



Original Research

Dentists use of caries risk assessment & individualized caries prevention among paediatric patients in Bengaluru - a cross sectional study.

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How to cite: Prijitha et al, Dentists use of caries risk assessment & individualized caries prevention among paediatric patients in Bengaluru- a cross sectional study, *Int J Pedo Rehab* 2023; 8(1):8-13

<https://doi.org/10.56501/intjpedorehab.v8i1.751>

Received : 02.02.2023

Accepted:05.03.2023

Web Published: 05.03.2023

ABSTRACT

INTRODUCTION- The first stage of a comprehensive protocol for a child's oral health treatment is risk assessment.

AIM- The purpose of the current study was to determine if dentists in Bengaluru who are currently in practice carry out Caries Risk Assessment and offer individualized caries prevention to their paediatric patients.

MATERIAL & METHODS- A cross-sectional survey was carried out among Bengaluru's active dentists. The study individuals were picked using simple random sampling. Using a standardized self-administered questionnaire, the data was gathered.

RESULTS- Of the 215 dentists who responded, 80% thought it was crucial to undertake a caries risk assessment on young patients. Individualized Caries Prevention was used more frequently by 67% of dentists. There was no correlation between Individualized Caries Prevention and Caries Risk Assessment Factors, which suggested that patient affordability accounted for a large portion of treatment decisions.

CONCLUSION- Dentists should encourage parents and caregivers to start a dental home concept as soon as possible, which includes education, anticipatory guidance on the prevention of oral illnesses, and caries risk assessment.

Key words: Caries risk assessment, Individualized caries prevention, Use of fluorides, Xylitol gums

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<https://doi.org/10.56501/intjpedorehab.v8i1.751>

INTRODUCTION

By identifying characteristics that can assist health care professionals and parents/caregivers in having a true understanding of the level of caries risk and oral health needs of infants and toddlers, the caries risk assessment is the first step and a crucial component of a comprehensive protocol for the infant oral care visit. The clinical decision-making process is guided by the assessment of the caries risk. The Caries Risk Assessment (CRA) is a methodical procedure that attempts to classify patients into risk groups with respect to the potential to develop new carious lesions over time. It is based on the patient's past and present caries experience as well as known risk factors or indicators for disease.¹

Caries Risk Assessment is used in clinical practice to determine the primary etiological agents that contribute to past, present, and future disease, to determine whether additional diagnostic procedures are needed for a particular type of appropriate interventions, to assess the degree of these risks for developing caries to determine the level of prevention and frequency of re-evaluation/recall appointments, and to help with preventive or restorative treatment decisions. This must primarily be addressed at children as the current rise in dental caries prevalence among adults has emphasized the need for a new strategy to prevent caries as early as infancy.¹

The information gathered during the interview procedure and the clinical evaluation of the kid are then used to create a specific treatment plan for each infant. For children with moderate to high dental risk and their parents or carers, a dual strategy is important. It is necessary to change the maternal/caregiver transmission of cariogenic bacteria to infants through the potential use of fluoride varnish, xylitol-based products, and chlorhexidine rinse. The suggested level of preventative effort and frequency of re-evaluation in individuals with ongoing caries activity and progression should be proportional to the degree of disease risk. Implementing an Individualized Caries Prevention (ICP) programme or intervention plan after determining each patient's risk. Treatments should target the specific risk factors each patient has that are promoting their disease. It's likely that dentists' treatment choices take economics into account.¹ The preventive and therapeutic recommendations include using fissure sealants, using preventive agents in-office or at home, prescribing oral rinses, xylitol gums, etc. in daily practice. Dentist subgroups who have a particular preventative attitude consequently use or suggest these preventive treatments more frequently. When the entire dental team, including the office personnel, dental assistants, dental hygienists, and dentists, are involved and supportive, they are more likely to result in effective patient outcomes. As a result, each team member must possess the fundamental knowledge and communication abilities needed to apply their understanding to patients from various demographic groups. These preventive measures can then be targeted to high-risk group thereby not only reducing the economic burden of the restorative care but also eliminating pain and improving the overall quality of life. Hence it is inevitable to feed relevant data on the caries risk assessment and produce feasible preventive programs.²

So, the purpose of the current study was to determine if dentists in Bengaluru who are currently in practice carry out Caries Risk Assessment and Customized Caries Prevention for their paediatric patients.

