

# Parents' knowledge, attitude, and practice regarding the pit and fissure sealant therapy

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## ABSTRACT

**Context:** Parents' interpretation on children's oral health care practices plays a vital role in improving children's oral health. **Aim:** This study sought to evaluate parents' knowledge, attitude, and practice regarding dental sealants. **Materials and Methods:** A cross-sectional study was conducted among parents of school-going children in Chennai, India. Knowledge, attitude, and practice toward sealant therapy were assessed through a questionnaire survey among 250 parents (45% fathers and 55% mothers). **Results:** A statistically significant difference was noted in the knowledge and attitude scores at various age groups; 71% of the participants agreed that pit and fissure sealants are effective in preventing dental caries. Only 34% of the study participants' children had received dental sealants. **Conclusion:** The parental knowledge and awareness of preventive practices appear to support dental sealants as a preventive strategy for dental caries. But most parents did not practice the preventive measures despite knowing its effectiveness and benefits. Greater efforts should be made to encourage the parents to provide their children with primary care.

**Keywords:** Attitude, knowledge, practice, prevention, primary care, sealants

## Introduction

Dental caries is a pandemic disease affecting all population irrespective of age, gender, or socioeconomic status.<sup>[1]</sup> Even though not directly life-threatening, dental caries have a detrimental effect on quality of life. Especially in young children, the caries not only affects oral health but also leads to lack of growth, loss of confidence, and mental health problems.<sup>[2]</sup> Its prevalence is alarming in developing countries due to lack of access to oral health services and lack of awareness about preventive measures.<sup>[3]</sup>

The pits and fissures are considered to be at great risk for dental caries as the control of the accumulation and removal of dental plaque in these deep areas are challenging.<sup>[4,5]</sup> The increased prevalence of occlusal caries than smooth surface caries is due to the morphology of the teeth. Lower molars are reported to be more prone to caries than anterior teeth and most affected teeth in the entire dentition.<sup>[6,7]</sup>

The term "pit and fissure sealant" describes the material that is introduced into the occlusal pits and fissures of teeth, thus forming a protective barrier that obstructs the contiguity between the area most susceptible to dental caries and oral microenvironment.<sup>[8]</sup> The first pit and fissure sealant, "Nuva-Seal" was marketed in 1972. Since then, various studies have documented the effectiveness of sealants in preventing pit and fissure caries.<sup>[9]</sup> Sealants are considered to be the most effective primary care measure ensuring complete protection of the occlusal surface from dental caries.<sup>[10,11]</sup>

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However, despite extensive evidence supporting their safety and efficacy, the utilization of sealants in the dental practice is not as expected.<sup>[12]</sup>

One of the hindrances for the adoption of primary dental care is lack of public awareness. The fundamental step to promote the utilization of preventive care is to increase the awareness and attitude of parents regarding the significance of such practices, as parents play a major role in maintaining and improving the children's oral health.<sup>[13,14]</sup> Parental decisions are influenced by their attitudes, which reflect on the children's oral health practices. The purpose of this study is to assess parental knowledge, attitude, and practice regarding fissure sealant therapy through the use of a questionnaire.

## Materials and Methods

Ethical clearance was obtained from the ethical clearance committee of Saveetha University (SRB/MDS/PEDO/18-19/0013). This cross-sectional study was conducted in Tamil Nadu, India, among the parents who had come for the treatment of their children to the Department of Pediatric and Preventive dentistry (August 2018 to January 2019), to assess the knowledge, attitude, and practice toward sealant therapy by issuing a questionnaire. Informed consent was obtained from the study participants. Questionnaires that parents, for whatever reason, had not completed were excluded from the study.

The sample size was calculated based on the study done by Mafeni and Messer. ( $N = 250$ ; 90% power at 5% alpha).<sup>[15]</sup> A structured and validated questionnaire was adapted from questionnaires used previously in studies done by Mafeni and Messer and Lang *et al.*<sup>[15,16]</sup> The first section of the questionnaire consisted demographic information of the participants such as age, gender, and highest level of education. The second part assessed participant's knowledge, attitude, and practice regarding pit and fissure sealant therapy. The questionnaire was assessed based on a three-point Likert scale.

