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Knowledge Attitude and Practice of Dentists Regarding Pit and Fissure Sealants in Suburbs of Chennai, India

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Research Article

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ABSTRACT

Introduction: Pit and fissure caries are initiated in the areas where developmental pits and fissures are located on the tooth surface. Sealants are a thin coating painted on the chewing surfaces of teeth usually the premolars and molars to prevent caries. The sealant bonds to the depressions and fissures of the teeth, forming protective shield over the enamel of each tooth.

Methods: In this study 11-questions pretested questionnaire was used to a convenience sample of general dentists (n = 100) in suburbs of Chennai. The study was conducted to assess dentists' levels of evidence-based clinical knowledge and their attitude towards pit and fissure sealants.

Results: Most of the dentists participated were who graduated within 5 years, and 91% of them received dental sealant education in their pre-doctoral dental curriculum. 83% of them answered to detection and management of incipient lesions incorrectly. A statistically significant difference was found between postgraduates and undergraduates regarding knowledge about guidelines of usage of sealants, sensitiveness of placement technique, need for frequent replacement and difficulty in caring for children.

Conclusion: Most of the dentists who participated in this study had sealant education in their pre-doctoral curriculum and had high levels of positive attitudes on sealant usage in clinical practice. However, dentists knowledge on appropriate usage of sealants was low.

INTRODUCTION

Dental caries is the most common chronic diseases in the world ^[1]. As, caries rates have decreased in most industrialized countries, but still the percentage of total caries is seen in the occlusal surfaces compared with smooth surfaces has increased ^[2]. Literature shows that lower molars are more prone to caries than anterior teeth and most severely affected teeth in the entire dentition and if left untreated, dental caries can lead to pain and infection ^[3,4]. Chronic infection around one or more teeth can result in damage to the underlying developing permanent tooth bud ^[5]. Dental caries can be prevented by using primary and secondary preventive measures. The primary measures to prevent tooth decay are found to be pit and fissure sealants, fluoride application, chlorhexidine, and patient counselling. New methods of caries prevention focus on pit and fissure caries as they are the most prevalent carious areas ^[2]. The available systematic review of the preventive effects of sealants included twenty-four studies was published from 1975 to 1990 ^[6]. It has been more than 30 years following the introduction of pit and fissure sealant the profession has not made into a regular practice as expected ^[7]. The usage of sealants by general and paediatric dentists might vary according to their knowledge about recent advancements and application of it in their clinical practice. In a study that was conducted, revealed that most of the dentists were found to be using sealants in their practices and had high levels of positive attitudes about using sealants. However, their knowledge regarding the appropriate use of sealants was stated to be low ^[8].

In 2008, the American Dental Association (ADA) Council published evidence-based clinical recommendations for the proper use of use of pit-and-fissure sealants by dental professionals ^[9].

The adoption of sealant use in clinical practice can be successful only if dentists have a good evidence-based clinical knowledge about the appropriate selection of patients and the use of dental sealants. To the best knowledge of the authors there is no available data regarding knowledge attitude and practice of dentists in practicing in suburbs of Chennai regarding Pit and Fissure Sealants. Hence this study was conducted to evaluate the knowledge, attitude and practice of dentists in suburbs of Chennai regarding Pit and Fissure Sealants.

MATERIALS AND METHODS

Ethical approval was obtained from the institute. Ethical code: SRB/STUG15/65. A cross sectional study was done in suburbs of Chennai among the BDS and MDS graduates to assess their knowledge and attitude towards sealants. A pilot study was conducted among 20 dentists to evaluate the acceptability of questionnaire and required modifications were made in the questionnaire. The sample size was determined by using Open Epi software 2.1.3 Version with a power of 80% and confidence interval level 95%. The estimated sample size was 99. Considering the attrition rate 1%, a total of 100 dentists were involved in the study. This research was done by issuing a questionnaire to evaluate their knowledge and attitude towards sealants. This research was conducted between August 2015 to December 2015. The questionnaire involved questions such as age, sex, type of dentist (BDS/MDS-specialty), years since graduation to assess their knowledge about sealants included in their curriculum and their attitude towards sealant in everyday clinical practice.

