



## PREVALENCE OF DENTAL CARIES AND ASSESSMENT OF ORAL HYGEINE AMONG CHILDREN

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### ABSTRACT

Oral health is defined as a state of the mouth and its associated structures, where there is no disease or pain and able to function well to masticate food and state of teeth which are of a socially acceptable appearance. *Aim:* To evaluate the prevalence of dental caries among children. *Objective:* To report about the food habits of children. To evaluate the knowledge, attitude and preventive practices on oral health among children. *Study design:* This study was done as population based cross – sectional study on the prevalence of dental caries among the children aged between 6–12 years who are attending Kuzhandhai Maruthuvam OPD at National Institute of Siddha from Jun 2018 to August 2018. *Sample size:* The sample size required for the study was estimated to be 300 participants. *Sampling technique:* The children were identified for the study using simple random sampling technique. Consent was obtained from the informant before the commencement of this study. *Ethical approval:* Ethical clearance was obtained from the institutional Ethics Committee, National Institute of Siddha (NIS/IEC/2018/30,7.5.2018) and CTRI Registration done (CTRI 2018/06/014567) prior to the conduct of the study. *Data analysis:* Data entry and analysis was done using the stata software. Descriptive statistics was calculated for background variables of 300 children. *Result:* In the present study DMFT criteria was employed to assess the prevalence of dental caries among children. Therefore, on clinical examination of the oral cavity of the 300 participants, the prevalence of dental caries decayed teeth (n=115), filled teeth (n=40) and missed teeth (n=33). *Conclusion :* The importance of oral health is maintained, by incorporating practical sessions on appropriate technique and frequency of brushing and cleaning the mouth to the children.

*Keywords :* Prevalence, Dental caries, DMFT criteria.

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### INTRODUCTION:

Oral health is defined as a state of the mouth and its associated structures, where there is no disease or pain and able to function well to masticate food and state of teeth which are of a socially acceptable appearance<sup>[1]</sup>.

Dental caries is progressive destruction of teeth by bacteria. It is the problem among children in the world. Caries at a younger age group leads to several morbid one of the most common of all diseases and a major cause of loss of teeth <sup>[1]</sup>.

It has been deep rooted and rising oral health conditions of the oral cavity and also other systems of the human body. Oral health is integral to general health and essential for well-being. Dental caries are most common among the spectrum of oral diseases and are still a major public health burden in developing countries, affecting 60%-90% of school children and a number of adults <sup>[2]</sup>.

Various general health conditions do have oral manifestations, which in turn increase the risk of oral diseases, for example, diabetes mellitus, cardiovascular diseases etc., The initiation of dental caries depends on oral hygiene practices, age, sex, socioeconomic profile, lifestyle, geographic location, race, food habits and also the distribution varies within the oral cavity.

There is a recent trend of increasing levels of dental caries in most of the developing countries. This reason could be largely due to the increased consumption of sugars and reduced exposure to fluoride. Thus, emphasizing that dental caries is a disease of children has only been reduced to certain extent, and substantial improvement in reduction of the disease is not achieved <sup>[2]</sup>

In India, the trend indicates an increase in oral health problems especially dental caries, which has been consistently increasing both in prevalence and in severity over last five decades <sup>[3]</sup>. Children of all age groups are affected by dental caries and its treatment is restorative care, which may even include pulp therapy. As these treatment options are not only expensive, but also demanding for the child. The best option, which is more acceptable and economical for the children is – Prevention. Thus, it becomes imperative to collect the data on prevalence of dental caries and treatment needs to determine the course of action for preventive care.

In spite of the success achieved by focusing on the oral health, many issues still remain unsolved particularly among the under privileged in developing countries. History states that caries and periodontal diseases are a major component of the global disease burden. Therefore, keeping in mind the limitation of literature on these issues, the current study was undertaken to obtain information on the oral health requirements of the 6 to 12 years old school children attending National Institute of Siddha, Chennai.

This baseline data helps to plan preventive measures, restorative care and recall of the population. As oral health is an integral part of general health focusing on better oral health at a younger age group will have a good impact on their future general health too. Professional care and individual motivation, health education can help overcome these diseases and strive toward a better oral health

**AIM:**

To evaluate the prevalence of dental caries among children.