MATERIALS & METHODS

The goals of this cross-sectional study, which was carried out among active dentists, were to quantify –(i) dentist's subjective ratings of the importance of individual caries risk factors, (ii) the proportion of dentists employing individualized caries prevention and (iii) to determine the relationship between individualized caries prevention and the risk factors for developing caries.

The sample size was derived from the formula:-

$$N = \frac{Z^2 \times P(1-P) \times D}{E^2} = 214$$

Z=1.96 (constant)

P=0.5 (power of the study)

D=1 (design of the study) &

E=15% (standard error).

The study's participants were Bengaluru-based dentists in practice. Brahut Bengaluru Mahanagara Palike has split Bengaluru into 8 zones (BBMP). Until the sample size of 215 was reached, equal numbers of practicing dentists were chosen from each of the eight zones (26 from each zone). Using a standardized self-administered questionnaire, the data was gathered. Registered Bengaluru dentists were required to meet the inclusion criteria. The survey featured three sections: -

- (A) Demographic details of the practicing dentists
- (B) Caries Risk Assessment of pediatric patients
- (C) Individualized Caries Prevention for pediatric patients

STATISTICAL ANALYSIS

Using statistical software, the data was analyzed. Quantitative and numerical data were combined using descriptive statistics expressed as percentages. The relationship between components in the individualized caries prevention and the caries risk assessment was discovered using regression analysis. Any value less than or equal to 0.05 was regarded as statistically significant, and the level of significance was fixed at $p=0.05$.

RESULTS

Personal Details of the Dentists

There were 215 dentists in all who took part, 127 (59.1%) of them were men, and 88 (40.9%) were women. 100 (46.2%) of the participants were general practitioners, while 115 (53.8%) had completed their speciality. The majority of dentists—166 (77.2%)—opted for solo practise as opposed to 49 (22.8%) in group practise. 80 (37.2%) of the 215 dentists practised specialist dentistry, leaving 135 (62.8%) to practise general dentistry. Only 15 (7%) of the practitioners used specific tools, and 200 (93%) of them did not use any form of caries assessment instrument at all.

Importance of Assessment of Individual Caries Risk Factors

Among the 215 dentists, 172 (80%) thought it was crucial to perform a Caries Risk Assessment for young patients. When individual caries risk factors were analyzed, 158 (73.5%) dentists felt it is important to see consumption of >3 snacks/day by the child, 150 (69.8%) felt it is essential to see the child's bed time feed with bottle, 140 (65.10%) gave importance to presence of visible plaque on tooth surface. Past caries experience (>1dmft) was important for 133 (61.90%) dentists. 121 (56.30%) felt the need to see presence of active caries in mothers, 115 (53.50%) gave importance to presence of active white spot lesions in children, 101 (47%) opted for importance of regular dental care and 87 (40.5%) for salivary examination. **(Fig 1)**

