



(RESEARCH ARTICLE)



## Assessment of parental attitude, knowledge and awareness towards preventive dentistry in south zone of Chhatrapati Sambhajnagar: A questionnaire based cross sectional survey

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### Abstract

**Introduction:** Oral health is a pivotal aspect of overall well-being. In early childhood, primary teeth play a vital role in development of speech, chewing, maintaining proper spacing, and guiding the eruption of permanent teeth. Common oral conditions comprise dental caries, malocclusion, childhood caries, and trauma.

**Aim:** The present study was conducted to assess paternal knowledge towards the forestallment of oral conditions and application of preventive dental procedures in children in South zone of Chhatrapati Sambhajnagar.

**Materials and Methods:** A cross-sectional questionnaire was administered to parents of pediatric patients of age group 3 to 12 years in South zone of Chhatrapati Sambhajnagar, Maharashtra, with a sample size of 270 participants. A structured questionnaire, comprising 14 questions in English, was developed, translated and back translated into the local language Marathi by experts to ensure better comprehension by the parents. The questionnaire was divided into two sections: the first focused on demographic information, while the second included 14 multiple-choice, close-ended questions. These questions included topics such as preventive treatments for dental caries, childhood caries, topical fluoride application, fluoridated toothpaste, pit and fissure sealants, habit-breaking dental appliances, malocclusion, mouth guards, and space maintainers. Additionally, the survey addressed harmful habits such as thumb-sucking, tongue-thrusting, and nail-biting.

**Result:** 56.6% of parents sought dental care only after experiencing pain. Additionally, parents of paediatric patients have restricted knowledge about preventive dentistry.

**Conclusion:** Parental knowledge about preventive dental procedures is limited, as is the utilization of these measures.

**Keywords:** Awareness; Parental knowledge; Preventive Dentistry; Dental Caries; Fluoride application

### 1. Introduction

Oral health is a pivotal aspect of overall well-being. During early childhood, parents, particularly mothers, play a significant role in shaping a child's development, including the establishment of good oral hygiene practices <sup>1</sup>.

Primary teeth play a crucial role in the development of speech, chewing, maintaining space, and guiding the eruption of permanent teeth <sup>2</sup>.

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Dental caries, a prevalent oral disease, is the result of bacterial activity<sup>3</sup>. Preventable and reversible, this infectious condition affects primary teeth. If not treated, it can lead to pain, bacterial infections, high treatment costs, speech issues, and early tooth loss. The decline in oral health among young children is driven by factors such as restricted access to dental care, inadequate preventive measures like water fluoridation, fluoride supplements, and dental sealants, mouth guards for protecting against accidental injuries during contact sports, and also interceptive orthodontics to prevent malocclusion, and a general lack of understanding about the importance of oral health<sup>2,4</sup>.

A 'pit and fissure sealant' acts as a protective barrier, applied to teeth's occlusal pits and grooves to prevent direct contact between areas susceptible to dental caries and the oral environment<sup>5</sup>. Fluoride is a naturally occurring mineral found in many foods and water, and it greatly benefits dental health by strengthening tooth enamel, making it more resistant to decay. However, although it protects against cavities<sup>6</sup>.

Major etiological factors for the development of dental malocclusion are parafunctional habits which are classified as normal or deleterious. The treatment approach for these habits involves eliminating the underlying cause, implementing retraining exercises, and using mechanical restraining devices<sup>7,8</sup>.

Dental treatment can place a financial strain on parents. Dentists play a binary role in the provision of professional preventive and therapeutic health care<sup>9</sup>. Managing and preventing dental health issues requires considerable time, effort, self-awareness, and proactive care<sup>10</sup>.

The current survey aimed to evaluate parental knowledge regarding the prevention of oral diseases and the use of preventive dental procedures for children in the South zone of Chhatrapati Sambhajanagar.

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## 2. Materials and Methods

The present study was a cross-sectional survey questionnaire. The study was conducted in South zone of Chhatrapati Sambhajanagar, Maharashtra. Parents of children of age group 3-12 years were enrolled.

### 2.1. Ethical Considerations

Following clearance from the Institute's Ethics Committee (CSMSS.DCH/R/UG/SS/2024:22), this study was carried out during a two-month period, from July to August 2024. A written informed consent was taken from the participants for the survey. The study's aim and objectives were clarified to the parents prior to obtaining their consent.

### 2.2. Questionnaire

A structured questionnaire consisting of 14 questions was developed in English and translated into the local language, Marathi, to enhance parents' understanding. The first section of the questionnaire gathered demographic information, while the second section included 14 multiple-choice, close-ended questions. These questions covered topics such as the prevention of dental caries, childhood caries, topical fluoride, fluoridated toothpaste, pit and fissure sealants, dental habit-breaking appliances, malocclusion, mouth guards, and space maintainers. Additionally, questions about deleterious habits like thumb-sucking, tongue-thrusting, and nail-biting were also included.