Data were collected and entered into spreadsheet (Excel 2017: Microsoft office) and analyzed using SPSS software (Version 17.0). Independent *t*-test, ANOVA followed by Tukeys *Post Hoc* test, and Pearson's correlation coefficient were used to compare the qualitative and quantitative variables. *P* value less than 0.05 was considered as statistically significant.

## Results

Figure 1 depicts the distribution of study participants. The study sample consisted of 250 participants of which 113 (45%) were fathers and 137 (55%) were mothers.

In <30 years age group, 23 (20%) were fathers and 37 (27%) were mothers. In 30–50 years age group, 66 (59%) were fathers

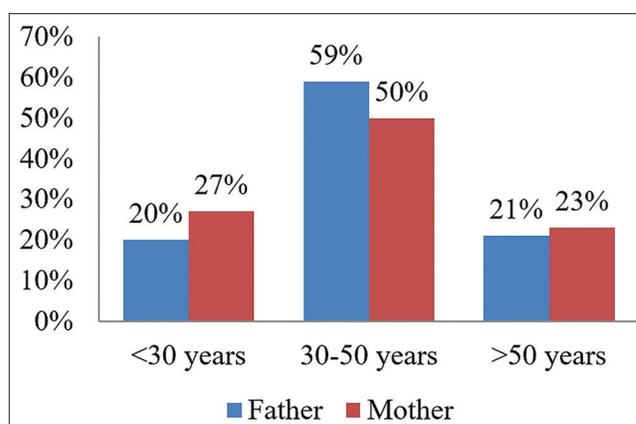


Figure 1: Distribution of study participants

and 68 (50%) were mothers. In >50 years age group, 24 (21%) were fathers and 32 (23%) were mothers.

Among the 250 participants, 200 (80%) had completed graduation, 38 (15%) had completed high school, and 12 (5%) had completed primary school.

The majority of the parents (41%) stated that their dentist serves as the source for sealant knowledge, 32% from internet/TV and other sources were friends/relatives (12%), magazines (10%), and 5% responded as “no source.”

Figure 2 represents the responses of parents to different knowledge, attitude, and practice-based statements concerning the use of pit and fissure sealants.

Table 1 compares the mean scores of knowledge, attitude, and practice between the different age groups and also depicts the comparison of mean differences at various age groups. Statistical analysis showed significant difference in the mean knowledge score ( $P = 0.026$ ) and mean attitude score ( $P = 0.001$ ) in different age groups. *Post Hoc* analysis showed a significant difference in knowledge score between <30 years and 30–50 years of age group ( $P = 0.019$ ). Statistically significant difference was noted in attitude score between <30 and 31–50 years age groups ( $P = 0.012$ ) and between <30 and >50 years age groups ( $P = 0.001$ ).

The mean scores of knowledge, attitude, and practice between the parents were not statistically significant as seen in [Table 2].

Table 3 shows mean scores of knowledge, attitude, and practice between the levels of education. The association between the mean knowledge score and levels of education was statistically significant ( $P = 0.017$ ).

Table 4 depicts the correlation between knowledge, attitude, and practice toward pit and fissure sealants. A statistically significant correlation was found in between the attitude and practice score (0.026).

**Table 1: Comparison of mean scores of knowledge, attitude, and practice between age groups**

Scores	Age group	n	Mean±Standard deviation	P	Age groups	Mean difference	P
Knowledge	<30 Years	60	14.78±2.059	0.026*	<30 years verses 31-50 years	0.858	0.019**
	31-50 Years	134	13.93±1.980		<30 years verses >50 years	0.605	0.245
	>50 Years	56	14.18±2.107		31-50 years verses >50 years	-0.253	0.713
	Total	250	14.19±2.050				
Attitude	<30 Years	60	16.22±2.344	0.001*	<30 years verses 31-50 years	1.150	0.012**
	31-50 Years	134	15.07±2.540		<30 years verses >50 years	1.735	0.001**
	>50 Years	56	14.48±2.860		31-50 years verses >50 years	0.585	0.327
	Total	250	15.21±2.633				
Practice	<30 Years	60	5.92±1.430	0.099	<30 years verses 31-50 years	-0.046	0.974
	31-50 Years	134	5.96±1.346		<30 years verses >50 years	-0.476	0.146
	>50 Years	56	6.39±1.330		31-50 years verses >50 years	-0.430	0.118
	Total	250	6.05±1.370				