**OBJECTIVE:**

To report about the food habits of children.

To evaluate the knowledge, attitude and preventive practices on oral health among children.

**METHODS AND MATERIALS:**

**STUDY DESIGN:**

This study was done as population based cross – sectional study on the prevalence of dental caries among the children aged between 6–12 years who are attending Kuzhandhai Maruthuvam OPD at National Institute of Siddha from Jun 2018 to August 2018.

**SAMPLE SIZE:**

The sample size required for the study was estimated to be 300 participants.

**SAMPLING TECHNIQUE**

The children were identified for the study using simple random sampling technique. Consent was obtained from the informant before the commencement of this study.

**INCLUSION CRITERIA:**

Study subjects aged between 6–12 years who were willing and were present in Kuzhandhai Maruthuvam OPD were included in the study.

**EXCLUSION CRITERIA:**

Subjects who were not willing to participate, Subjects aged between 1-6yrs and above 12yrs were excluded.

**STUDY TOOL:**

Study tool was interview schedule solicited information on socio-demographic profile, dietary habits, oral health problems and oral hygienic practices of the study subjects. Data was collected by means of personal interviews using a structured questionnaire. The assessment of dental caries based on DMFT Classification.

**DATA COLLECTION:**

Prior to the start of the study, official permission was obtained from the Institutional Ethical Committee (IEC), Director and HOD of Kuzhandhai Maruthuvam Department. The Informant were informed about the details of the study and were invited to participate in the study. After obtaining consent from the informant, the children and informant were interviewed and examined the children in OPD. The participants were made to sit on a chair in natural daylight. The children were asked to rinse mouth thoroughly with water before examination, then the teeth were dried with cotton swab and the dental caries were recorded.

Clinical examination of the oral cavity was done to screen for dental caries using DMFT criteria. Only definite cavitation of the tooth surface were recorded as dental caries.

After completion of the survey, an oral health education thought and correct way of brushing the teeth was demonstrated for every subject individually.

### ETHICAL APPROVAL

Ethical clearance was obtained from the institutional Ethics Committee, National Institute of Siddha (NIS/IEC/2018/30,7.5.2018) and CTRI Registration done (CTRI2018/06/014567) prior to the conduct of the study.

### DATA ANALYSIS

Data entry and analysis was done using the stata software. Descriptive statistics was calculated for background variables of 300 children. To estimate the proportion of children with dental caries and for the analysis of association between dietary patterns, oral hygienic practice.

### RESULTS

In this study, it was found that among 300 children,69 (23%) of them belonged to the age group between 6-7yrs and 143 (47.66%) of them belonged to the age between 8-10yrs,88 (29.33%) of them belonged to the age between 11-12yrs. In this study,155 (51.67%) of them are female and 145 (48.33%) are male. With the reference to diet habits, it was found that 258 (86%) children consumed Non- vegetarian diet while 42 (14%) children consumed vegetarian diet. The demographic details of the study mentioned in table 1.

TABLE 1 DEMOGRAPHIC DETAILS

| S.NO          | DEMOGRAPHIC DETAILS | PERCENTAGE |
|---------------|---------------------|------------|
| <b>AGE</b>    |                     |            |
| 1             | 6-7 YEARS           | 23%        |
| 2             | 8-10 YEARS          | 47.6%      |
| 3             | 11-12 YEARS         | 29%        |
| <b>GENDER</b> |                     |            |
| 1             | MALE                | 48.3%      |
| 2             | FEMALE              | 51.6%      |
| <b>DIET</b>   |                     |            |
| 1             | VEGETARIAN          | 14%        |
| 2             | NON VEGETARIAN      | 86%        |