### 2.3. Validity of questionnaire

The questionnaire was originally in English and then translated into the local language, Marathi. The validity of the questionnaire Item content validity index (I-CVI), scale level content validity index (S-CVI), and universal agreement (UA) in English was 0.96, 0.95, and 0.94, and the validity of the questionnaire in Marathi I-CVI, S-CVI, and UA was 0.96, 0.95, and 0.94 (Marathi questionnaire was translated To English and validity was same); the back translation was done.

### 2.4. Sample Size

The sample size was determined based on the prevalence of studies on preventive procedures in children, as cited in the research by Jadhav HC et al.<sup>2</sup>, the study was conducted with the parents of 270 children in the South zone of Chhatrapati Sambhajanagar.

### 2.5. Collection of Data

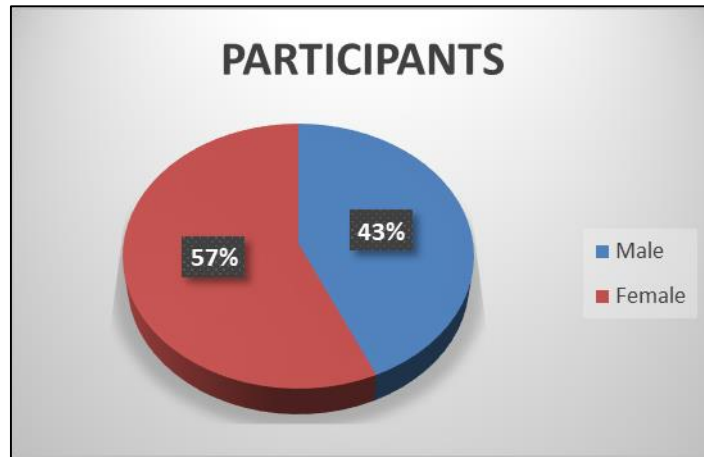
Parents of children aged 3 to 12 years, who were willing to participate, were included in the study. The questionnaire was distributed to all 270 parents, and the collected data was entered into an Excel sheet for analysis.

### 2.6. Statistical Analysis

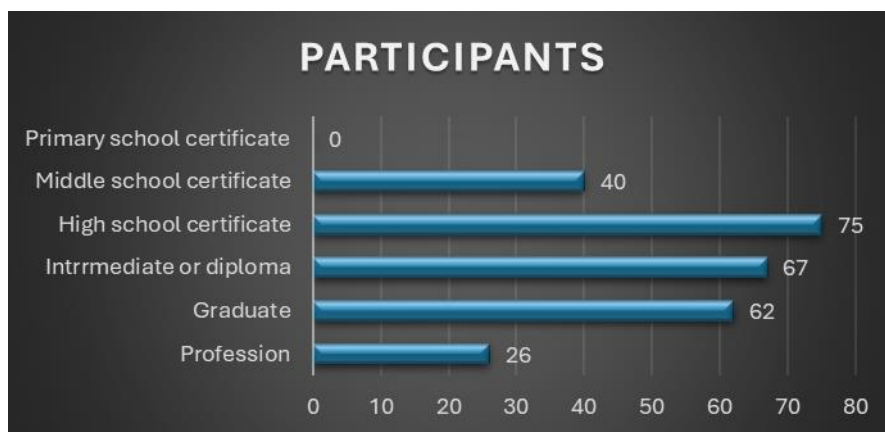
The statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) (version 21) software descriptive and multi variate analysis, and the level of statistical significance used in this study was chosen at  $p < 0.05$

### 3. Result

In this survey, the total study population was 270, of which 153 were female and 117 were male [Figure 1]. About 9.6% of participants were professionals, 22.9% of participants were graduates, 24.8% completed their diplomas/intermediate education, 27.8% of participants studied up to high school certificate, and 14.8% were educated below middle school certificate [Figure 2].



**Figure 1** Gender wise distribution of sample



**Figure 2** Education of participants

**Table 1** Parental Awareness towards Preventive Dentistry

Question	Choice Count	Choice	Profession	Graduate	Intermediate or diploma	High school certificate	Middle school certificate	Primary school certificate	n%	p-value
Number of children	1	1	1.00%	17.00%	17.00%	16.00%	8.00%	0.00%	10.25%	0.0007
	2	2	20.00%	37.00%	40.00%	45.00%	26.00%	0.00%	27.75%	
	3	>2	5.00%	8.00%	10.00%	14.00%	6.00%	0.00%	7.50%	
Frequency of dental visits for child?	1	every 6 months	10.00%	24.00%	27.00%	25.00%	17.00%	0.00%	17.25%	0.0023
	2	only during dental pain	14.00%	34.00%	37.00%	48.00%	20.00%	0.00%	26.25%	
	3	never	2.00%	4.00%	3.00%	2.00%	3.00%	0.00%	2.00%	
Do you know about dental caries?	1	yes	22.00%	55.00%	57.00%	60.00%	35.00%	0.00%	38.00%	0.0009
	2	No	2.00%	6.00%	6.00%	10.00%	1.00%	0.00%	4.25%	
	3	Don't know	2.00%	1.00%	4.00%	5.00%	3.00%	0.00%	3.00%	
Do you know about childhood dental caries?	1	Yes	23.00%	55.00%	57.00%	62.00%	33.00%	0.00%	38.00%	0.0035
	2	No	2.00%	3.00%	5.00%	7.00%	4.00%	0.00%	4.00%	
	3	Don't know	1.00%	4.00%	4.00%	6.00%	3.00%	0.00%	3.25%	
Is the progression of dental caries possible?	1	Yes	18.00%	47.00%	49.00%	54.00%	27.00%	0.00%	32.50%	0.0013
	2	No	1.00%	4.00%	3.00%	9.00%	4.00%	0.00%	4.00%	
	3	Don't know	7.00%	11.00%	15.00%	12.00%	9.00%	0.00%	9.00%	
Do you know about topical fluoride application?	1	Yes	17.00%	43.00%	41.00%	46.00%	19.00%	0.00%	26.50%	0.0001
	2	No	6.00%	10.00%	10.00%	21.00%	10.00%	0.00%	10.25%	
	3	Don't know	3.00%	9.00%	16.00%	8.00%	10.00%	0.00%	8.50%	
Do you think fluoridated	1	Yes	15.00%	33.00%	30.00%	35.00%	22.00%	0.00%	21.75%	0.0013
	2	No	6.00%	9.00%	10.00%	12.00%	7.00%	0.00%	7.25%	