\*P<0.05: One-way ANOVA, \*\*P<0.05: Tukeys Post Hoc test

**Table 2: Comparison of mean scores of knowledge, attitude, and practice between parents**

Scores	Responder	n	Mean±Standard deviation	P*
Knowledge	Father	113	14.16±2.165	0.841
	Mother	137	14.21±1.957	
Attitude	Father	113	15.07±2.678	0.442
	Mother	137	15.33±2.598	
Practice	Father	113	6.15±1.409	0.284
	Mother	137	5.96±1.336	

\*Independent t-test

**Table 3: Comparison of mean scores of knowledge, attitude, and practice between levels of education**

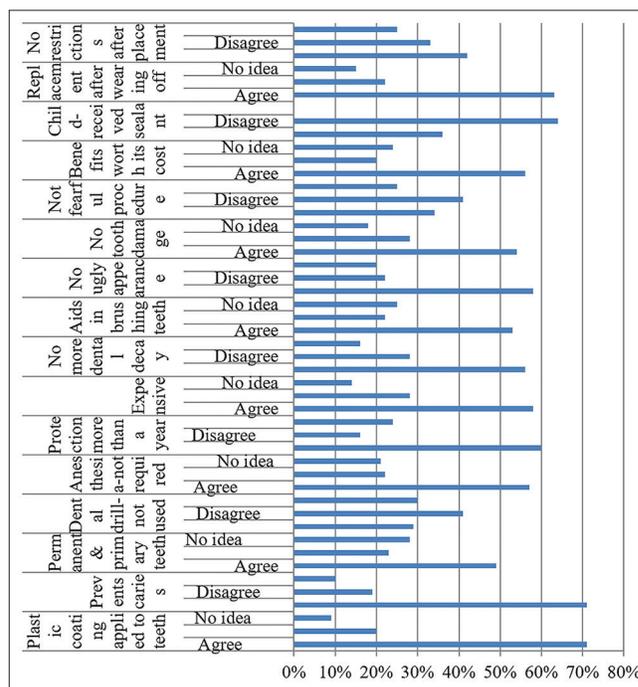
Scores	Levels of education	n	Mean±Standard deviation	P
Knowledge	Below high school	12	13.67±1.775	0.017*
	High school	38	13.39±1.748	
	University degree	200	14.37±2.084	
	Total	250	14.19±2.050	
Attitude	Below high school	12	15.00±2.523	0.102
	High school	38	14.39±2.112	
	University degree	200	15.38±2.708	
	Total	250	15.21±2.633	
Practice	Below high school	12	6.08±1.379	0.995
	High school	38	6.05±1.469	
	University degree	200	6.05±1.357	
	Total	250	6.05±1.370	

\*P<0.05: Independent t-test

## Discussion

Dental caries is the most common oral condition that elicits esthetic and functional complaints in children. Parents are decision-makers in matters of children's oral health practices and also determine when to establish regular primary dental care.<sup>[17]</sup> The key elements shown to influence the oral health behavior of children include parental oral health attitude, general knowledge, and oral health status.<sup>[13]</sup>

The literature states that there has been a decline in the prevalence of dental caries in industrialized countries in the last three decades, which could majorly be attributed to the use of



**Figure 2: Responses of parents to different knowledge, attitude, and practice based statements regarding sealants**

preventive dental care and established preventive programs.<sup>[3,18]</sup> Although brushing and flossing helps remove food particles and plaque from the smooth surfaces of teeth, they cannot absolutely reach the depressions and grooves to clean off all food and plaque, whereas dental sealants protect the grooves and pits, thereby preventing dental caries.<sup>[19,20]</sup>

This study aimed at evaluating the parental knowledge, attitude, and practice regarding pit and fissure sealants. A total of 250 parents participated in this questionnaire study, of which, 113 (45%) were fathers and 137 (55%) were mothers. Details on the levels of education and the associations with the knowledge, attitude, and practice scores were determined.