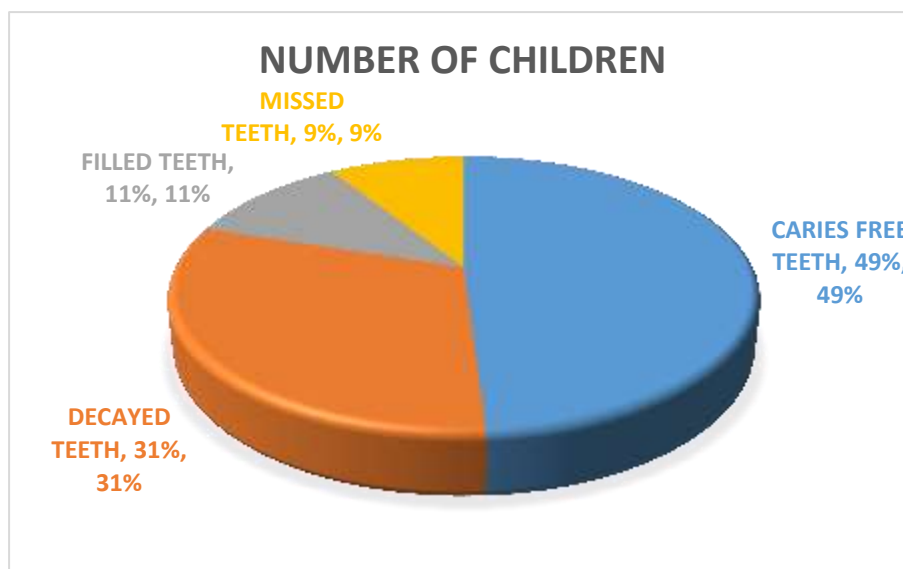
Oral hygienic practices like brushing the teeth twice a day and washing the mouth after eating were practiced among the study subjects. The details of oral hygienic practices of the study subjects are given in Table 2.

TABLE 2 ORAL HYGIENIC PRACTICES

| S.NO | ORAL HYGIENE PRACTICES           | YES/NO | PERCENTAGE |
|------|----------------------------------|--------|------------|
| 1    | GARGLING HABIT                   | YES    | 46.67%     |
|      |                                  | NO     | 53.3%      |
| 2    | NIGHT BRUSHING HABIT             | YES    | 25.33%     |
|      |                                  | NO     | 74.69%     |
| 3    | VISITED DENTIST FOR CONSULTATION | YES    | 29%        |
|      |                                  | NO     | 71%        |

