPSS software by IBM of

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version 23 in which both the descriptive and the inferential test was done, which was the Chi-square test.

RESULTS :

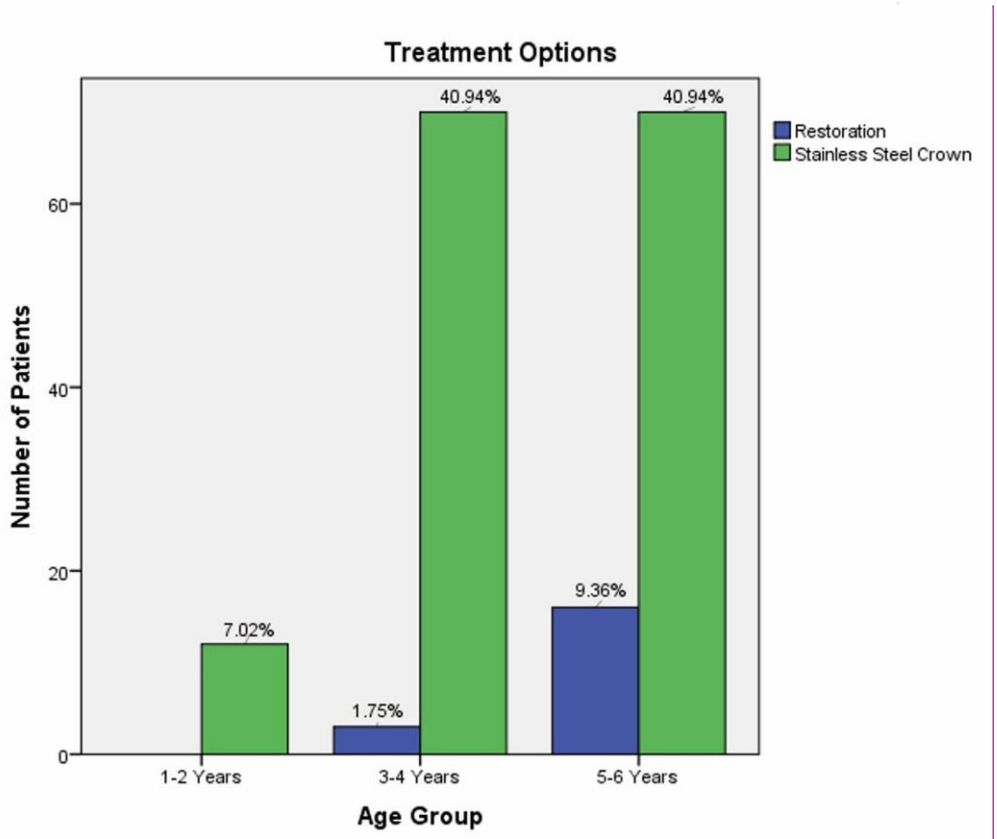

Figure 1 represents the association between the treatment options and the age group of the participants . The X-axis represents the age group of the participants and the Y-axis represents the treatment option . Blue colour represents restoration and green colour represents stainless steel crown . About 7.02% of them choose stainless steel crown as a treatment option in the age group of 1-2 years, in the age group of 3-4 years about 1.75% choose restoration and 40.94% choose stainless steel crown as treatment option . In the age group of 5-6 years 9,36% of them

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choose restoration and 40.94% choose stainless steel crown . However this is statistically not significant with chi-square value - 21.42 and p-value = 0.3 (p-value > 0.05) hence insignificant.