The majority of the parents (41%) in this study stated dentists as the source for their knowledge on sealants. Various studies have

**Table 4: Correlation between knowledge, attitude, and practice scores**

Scores	Knowledge	Attitude	Practice
Knowledge			
Correlation		0.395	0.090
P		0.000	0.157
n		250	250
Attitude			
Correlation	0.395		0.026*
P	0.000		0.681
n	250		250
Practice			
Correlation	0.090	0.026*	
P	0.157	0.681	
n	250	250	

\*Pearson's correlation (&lt;0.05)

also been conducted to evaluate the knowledge, attitude, and practice of dentists regarding sealants and stated high levels of positive attitude on sealant usage in clinical practice.<sup>[21,22]</sup> Parents who visit the dentist often acquire more knowledge regarding primary oral care of children which could be attributed to the effectiveness of face-to-face education of dentists.<sup>[15,23,24]</sup> Dental professionals as oral physicians raise patients' awareness of the importance of oral health, potentially aiding them in utilizing dental care sooner rather than later. Simultaneously, the overall patient health may improve as primary care undertaken during dental visits may lead to appropriate referrals to other areas of the health care system. This efficient reference and counter-reference system among health professionals in the fields of dentistry and medicine can ensure the care of pediatric patients.<sup>[24,25]</sup>

It was seen in the present study that education of parents plays a vital role regarding knowledge of preventive care. A statistically significant difference was seen among the response of graduate parents and parents with school education in regard to sealants. Hence, parents with higher education had good knowledge about the preventive dental care, which is similar to studies done in Iran and Michigan.<sup>[15,16]</sup> However, the association between the levels of education and attitude/practice scores was not significant.

In the present study, 71% respondents agreed to the fact that pit and fissure sealants prevents dental caries, which was in accordance with the study done by Lang *et al.*<sup>[16]</sup> The mean score of knowledge was found to be  $14.19 \pm 2.050$  out of 18, which proves that the study participants have good knowledge about dental sealants.

Attitude is influenced by beliefs, values, personal needs, behavior, and background of each individual. Results of the present study revealed that almost half of the participants (58%) considered dental sealants to be expensive which is contradictory to the study done by Mafeni and Messer.<sup>[15]</sup> In a study conducted among the dentists of Chennai, India, most of them felt that cost-benefit ratio to be in favor of placement of sealants.<sup>[21]</sup> The mean attitude score was found to be significant between age groups ( $P = 0.001$ ). There was no significant difference between attitude and levels

of education. And no correlation was found between attitude and knowledge score.

Regarding practice, only 34% of the study participants' children had received dental sealants. Positive correlation was found between attitude and practice score (0.026) and no correlation was found between knowledge and practice score.

Thus, in this study it is observed that most parents did not practice the preventive measures despite knowing its effectiveness and benefits. However, as it is usually a natural characteristic of questionnaire surveys, some over-representation may occur because responding parents tend to be more interested in the topics of the questionnaire and thus more knowledgeable and may have responded in a socially desirable manner. However, the literature does suggest that knowledge of sealants does not necessarily translate into a behavioral change.<sup>[26]</sup> Given that few respondents did not support sealants, further research needs to be conducted to unravel the reasons for parents not wanting to have sealant therapy done on their children despite their knowledge of its proven benefits.

The present study was conducted among parents who had reached the hospital for dental treatment of their children. Hence, it can be inferred that parents have minimal awareness about dental treatment. However, these parents showed lesser interest toward the application of sealants.

## Conclusion

Based on the findings of this study, it can be concluded that there is a lack in the practice of parents regarding the fissure sealant therapy. Greater effort should be made by the health care providers and government organizations to impart primary dental care knowledge to parents, as they have greater influence on their children.

## Recommendation

Similar studies have to be conducted at a community level that could provide additional insight into the parental knowledge, attitude, and practice regarding sealant therapy.

## Declaration of patient consent

The authors certify that they have obtained all appropriate parent consent forms. In the form, the parents have given their consent for their images and other clinical information to be reported in the journal. The parents understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## Conflicts of interest

There are no conflicts of interest.

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