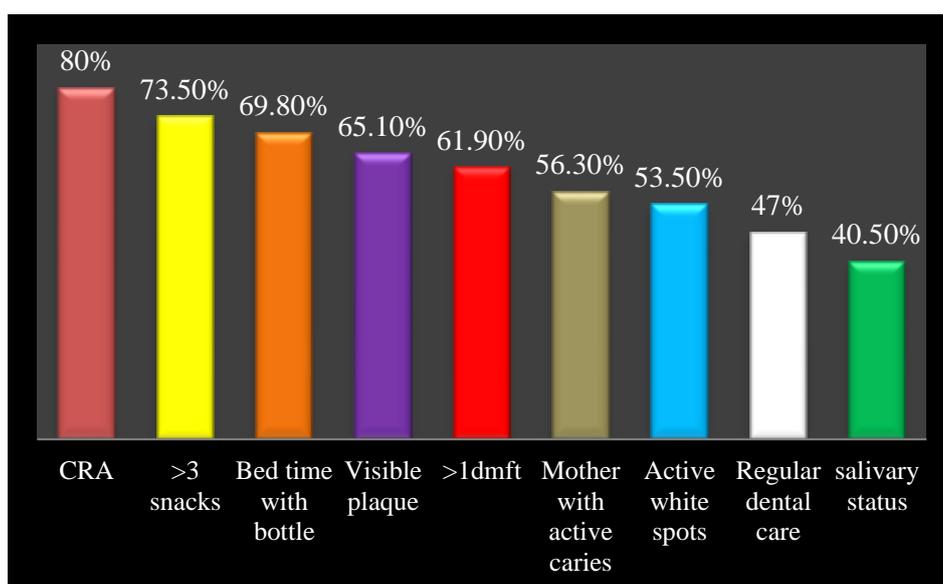


Fig 1:- Assessment of Individual Caries Risk Factors

Assessment of Individualized Caries Prevention

Out of the dentists participated,144 (67%) perform ICP routinely in their practice.109 (76.3%) use Pit & Fissure sealants on their pediatric patients, 56 (38.6%) dentists prescribe self-use of fluorides, 39 (26.5%) give professional fluoride application on their patients and10 (7%) prescribe Xylitol Chewing gums for their patients.(Fig II)

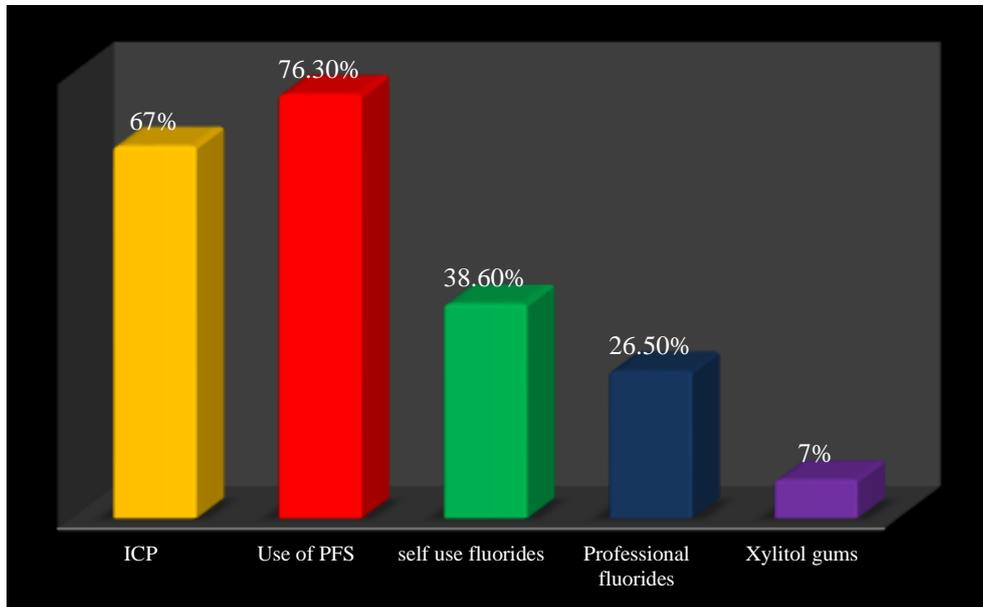


Fig 2:- Assessment Of Individualized Caries Prevention

Association between Individualized caries Prevention and Caries Risk Assessment Factors

When ICP was co-related with specific caries risk factors using Pearson’s Correlation, they failed to show any statistical significance. (Table I)

	PEARSON’S CORRELATION	ICP REGIMEN PRACTICE
MOTHER ACTIVE CARIES	0.033	POOR
CONSUMPTION OF > 3 SNACKS	0.012	POOR
CHILD IS PUT TO BED WITH BOTTLE WITH SUGAR	0.027	POOR
SALIVARY EXAMINATION	0.003	POOR
CHILD HAS ACTIVE WHITE SPOT LESIONS	-0.104	POOR
> 1 DMFT	0.047	POOR
CHILD HAS VISIBLE PLAQUE ON THE TEETH	0.081	POOR
CHILD HAS REGULAR DENTAL CARE	-0.158	POOR

Table I:- Association with CRA factors and ICP

DISCUSSION

According to the current study, 80% of dentists assessed the risk of dental caries in their young patients. A fair comparison can be found in a similar study by the Texas Academy of Dentistry. Merely 9% of dentists did not assess caries risk, according to their report, whereas 36% of responders gave CRA on more than 76% of their patients. Comparable results were obtained from a survey of dentists working in Indianapolis, Indiana, which revealed that 72% of respondents utilised some form of risk assessment.³

