ORAL HYGIENE INDEX IN CHILDREN AGED 3 TO 6 YEARS WITH STAINLESS STEEL CROWNS.

[1]Allour vaishnavi, [2*]Dr.EMG.Subramanian

[1]Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai 77, Tamil Nadu, India

[2*]Professor and Head, Department of Pediatric and Preventive dentistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India

Corresponding Author:
Dr.EMG Subramanian
Professor and Head, Department of Pediatric and Preventive dentistry, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, India

ABSTRACT:

Introduction: Stainless steel crown (SSC) is accepted by dentists as an alternative to restore primary molars with extensive caries, enamel or dentin disorders, and following pulp treatments. Retrospective studies have indicated that, compared to amalgam and composite, indirect pulp treatment and pulpotomy of primary molars which are restored by SSC, had been more successful.The oral hygiene index simplified(OHIS) is calculated for the patients between 3 to 6 years who undergone treatment of stainless steel crowns. Although several studies assessed the OHIS scores,the association with several risk factors and stainless steel crowns undergone by patients has not been fully investigated. The aim of this article is to measure the OHIS scores for the patients who are wearing stainless steel crowns among the patients enrolled in the clinics at saveetha dental college and hospitals.

Materials and Methods: A cross sectional study was conducted among the outpatient population in Saveetha Dental College, Chennai between August, 2020 and january, 2021. The OHIS scores were calculated among the patients who wore stainless steel crowns between the age of 3 to 6 years reporting to the clinic. The data was collected using DIAS software and put into an excel sheet and the analysis of the data was made using SPSS software with a chi-square test for association.

Results: OHIS Score of 3 was the most common score among the age group of 3,4,5 and 6 year olds. Girls were found to have better scores than boys.

Conclusion: Within the limitations of the study, it can be concluded that the most common OHIS Score in children was 3 (58%) in children indicating poor oral hygiene. Oral hygiene scores increased as age increased indicating older children had poor oral health. Girls were to have better oral hygiene than boys.

Key words: Stainless steel crowns; OHIS scores; pedo patients, Innovative technique.

INTRODUCTION

Stainless steel crowns were introduced into pediatric dentistry in 1950 by Humphrey.(1)(2) Stainless steel crowns are the best treatment modality for restoring the carious teeth that are grossly decayed. Stainless steel crowns are the excellent restoration technique over multi surface

amalgam and other restorations are likely to fail according to its superiority and durability in the primary dentition.(3,4)

Stainless steel crowns are indicated for both primary and permanent molars and have been to be cost effective compared to other restorative materials.(5) Stainless steel crowns are also indicated for molars with developmental defects to protect the integrity of the tooth as well as restore form and function. (6,7)(8,9)Studies evaluating restoration longevity, including the durability and lifespan of stainless steel crowns have been found it to be the most durable restoration for teeth that require class II restoration(10)

Studies done by Webber, Durr et al. (11)and Machen et al. (12)have failed to exhibit any increase in supra-gingival plaque accumulation associated with stainless steel crowns.(13) (14)However crowns with defective margins, or crowns where excess cement has been retained have been shown by Myers and Goto et al (15)to be associated with an increased degree of plaque accumulation. Several studies have investigated gingival health in association with stainless steel crown restorations. Two studies have suggested higher levels of gingivitis around teeth restored with stainless steel crown restorations.(16) In both these studies, however, no direct comparison was made with unrestored matched control teeth. On the other hand, when matched control teeth were used, no difference in the level of gingivitis around stainless steel crowns was demonstrated.(16) The relationship between gingivitis and marginal defects, such as poor marginal adaptation and incomplete removal of excess cement, has been clearly demonstrated by several workers.(3,17). Our team has extensive knowledge and research experience that has translated into high quality publications. (18–20) (21–27)(18,19,28)(29–38)

The aim of the present study was to evaluate, clinically, the effect of stainless steel crowns placed on primary molars and to calculate the OHIS scores on the surrounding gingival areas in children aged 3 to 6 years.

MATERIALS AND METHODS:

This was a single centre retrospective study conducted between August, 2020 and January, 2021 in Saveetha Dental College and Hospitals, Chennai**.** Case sheets of 500 children who visited the department of pediatric and preventive dentistry between this time period were analysed from the digital archives information system. Inclusion criteria included children of the age group 3-6 years with stainless steel crowns who visited during the specified time period. Children outside the age group and those without stainless steel crowns were excluded.100 children who fulfilled the inclusion and exclusion criteria were included in the study .The datas collected were cross verified with photographs. Both the internal and external validity is available. Data collection was done using parameters like age, patients with stainless steel crowns.The OHIS scores were measured.

