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Original Research Paper

# Parents attitude towards the use of preventive treatment for tooth decay and its effects on their child's oral health-An Observational Study

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**ABSTRACT**:
Dental caries can be a transmissible infectious disease in which cariogenic bacteria are passed from caregiver, usually from the mother to the child[1]. Various risk factors leading to dental caries include the extent of parental knowledge, attitude and practices (KAP) as the oral habits adopted by their parents are consecutively picked up by their children. Preventive oral health behavior of parents for children would influence their children's behavior in adapting preventive oral health practices as they grow along [2,3]. Since parents are the primary care givers to their children and are responsible for almost all their health issues, their role in modeling their children towards practicing preventive oral health throughout life is indispensable[4]. In this study, literature pertaining to the available information was reviewed on preventive measures for dental decay. A questionnaire was prepared related to preventive measures practiced in dentistry and the data obtained from the parents was recorded and analyzed. Analysis of the results revealed that despite some knowledge gaps, parents emphasized the importance of dental care for children. Still, there is a vast need to create awareness amongst the parents regarding the availability and efficiency of preventive measures against tooth decay in children. This can be achieved by educating the parents through various means such as mass media communication, posters, e-mails, flyers etc.

***Keywords: Dental caries, preventive treatment, children's oral health.***

## INTRODUCTION:

Oral health is a substantial aspect of health for all children and responsibility of oral hygiene care is by parent or guardian, that many of them have poor information in this regard. Maintaining healthy primary teeth is essential to facilitate proper growth and development in children[5]. Dental health, and specifically caries, has been strongly associated with many components of diet quality. Caries was significantly correlated with consumption of unhealthy food items including, but not limited to, fruit juice, soda, frozen desserts, candy, sweet rolls, white pasta and rice, and French fries [6,7]. The foremost way to address the increasing status of dental caries would be a preventive approach. The knowledge and awareness of parents of their children's oral health is a fundamental component that generates a preventive measure thus, leading to establishing a sound oral health status of their children[8]. Oral health of children is associated with oral health knowledge of their parents/ guardians as the oral health related habits established during childhood are maintained through adolescence to adulthood. Moreover, lack of parents' knowledge and awareness of their oral health will also affect their children future oral health attitudes and practices that they adopt which will be carried over into adulthood[9]. In developing countries, many studies had reported poor parents' knowledge and awareness of oral health. Therefore, this study was conducted to fill this knowledge gap. This study aims to assess parents' knowledge and awareness of their children's oral health.

## AIMS AND OBJECTIVES:

### Aim:

❖ To assess the knowledge and attitude of parents towards the use of preventative measures

**Objectives**:

❖ To search literature pertaining to the available information on preventive measures for dental decay (pub med, Scopus journals).

❖ To develop a questionnaire related to preventive measures practiced in dentistry

❖ To record and analyze the data obtained from parents.

## MATERIALS AND METHODS:

A sample size of 30 was chosen. An observational study was done on the mothers/ fathers of children between 6-11 years of age by the department of Pedodontics and preventive dentistry, Faculty of dental sciences, MS Ramaiah University of Applied Sciences, Bangalore.

**Inclusion criteria**:

• Parents of a healthy 6-11yr old child on their first visit to the dentist.

• Parents who can read and write English

**Exclusion criteria**:

• Parents with special child are excluded.

• The validated questionnaire was given to the parents after obtaining an informed consent form the patient and the data was collected.

A 20-question questionnaire was developed by the team based on the knowledge gained from the performed literature review to include details related to knowledge, attitude and practice. Approval from ethical committee was taken. Participants were informed about the aims and objectives of the study. Informed consent was taken prior to data collection. Participants were screened as per the inclusion and exclusion criteria. Data was collected. Data analysis was done. Results were obtained.