According to our statistics, 73.5% of dentists believe that a child's consumption of more than three snacks per day is the most crucial indicator of a caries risk. This is because they recognise the importance of diet in determining the incidence of caries among different populations that follow various diets. Regular dental care and salivary testing, according to the dentists, are least important in making a diagnosis because they only serve as markers, not risk factors (i.e., elements not directly linked to the disease's cause). Also, a lot of these variables depend on the patients' insurance or reimbursement programmes. They may be less dominated by emergencies, which is another contributing factor. In our survey, approximately 67% of dentists routinely used ICP. Treatments with empirical backing include fluoridation, sealants, and antibacterial rinses. According to Riley et al study, only roughly 50% of network participants' patients receive ICP. Numerous studies have directly questioned dentists regarding the role that risk assessment plays in their caries preventive decisions (Primosch and Barr, 2001; Trueblood et al., 2008). It could be assumed that European regions, especially the Nordic nations, would employ prevention more frequently given that these civilizations have traditionally been known for their emphasis on prevention (Wang et al., 1998; Ekstrand and Christiansen, 2005; Pitts, 2001). Nonetheless, dental schools in the US and Canada have recently expanded the amount of time in the curriculum devoted to teaching caries prevention (Brown, 2007)⁴.

Primosch and Barr (2001) discovered that the majority of paediatric dentists said sealants are put without regard for the child's caries risk when analysing practise patterns at the level of the individual practise. Another study that looked at the relationship between sealant use and caries status came up empty (Clark and Berkowitz, 1997). According to Eklund et al. (2000), many American dentists do not use topical fluoride based on the risk of caries. According to Siegal et al. (1996), among US dentists, the frequency of sealant application was related to other elements such dentists' knowledge of sealants, the number of children seen in the office, and insurance coverage for sealants. Most dentists say they offer some kind of in-office caries prevention to the majority of their paediatric patients.⁴

Our findings corroborate Tinahoff and Douglas' (2002) claim that healthcare practises frequently make little distinction between the type and degree of preventative interventions recommended for children (Tinahoff and Douglass, 2002). The best scientifically validated strategy for preventing the development of new lesions, slowing the advancement of those that already present, and preventing the development of new ones is fluoridation (Puy and Navarro, 2008). The application of prevention in the context of patient risk at the practise and individual patient levels has to be carefully examined in future study.⁵

Nevertheless, there was little correlation between dentists' use of caries risk assessment with young patients and the likelihood that patients would actually receive caries-preventive therapy. This implies that not all dentists in practise employ caries-preventive measures in the same manner. It is unknown whether these variations are caused by practise philosophies or a lack of understanding of the need of caries prevention. The choice of preventive therapy should, according to current best practise, be based on the child's unique risk (Rosier 2001; Bader et al., 2001).^{6,7,8}

Risk assessment needs a suitable action, preventive, and patient education in order to be effective. However, it is not obvious if or how dentists systematically take this information into account when making treatment choices. Although dentists claimed to utilise personalised caries prevention, there was a lot of variation between practises. These discrepancies may be caused by different financial motivations, patient pools with different degrees of overall caries risk, or a lack of agreement among practising dentists regarding the advantages of caries preventive medications.^{9,10}

The current standard of care for undergraduate training programmes in dentistry colleges should be Caries Risk Assessment training and promotion. Dentists in practise should regularly attend Continuing Dental Education programmes to stay up to date on the different CRA & ICP programme approaches.

ACKNOWLEDGEMENT

I would like to thank all the practicing dentists of Bengaluru without whom this study would not have been possible. I would like to thank Dr.S.S.Hiremath, Senior Professor and Head of Department, The Oxford Dental College & Hospital, Bengaluru for his valuable suggestions that have helped us in accomplishing this task.

ABBREVIATIONS

CRA- Caries Risk Assessment

ICP- Individualized Caries Prevention

FINANCIAL SUPPORT AND SPONSORSHIP – Nil

CONFLICTS OF INTEREST - There are no conflicts of interest

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