Scoring criteria for OHIS:

0 – No debris

1 – Soft-tissue debris covering <1/3rd of tooth surface

2 – Soft-tissue debris covering >1/3rd but <2/3rd of tooth surface

3 – Soft-tissue debris covering >2/3rd of tooth surface.

The data that was collected was compiled into a Microsoft Excel Spreadsheet. The age was categorised into groups 3 years ,4 years ,5 years and 6 years respectively. It was analysed using SPSS, IBM software, version 23 with chi-square test. p value was set as 0.05 as the level of significance.

RESULTS AND DISCUSSION:

Figure:1- Association graph between Age and OHIS Score

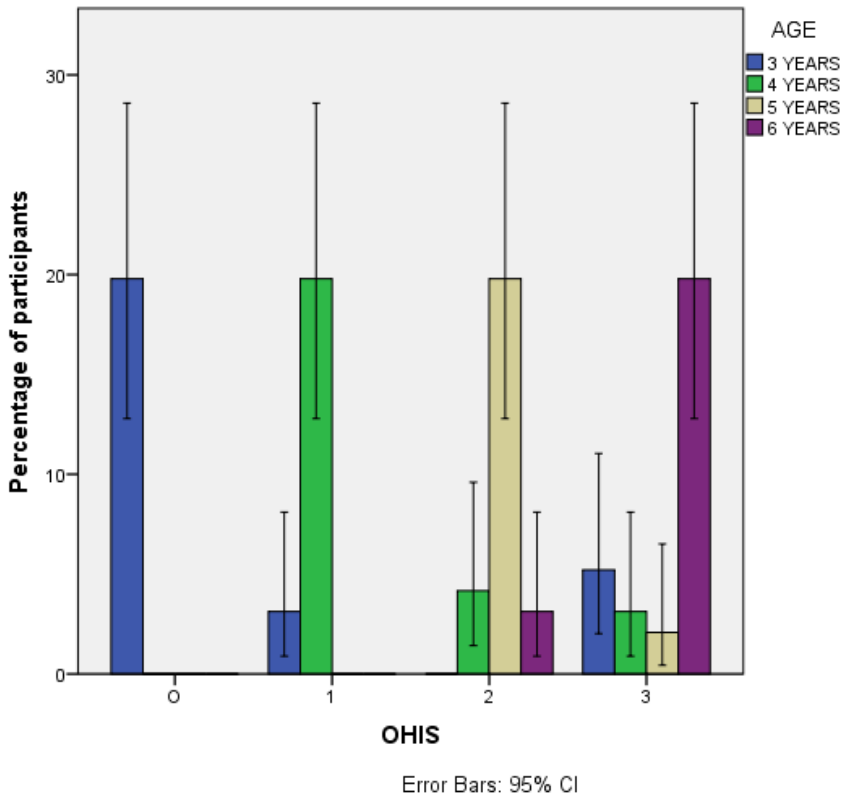

Figure 1 shows the Association between age of the participants and OHIS Score. X axis represents the OHIS Score which is measured in the patients with Stainless Steel crowns. Y axis represents the age group distribution as 3,4,5 and 6 years respectively.

Among the 3 years age group, OHIS score 0 is the most common at 19.79 %. Among the age group of 4 year olds, the same score 1 is the most common at 19.79 %. Among 5 year olds, 2 OHIS Scores were common at 19.79 % and among 6 year olds ,the same OHIS Score 3 were the most common at 19.79 %. Collectively among all the study sample age groups, 55% patients had the OHIS Score of 3 , 20% patients had the OHIS Score of 2 ,10 % patients had the OHIS Score of 1 and 15 % patients had the OHIS Score of 0 respectively. p value =4.324 ($p>0.05$) showing that the association were not statistically significant.(39)