The questions were aimed at determining the primary methods of detection of noncavitated carious lesions and the treatment option for non cavitated carious lesions .To assess dentists' attitudes and there practice about using dental sealants they were asked them to choose describing their concerns about using dental sealants as a routine preventive measure. The collected data was analysed with SPSS 19.0 version. To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and for continuous variables the mean and S.D were used. To find the significance association between the variables the Chi-Square test was used. In the above statistical tool the probability value <0.05 is considered as significant level.

RESULTS

Fifty one percentage of the participants were male dentists. **Table 1** explains the demographic data of participants involved (**Table 1**). Almost all (91%) the respondents reported that they had received sealants education as part of their pre-doctoral curriculum.

Table 1. Demographic details of participants.

Sample Characteristics	Frequency in percentage
Sex	
Male	50
Female	50
Qualification	
BDS	55
MDS	5
Years of Experience	
≤5 years	59
>5 years	41

The **Figure 1** shows the percentage of dentists whose years since their graduation is up to 5 years or above 5 years. The utilization of sealants and dentists graduated within past 5 years is comparatively higher (59%) than who graduated before. Most dentists (83%) did not answer correctly the method of diagnosis of early, noncavitated carious lesions. When asked about the best material for dental sealants, 49% of participants correctly answered that resin-based sealants were the appropriate treatment for non cavitated carious lesions.

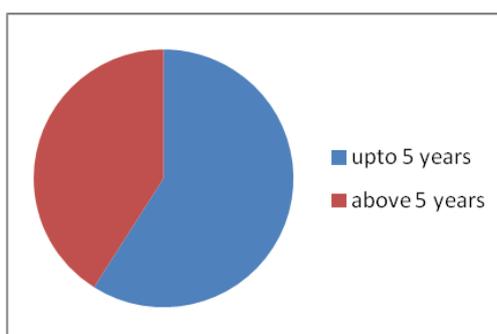


Figure 1. Percentage of dentists whose years since graduation is up to or above 5 years.

The **Figure 2** shows the percentages of dentists agreeing and disagreeing to different attitude and practice based statements concerning the use of dental sealants. It was observed in this study that the postgraduates had a statistically significant knowledge, attitude and use of pit and fissure sealants when compared to undergraduates (**Table 2**).

Table 2. Association of knowledge, attitude and practice regarding sealants based on graduation and number of years of experience.

			Graduation		p value*	Experience		p value*
			BDS	MDS		≤ 5 years	>5 years	
Primary measure to detect non-cavitated caries	Yes	Knowledge	54	36	0.003*	55	36	0.171
	NO		1	9		4	5	
Treatment choice for non cavitated caries	Yes	Knowledge	40	40	0.016*	58	37	0.089
	NO		15	5		1	4	
Sealant is Expensive and out weights the benefits of its usage	YES	Attitude	2	3	0.401	2	3	0.332
	NO		53	42		57	38	
Possibility of sealing in decay	YES	Attitude	19	17	0.449	22	14	0.458
	NO		36	28		37	27	
Unclear with the practice guidelines about usage of sealants	YES	Attitude	8	14	0.040*	12	10	0.404
	NO		47	31		47	31	
Sealant usage is a technique sensitive procedure	YES	Attitude	9	15	0.041*	13	11	0.374
	NO		46	30		46	30	
I feel gaining access in molars is difficult	YES	Practice	1	4	0.125	2	3	0.332
	NO		54	41		57	38	
Frequent replacement and maintenance is required	YES	Practice	4	15	0.001*	9	10	0.187
	NO		51	30		50	31	
Experienced inferior performance on using sealants	YES	Practice	5	4	0.626	5	4	0.546
	NO		50	41		54	37	
Caring for children is difficult	YES	Practice	40	23	0.022*	38	25	0.444
	NO		15	22		21	16	

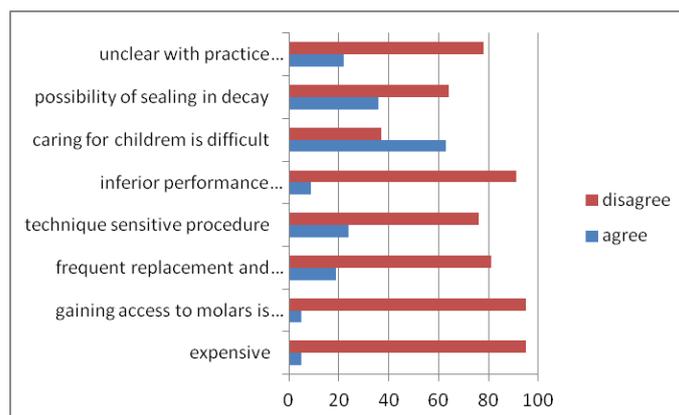


Figure 2. Percentage of dentist agreeing and disagreeing to different attitude based statements concerning the use of dental sealants.