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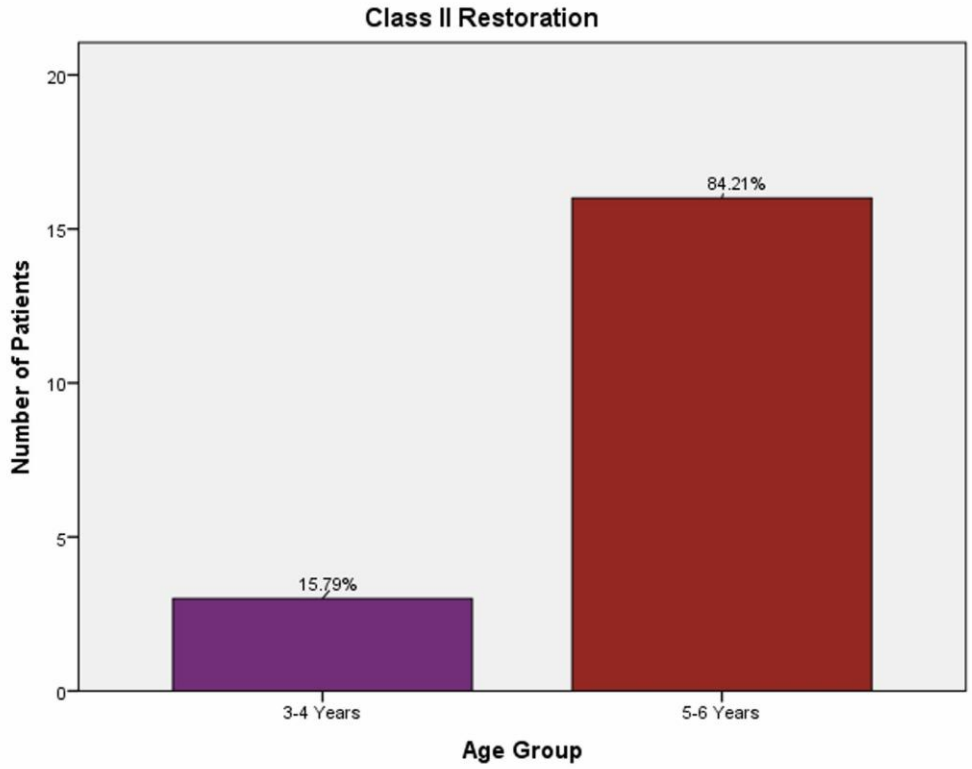

Figure 2 represents the number of participants undergone class 2 restoration . The x-axis represents the age group and y-axis represents the no of participants undergone class 2 restoration. About 15.79 %(purple) from the age group of 3-4 years and about 84.21% (red) from the age group of 5-6 years have undergone class 2 restoration.

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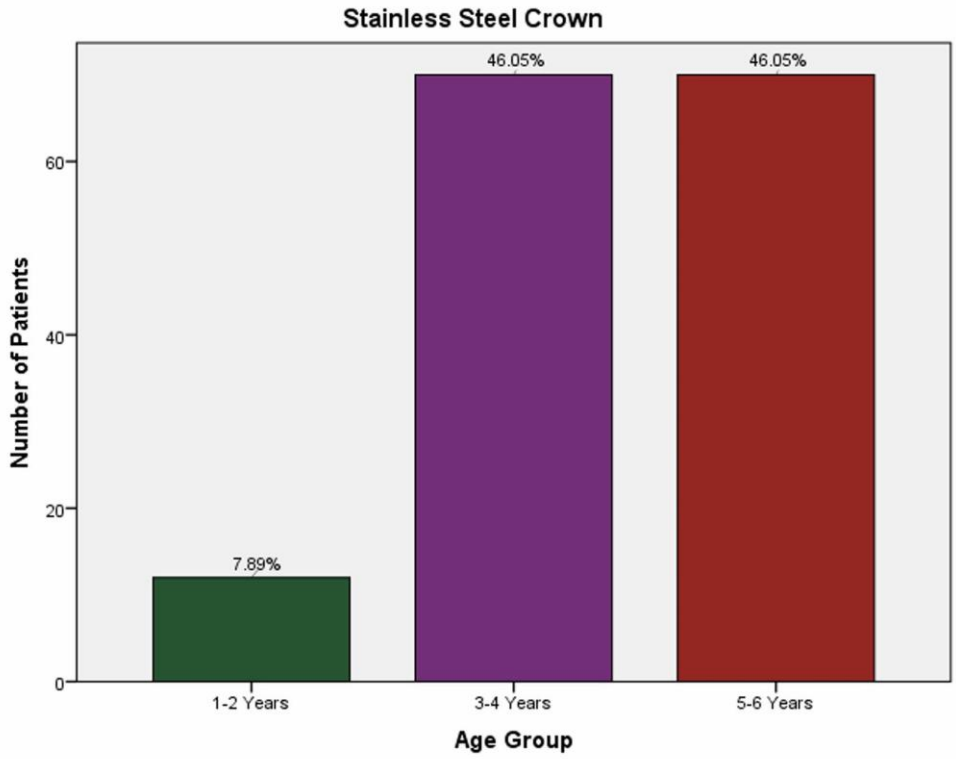

Figure 3 represents the number of participants treated with a stainless steel crown . The x-axis represents the age group and y-axis represents the number of participants treated with a stainless steel crown . About 7.89 %(green) from the age group of 1-2 years , about 46.05% % (indigo) from the age group of 3-4 years and 46.05% (red) from the age group of 5-6 years have been treated with stainless steel crown .