The response items were recorded in a 3-point Likert scale based on Agreement

1= YES

2= NO

3= DONT KNOW

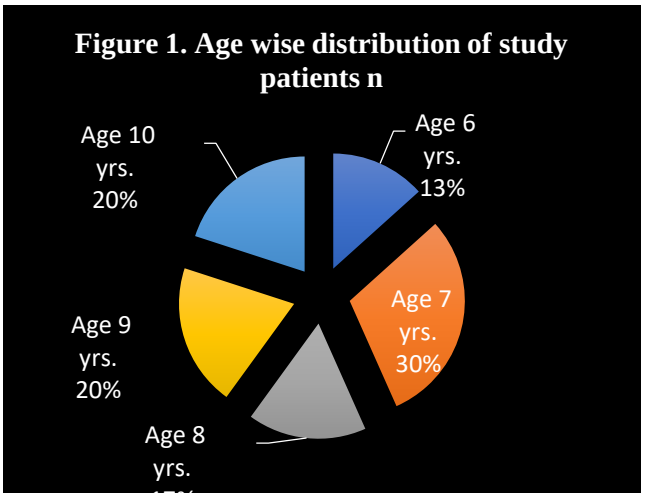
The response category of 'Yes' has been perceived as having adequate knowledge, attitude and practice about the oral hygiene measures among the parents of study patients and accordingly, the statistical weight of Score '1' has been assigned for all 'Yes' responses and similarly for the responses of 'No' and 'Don't Know' has been perceived as not having adequate knowledge, attitude and practice about the oral hygiene measures among the parents of study patients and accordingly, the statistical weight of Score '0' for all 'No' & 'Don't know' responses. Based on assigning the statistical weights for each of the responses, a sum total for domain wise [Knowledge, Attitude and Practice] and Total Sum scores has been calculated by summing up the responses of all the study questions to derive "KAP" – Knowledge, Attitude & Practice Score for further comparison to be made based on the age and gender of the study patients

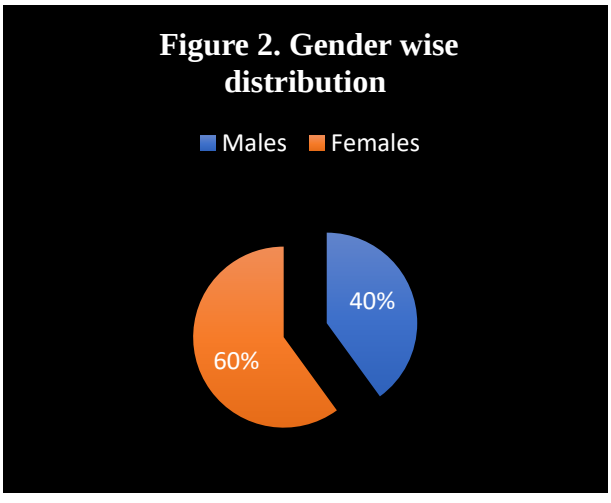
## STATISTICAL METHODS:

The collected data was then entered manually into excel spreadsheets. Detailed statistical analysis was done by SPSS software. Chi square test was done and p value was calculated. KAP scores were calculated by using Mann Whitney test.

## RESULTS:

Age and gender wise distribution of the patients enrolled was studied results recorded as figure 1 and 2




A comparison of distribution responses received from all patients pertaining to knowledge, attitude and practice was evaluated using the Chi Square goodness of fit test and Mann Whitney test. A statistically significant association was found while evaluating the response received on questions pertaining to knowledge of the

presence of cavities, preventability of caries, need for twice daily brushing, need to replace the tooth brush frequently and the risks associated was high sugar diet was observed ($p<0.001$). Attitude based questions stating the possible infectivity, effect of dental health on general health and need for child dental care were all found to significantly affect the dental health ( $p<0.001$). Practice based questions reveled that despite the knowledge of the possible risk factors, many significant practices such as twice daily brushing and use of mouth wash were not put to use leading to a statistically significant number of patients with caries. ($p<0.001$). No significant association of knowledge, attitude and practice based parameters was observed while studying the age and gender based scores of Mann Whitney tests.

**Table 1. Comparison of distribution of the responses to the Knowledge, attitude and practice based questions using Chi Square Goodness of Fit Test**