However the years of experience after graduation did not influence the beliefs regarding sealants. Participants cited the child care and possibility of sealing in decay as the most common concerns about using dental sealants.

DISCUSSION

People in suburbs of Chennai utilize the dental services offered by private practitioners. Since Chennai is a rapidly expanding city younger dentists are moving to suburbs to practice. Dental sealants are an effective preventive too for caries [10,11]. Dental professionals will be able to utilize pit and fissure sealants as a preventive tool only if they possess the required evidence-based clinical knowledge for appropriate selection of a patient and use of sealants.

Results of this study indicate that almost all the participating dentists had education about sealants in their curriculum. No statistical significant difference was seen in regard to number of years after graduation and knowledge regarding sealants. Similar results were reported in previous studies [8,12,13]. In contrary recently graduated dentists in Greece, Chennai and Bathinda city showed more knowledge towards use of pit and fissure sealants [14-16]. This can be attributed to the fact that the young dentists in suburbs are updating their knowledge regarding measures of caries prevention.

Their levels of knowledge regarding detection and management of noncavitated carious lesions were low as only one-third of the questions were responded correctly. This could be attributed to the fact that the respondents had multiple options to choose and they selected only the best of the choice rather than the primary mode of detection. This study's findings were similar to those of a nationwide study in which the authors concluded that dentists in the United States had not adopted evidence-based recommendations for sealant use [17].

It was found that though most of dentist in Greece though they believe in prevention of caries, 64.2% do not feel that sealants are effective means of prevention and do not use them at all [14]. However in the present study only around 10% of the dentist are of opinion that the sealants are of inferior usage. The attitude of participants seems to vary according to their level of graduation. Postgraduate dentists have a more positive attitude towards the usage of sealants as they are confident with the guidelines for usage of sealant and hence able to manage the technique sensitive procedure. Similar findings were also reported among dentist in other parts of the country [15,18]. This could be attributed to the fact that they gain knowledge and experience during postgraduate training

Most of the participants appreciate the benefits of pit and fissure sealants as a preventive tool for caries unlike dentists in other studies who felt that cost benefit ratio is not in favour of placement of sealants [19-21]. The possibility of sealing the caries has raised doubts in using pit and fissure sealants among clinicians in particular undergraduates, similar to previous studies [14,15,21]. However, Oong, et al. [22] have advised practitioners not be reluctant to provide sealants as intervention is highly effective in preventing caries by sealing over incipient caries. Thus sealed noncavitated incipient lesions will not progress to frank cavitations.

Few undergraduate clinicians are not skilled in treating young patients which can lead to an inherent fear in dentist to avoid sealant placement as reviewed by Figel in his literature [23].

Most of the dentists (80%) do not agree to the fact that the placement of sealants is a technique sensitive procedure which is in contrary to results obtained in previous study conducted in the country [15]. This can lead to improper placement of sealants and less retention rate as isolation is a critical factor in success of retention of sealants.

Frequent replacement of sealants has been another major concern for the dentists in application of Pit and fissure sealants in this study. It has been shown that retention rates after one year was 90-100%, and came down to 85% and 65% after three years and seven years respectively [24]. 85.9% of dentists in Bathinda city 15 were not reapplying regardless of sealant retention. It is supported by the fact that caries experience is lower under partially retained or missing sealants and completely retained sealants [25,26]. Therefore, the dentist need not fear about the loss of sealant as the remaining sealant has a beneficial effect on the tooth.

Thus in this study it is observed that misconception of effectiveness of sealants, replacement and the risk of further decay after sealant placement could result in some dentists under-utilizing them. Therefore Continuing education courses and workshops are essential to update dentists' beliefs regarding dental sealants.

CONCLUSION

The dentists who participated in this study had sealant education in their pre-doctoral curriculum and had high levels of positive attitudes on sealant usage in clinical practice. However, the dentist's perspective regarding the appropriate use of sealants was low.

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