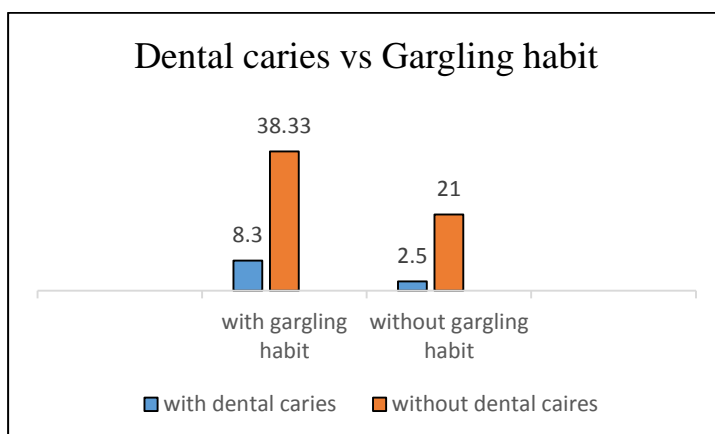
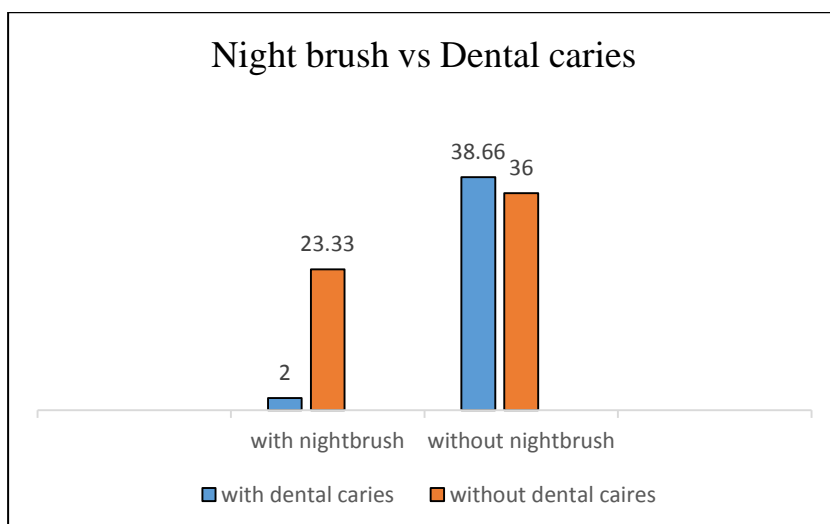
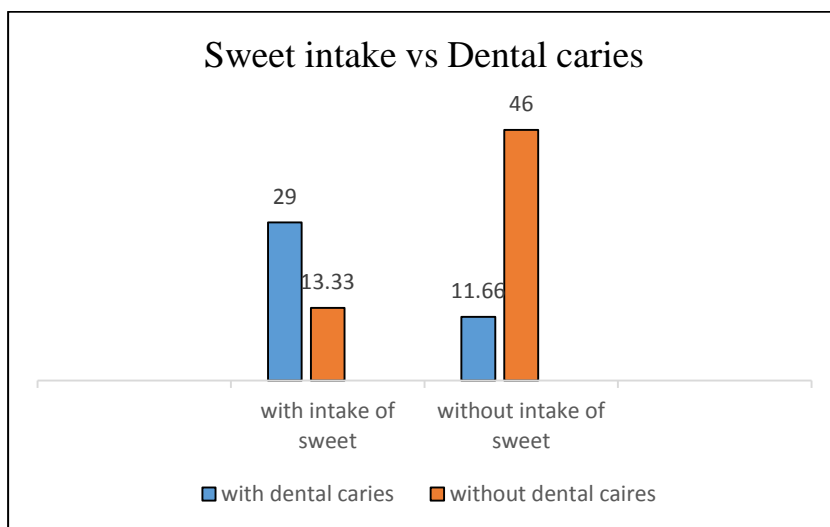
In the present study DMFT criteria was employed to assess the prevalence of dental caries among children. Therefore, on clinical examination of the oral cavity of the 300 participants, the prevalence of dental caries decayed teeth (n=115), filled teeth (n=40) and missed teeth (n=33). In caries free teeth was found in 178 (59.33%). (fig 1)

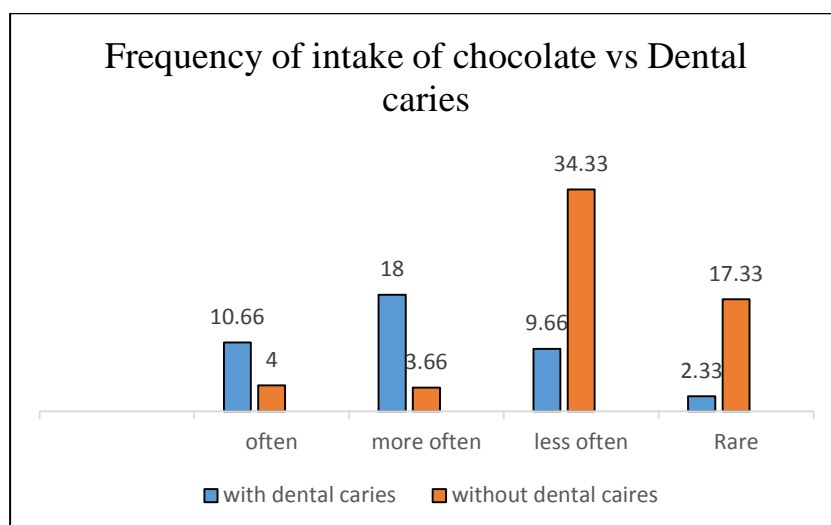
FIGURE 1: DMFT Vs CARIES FREE TEETH



There is a significant association between consumption of chocolates/sweets oral hygienic practices like brushing a teeth twice a day and rinsing the mouth after every meal and the presence of dental caries. The details about the association between the risk factors and dental caries are given below Figure 2

FIGURE 2: ASSOCIATION BETWEEN DENTAL CARIES AND SWEET/CHOCOLATE INTAKE, GARGLING HABIT, NIGHT BRUSHING HABIT





There is also significant association between dental caries and material used for brushing. The details are given below Table 3.