| Questions | Responses | n | % | $\chi^2$ Value | P-Value |
|---|---|---|---|---|---|
| 1. Does your child have dental caries? | Yes | 29 | 96.70% | 26.133 | <0.001* |
| | No | 1 | 3.30% | | |
| 2. Do you think that dental caries or decay can be prevented? | Yes | 23 | 76.70% | 25.8 | <0.001* |
| | No | 2 | 6.70% | | |
| | Don't Know | 5 | 16.70% | | |
| 3. Are you aware of various prevention techniques for dental decay? | Yes | 17 | 56.70% | 9.8 | 0.007* |
| | No | 10 | 33.30% | | |
| | Don't Know | 3 | 10.00% | | |
| 4. Should toothbrush be replaced every 3 months? | Yes | 26 | 86.70% | 38.6 | <0.001* |
| | No | 1 | 3.30% | | |
| | Don't Know | 3 | 10.00% | | |
| 5. Are you aware of presence of fluorides in toothpastes? | Yes | 12 | 40.00% | 1.4 | 0.5 |
| | No | 11 | 36.70% | | |
| | Don't Know | 7 | 23.30% | | |
| 6. Does the toothpaste your child uses contain fluoride? | Yes | 9 | 30.00% | 6.2 | 0.04* |
| | No | 5 | 16.70% | | |
| | Don't Know | 16 | 53.30% | | |
| 7. Are you aware of benefits of fluoride use in maintaining oral hygiene? | Yes | 10 | 33.30% | 1.8 | 0.41 |
| | No | 7 | 23.30% | | |
| | Don't Know | 13 | 43.30% | | |
| 8. Are you aware of the right percentage of fluoride in toothpaste? | Yes | 3 | 10.00% | 7.8 | 0.02* |
| | No | 12 | 40.00% | | |
| | Don't Know | 15 | 50.00% | | |
| 9. Are you aware about the dental caries risks associated with consumption of high sugar diet? | Yes | 22 | 73.30% | 21.6 | <0.001* |
| | No | 4 | 13.30% | | |
| | Don't Know | 4 | 13.30% | | |
| 10. Have you heard about something known as pit and fissure sealant? | Yes | 1 | 3.30% | 13.4 | 0.001* |
| | No | 12 | 40.00% | | |
| | Don't Know | 17 | 56.70% | | |
| 11. Are you aware of the use of sealant in prevention of dental caries in children? | Yes | 6 | 20.00% | 3.2 | 0.2 |
| | No | 14 | 46.70% | | |
| | Don't Know | 10 | 33.30% | | |
| 12. Are you aware of the long-term complications that dental decay can lead to? | Yes | 14 | 46.70% | 2.6 | 0.27 |
| | No | 9 | 30.00% | | |
| | Don't Know | 7 | 23.30% | | |
| 13. Do you think dental caries is infectious? | Yes | 19 | 63.30% | 12.6 | 0.002* |
| | No | 4 | 13.30% | | |
| | Don't Know | 7 | 23.30% | | |
| 14. Do you feel that oral health can in any | Yes | 23 | 76.70% | 25.8 | <0.001* |

| | | | | | |
|---|---|---|---|---|---|
| way affect the general health of the body? | No | 2 | 6.70% | | |
| | Don't Know | 5 | 16.70% | | |
| 15. Do you think children need dental care? | Yes | 29 | 96.70% | 26.133 | <0.001* |
| | No | 1 | 3.30% | | |
| | Don't Know | 0 | 0.00% | | |
| 16. Does your child brush twice a day? | Yes | 10 | 33.30% | 3.333 | <0.001* |
| | No | 20 | 66.70% | | |
| | Don't Know | 0 | 0.00% | | |
| 17. Does your child rinse his/her mouth with water after every meal? | Yes | 13 | 43.30% | 0.533 | 0.47 |
| | No | 17 | 56.70% | | |
| 18. Is your child using any mouthwash along with brushing? | Yes | 4 | 13.30% | 16.133 | <0.001* |
| | No | 26 | 86.70% | | |
| 19. Does your child have a habit of using a floss or tongue cleaner? | Yes | 10 | 33.30% | 3.333 | 0.08 |
| | No | 20 | 66.70% | | |
| 20. Does your child have a habit of consuming high sugar drinks or a high sugar diet | Yes | 12 | 40.00% | 1.2 | 0.27 |
| | No | 18 | 60.00% | | |

**Statistically Significant**

Q1-12 are based on knowledge, 13-15 are based on attitude and 16-20 are based practice

This table provides the distribution of the knowledge-based responses using Chi Square Goodness of Fit Test.

**Table 2: Comparison of mean KAP scores of the parents based on the age of the study patients using Mann Whitney Test**

| Variable | Category | N | Mean | SD | Mean Diff | P-Value |
|---|---|---|---|---|---|---|
| Knowledge | ≤ 8 yrs. | 18 | 6.11 | 1.75 | | |
| | > 8 yrs. | 12 | 5.17 | 1.70 | 0.94 | 0.17 |
| Attitude | ≤ 8 yrs. | 18 | 2.44 | 0.62 | | |
| | > 8 yrs. | 12 | 2.25 | 0.75 | 0.19 | 0.50 |
| Practice | ≤ 8 yrs. | 18 | 1.89 | 1.08 | | |
| | > 8 yrs. | 12 | 2.08 | 1.38 | -0.19 | 0.88 |
| KAP | ≤ 8 yrs. | 18 | 10.44 | 2.60 | | |
| | > 8 yrs. | 12 | 9.50 | 3.00 | 0.94 | 0.42 |

**Note: Age 8 years has considered as the median age among the study patients.**

**<u>Mann Whitney Test Interpretation based on the age of study participants reveals</u>:**

The mean scores for knowledge domain, attitude and practice domains were evaluated using 8 years as the median age and Mann Whitney test was done and no significant association was found ( p>0.05) ( Table 2) . No significant gender based variations observed in knowledge attitude and practice scores was seen. ( p>0.05 in all cases) ( Table 3)