Figure:2-Association graph between Gender and OHIS Score

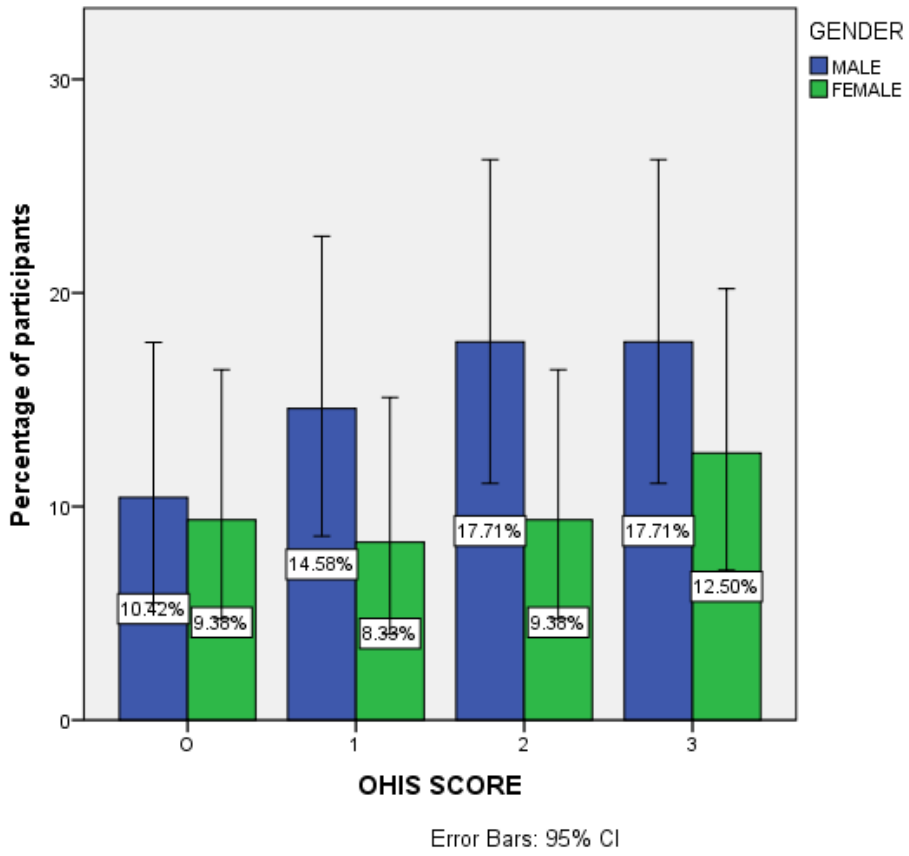

Figure 2 shows the Association between gender of the participants and OHIS Score. X axis represents the OHIS Score which is measured in the patients with Stainless Steel crowns. Y axis represents the gender of males and females respectively.

Among the gender, males have the OHIS score 3 is the most common at 60.42 %. Among females,OHIS Score of 3 is the most common at 39.58 %. p value =2.98 (p>0.05) showing that the association was not statistically significant .(40)

The placement of a crown on a tooth restores form and function.(3) Children with early childhood caries have often been found to have poor oral hygiene which when combined with poor oral hygiene can lead to a deterioration of oral health.(41) The placement of stainless steel crowns along will restore the form and function and provide full coverage for teeth that have been grossly decayed. Stainless steel crowns have been found to be the most durable restoration for multi surface carious tooth and have been indicated in children who are deemed to miss appointments and have high caries risk.(42) In the present study it was seen that oral hygiene scores increased with age, with 12% of 6 year olds having poor oral hygiene compared to 7% of 3 year olds. This can be attributed to the fact that parents would be brushing the teeth of children younger than 4 years. As a child starts schooling, they are often found to be industrious and try to master skills. The American academy of pediatric dentistry recommends that children under 6 years of age should have parental supervision for brushing.(4) This could be the reason for higher scores in older

children in the present study. Stainless steel crowns have been found to accumulate more plaque than natural teeth. Poor oral hygiene practises and unsupervised brushing could be reasons for high OHI scores in older children. Girls were found to have better oral hygiene scores than boys. This is similar to many other studies.(3,17,43). Oral hygiene instructions should be given to children so that teeth that are caries free should not become carious.

CONCLUSION:

Within the limitations of the study, it can be concluded that the most common OHIS Score in children was 3 (58%) in children indicating poor oral hygiene. Oral hygiene scores increased as age increased indicating older children had poor oral health. Girls were to have better oral hygiene than boys.

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CONFLICTS OF INTEREST:

The authors declare that there were no conflicts of interest in the present study.

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