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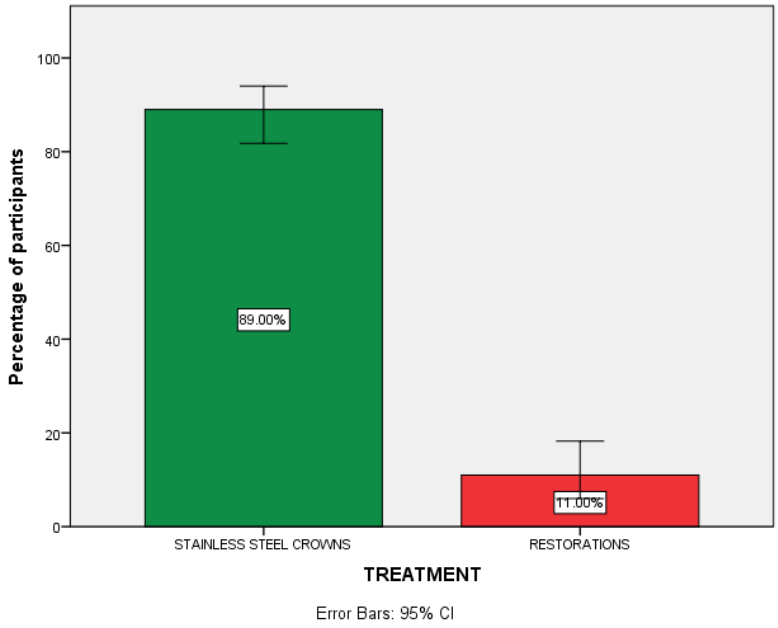

Figure 4 : The pie chart shows the treatment option chosen by the participants. About 88.89% (green) have chosen stainless steel crown and 11.1% of them have chosen restoration as a treatment option.

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DISCUSSION:

~~It has been emphasised that Class II cavity restorations are used for minimal sized cavities. For larger cavities, or where the caries involve both proximal surfaces,stainless steel crowns are a better option(9). About 15.79 % from the age group of 3-4 years and about 84.21% from the age group of 5-6 years have undergone class 2 restoration (fig 2). About 7.89 %from the age group of 1-2 years , about 46.05% from the age group of 3-4 years and 46.05% from the age group of 5-6 years have been treated with stainless steel crown (fig 3) . About 88.89% have chosen stainless steel crown and 11.1% of them have chosen restoration as a treatment option. Stainless steel crowns are not only more acceptable to the patient and more cost effective, but also more acceptable to the dentist because of the comparatively simple procedures involved in restoring even severely affected primary molars.~~

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About 7.02% of the dentists choose stainless steel crown as a treatment option in the age group

of 1-2 years whereas in the age group of 3-4 years about 1.75% choose restoration and 40.94% choose stainless steel crown as treatment option(11) . In the age group of 5-6 years 9.36% of them choose restoration and 40.94% choose stainless steel crown .The problem with Class II composite restorations is , while preparing a Class II composite restoration, a matrix is placed around the tooth and tightened with a wedge, no such tightening can be performed when preparing the crown-form posterior composite matrix. The problems in making the posterior crown form composite restorations resemble more to those of anterior strip-crown preparations for primary teeth(12)Stainless steel crowns have the advantage that the full coverage restoration covers the tooth and rarely dislodges. In light of the above mentioned possible problems, stainless steel crowns should still be the treatment of choice when severely decayed primary molars .

CONCLUSION

Within the limitations of our study, it was found that stainless steel crowns were preferred as the treatment of choice for class 2 caries in maxillary arch among children aged between 2 to 6 years

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