**Table 3: Comparison of mean KAP scores of the parents based on the gender of the study patients using Mann Whitney Test**

| Variable | Category | N | Mean | SD | Mean Diff | P-Value |
|---|---|---|---|---|---|---|
| Knowledge | Males | 12 | 6.33 | 1.67 | | |
| | Females | 18 | 5.33 | 1.75 | 1.00 | 0.10 |
| Attitude | Males | 12 | 2.50 | 0.67 | | |
| | Females | 18 | 2.28 | 0.67 | 0.22 | 0.340 |
| Practice | Males | 12 | 2.00 | 1.48 | | |
| | Females | 18 | 1.94 | 1.00 | 0.06 | 0.88 |
| KAP | Males | 12 | 10.83 | 2.92 | | |
| | Females | 18 | 9.56 | 2.60 | 1.27 | 0.38 |

## DISCUSSION:

Dental caries remains to be one of the most common diseases affecting humans [10,11] and comprises the single most chronic disease affecting children today. This disease can be defined as "a biofilm-mediated, diet modulated, multifactorial, non-communicable, dynamic disease resulting in net mineral loss of dental hard tissues"[12]. Evidence increasingly suggests that for successful prevention of dental caries, preventive interactions must begin within the first year of life. Dental caries is greatly modulated by dietary patterns of the individual among other factors. The caries process can be reversed in its early stages without the need for operative procedures[8,13]. The use of preventive strategies is considered more beneficial and more cost-effective to deal with this disease's signs and symptoms, since the techniques focusing on surgical intervention rarely change the oral conditions that caused the disease [14,15].

Primary care givers of the child are responsible to begin this process if they recognize and encourage good preventive habits. Insufficient information about their role in prevention of dental caries led us to conduct a survey among parents of children in Bangalore to determine their knowledge, attitude and practice in prevention of dental caries.

In a study by Ananda SR and Mythri H (2014) [16], parents were requested to fill out an objective type of anonymous questionnaire without providing any oral health information. Questions related to personal information (age and educational status) and preventive dental procedures in dentistry, source of information and utilization of preventive procedures were asked. Statistical analysis revealed that knowledge of preventive dentistry procedures and utilization rate among parents is less than 30% specially regarding preventive dentistry procedures and use of fluorides. One of the reasons for the same could be practice of preventive procedures by the dentists.

A similar study by CE Huebner and P Milgrom (2015) [17] concluded that twice daily tooth brushing is a low-cost, effective strategy to reduce the risk of childhood caries. As demonstrated here, community-based efforts can help parents achieve this important health behavior.

Gyanendra Kumar, Jatinder Kaur Dhillon et al, (2019) [18] did one such survey in New Delhi with a result that parents of such cities have good knowledge about oral health of children, but that is not being implemented properly. A change can be achieved only by developing comprehensive oral healthcare programs aimed at changing attitudes as well as providing parents with necessary skills to take the appropriate action and some dental camps to be conducted across various playschools so that the basic knowledge about oral health of preschool children is reinforced to the children as well as their parents. H. P. Suma Sogi, Shivayogi M. Hugar et al, 2016 [19] showed exactly the same results in Belgavi, Karnataka. In addition, awareness to visit the dentist before child's first birthday was insisted upon. Additional preventive practices like use of topical fluorides and sealants was also recommended at PHCs.

So, it is of utmost importance to educate the parents to be able to distinguish the criteria causing the increased risk of dental caries. This would allow the formulation of individualized prevention (and management) plans that would allow parents to keep their child's teeth healthy for long periods and to reduce the need of restorative procedures.

## Limitations of the study:

Small sample size could be slightly misleading when analyzing the age and gender based variations in the KAP domains. Some important practices such as consumption high sugar diet, use of mouthwash and rinsing of mouth after every meal did not show statistically significant association.

## CONCLUSION:

The study revealed positive overall knowledge, attitude, and practice (KAP) scores among parents regarding oral hygiene measures. Parents were aware of dental caries and its preventability, though knowledge about use of fluoride and pit and fissure sealants was relatively low. Age and gender of study patients did not significantly influence parents' KAP scores, but parents of male patients showed slightly higher knowledge scores. The findings underscore the need for improved education on use of fluoride and sealants. Despite some knowledge gaps, parents emphasized the importance of dental care for children. Also, it would be advantageous that parents become familiar with dietary patterns and caries-inducing factors in order to reduce the prevalence of the dental caries disease worldwide, since it remains a global public health issue.

Speaking of limitations of the present study, parents and caregivers require more exposure to caries preventive and management strategies.

## Future Perspectives:

Future research could expand the sample size, conduct longitudinal studies to track changes over time, target specific interventions to address knowledge gaps, and assess the impact of educational efforts. Including socioeconomic factors and involving dental professionals would also enhance understanding and tailor interventions more effectively.

**Conflict of Interest**: None

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