TABLE 3: DENTAL CARIES AND MATERIAL USED FOR BRUSHING

| S. No | BRUSHING TEETH      | DENTAL CARIES |     |
|-------|---------------------|---------------|-----|
|       |                     | YES           | NO  |
| 1     | PASTE               | 89            | 76  |
| 2     | TOOTH POWDER        | 2             | 0   |
| 3     | HERBAL PASTE/POWDER | 31            | 102 |

## DISCUSSION

In this study, prevalence of dental caries among the children 8–10 years was 51.63% was higher than the prevalence of dental caries among children 6–7 years was 17.2% but this difference is significant. This shows that as the age advances the prevalence of dental caries escalates. Higher DMFT was found in the age group of 8-10 years (49.23%) than age group of 6-7 years (18.62%) and this could be explained on the basis of increased exposure of the teeth to poor oral hygiene conditions<sup>[4]</sup>

The prevalence of caries teeth was found to higher among females (57.3%) than among males (42.6%) in the present study and this difference was not significant. Similarly, Datta et al in their study in Sundarban found that the prevalence of dental caries was higher in girls (76%) than in boys (68.8%)<sup>[5]</sup>. When dental caries rates are reported by sex, females are typically found to exhibit higher prevalence rates than males.

Consuming fruits several times in a week, reflects the healthy eating habits and the awareness on dental health and presumably good oral hygienic habits and hence lower prevalence of caries tooth while consumption of sweets and chocolates reflects on unhealthy eating and oral hygienic practices and hence higher prevalence of caries tooth. Dental caries is a process due to formation of acid by fermentation of sugar through acidogenic bacteria that lead to decalcification of dental enamel<sup>[6]</sup>. This study reported that 29% of the children consumed sweets while 11.66% of them who did not consume sweets developed dental caries and this difference statistically significant.

In this study oral hygienic practices like brushing the teeth among the study participants was practiced and it was found that 224 (74.67%) participants brushed their teeth once a day while 76 (25.33%) participants brushed their teeth about twice/more than twice a day. Prabhakar et al in their study reported that a total of 2708 (60.3%) study subjects brushed their teeth once daily and 1785 (39.7%) brushed their teeth twice daily and Harikiran et al in their work reported that 58.9% of the subjects brushed their teeth once a day, while 38.5% of them brushed their teeth about two or more times a day and 2.6% irregularly<sup>[8,9]</sup>.

Oral hygienic practices like rinsing the mouth was practiced among the study participants and it was found that 140 (46.67%) children washed their mouth after each meal while 160 (53.33%) students irregularly washed their mouth not after each meal. Dixit et al in their work found that 80% of the children rinse their mouth with water after meals<sup>[7]</sup>. Datta et al reported that with regard to the habit of washing mouth after taking food, it was found that 67.8% had the habit of washing their mouth rarely while 22.8% of them often washed their mouth after taking food and 11.4% of them washed their mouth always after taking any meal<sup>[5]</sup>

Though there is significant less prevalence of dental caries among those who are using herbal paste. Sodium lauryl sulfate, triclosan, artificial sweeteners, fluoride and diethanolamine are the common ingredients of paste even those chemicals are used in herbal paste. so, it is better to use natural siddha products like tripala chooranam.

## CONCLUSION:

Dental caries is a common public health problem among primary school children. Improper dietary habits, poor oral hygienic practices like decreased frequency of brushing the teeth and washing of mouth, lack of knowledge on the importance of dental health are seemingly the contributing factors for the development of dental caries.

Dental caries is a preventable disease and the magnitude of the problem can be alleviated by creating awareness on oral health to the parents, teachers, general public and emphasis should be laid on oral hygienic practices and diet counselling. The importance of oral health is maintained, by incorporating practical sessions on appropriate technique and frequency of brushing and cleaning the mouth to the children.

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