toothpaste can prevent caries?	3	Don't know	5.00%	20.00%	27.00%	28.00%	11.00%	0.00%	16.50%	
Do you know about application of pit and fissure sealant?	1	Yes	9.00%	24.00%	29.00%	21.00%	13.00%	0.00%	15.75%	0.0006
	2	No	8.00%	19.00%	12.00%	20.00%	13.00%	0.00%	11.25%	
	3	Don't know	9.00%	19.00%	26.00%	33.00%	14.00%	0.00%	18.25%	
Do you know about the habit of thumb sucking tongue thrusting and nail biting?	1	Yes	13.00%	29.00%	35.00%	42.00%	24.00%	0.00%	25.25%	0.0007
	2	No	8.00%	13.00%	13.00%	15.00%	11.00%	0.00%	9.75%	
	3	Don't know	5.00%	20.00%	19.00%	18.00%	5.00%	0.00%	10.50%	
Do you know about breaking appliances	1	Yes	7.00%	15.00%	18.00%	20.00%	11.00%	0.00%	12.25%	0.0024
	2	No	10.00%	24.00%	18.00%	25.00%	16.00%	0.00%	14.75%	
	3	Don't know	9.00%	23.00%	31.00%	30.00%	13.00%	0.00%	18.50%	
Do you know that malocclusion can be prevented by serial extraction or extraction of over-retained teeth?	1	Yes	7.00%	14.00%	12.00%	21.00%	12.00%	0.00%	11.25%	0.0008
	2	No	10.00%	14.00%	19.00%	21.00%	8.00%	0.00%	12.00%	
	3	Don't know	9.00%	34.00%	36.00%	33.00%	20.00%	0.00%	22.25%	
Do you know that mouth guard can prevent trauma to teeth?	1	Yes	9.00%	21.00%	39.00%	39.00%	19.00%	0.00%	24.25%	0.0000
	2	No	4.00%	12.00%	14.00%	19.00%	11.00%	0.00%	11.00%	
	3	Don't know	13.00%	29.00%	14.00%	17.00%	10.00%	0.00%	10.25%	
Do you know that crowding of teeth can be prevented by arch	1	Yes	2.00%	3.00%	6.00%	10.00%	5.00%	0.00%	5.25%	0.0011
	2	No	11.00%	27.00%	20.00%	26.00%	13.00%	0.00%	14.75%	
	3	Don't know	13.00%	32.00%	41.00%	39.00%	22.00%	0.00%	25.50%	

expander and space retainer?										
Do you know about space maintainers for premature exfoliation of teeth?	1	Yes	3.00%	6.00%	6.00%	11.00%	6.00%	0.00%	5.75%	0.0003
	2	No	7.00%	13.00%	14.00%	27.00%	9.00%	0.00%	12.50%	
	3	Don't know	16.00%	42.00%	47.00%	37.00%	25.00%	0.00%	27.25%	

5.18% of participants had never visited the dentist for their child and 56.6% visited the dentist only after pain. 14.7% of parents were not aware of dental caries and 14.3% of parents were not aware of childhood dental caries. 72.2% of parents agreed that dental caries progression is possible. Overall, 36.5% of parents were not aware of the application of topical and 50% were not aware that fluoridated toothpaste can prevent dental caries. 64% of parents were not aware of the application of pit and fissure sealant application. Total 47% of parents were not aware of adverse habits such as thumb-sucking, tongue-thrusting, and nail-biting, and 73.6% of parents were not aware of dental habit-breaking appliances. Overall, 24.5% of parents were aware of serial extraction and 75.5% had no awareness of serial extraction. In this survey, 47% of parents do not believe that mouth guards prevent oral trauma. 9.6% of parents showed knowledge about arch expanders/space retainers, which are used to avoid crowding of teeth, and 90.4% of parents had no knowledge about arch expanders. Total 11.9% of parents were aware of space maintainers in case of premature exfoliation of a deciduous tooth. Statistical analysis was performed using Pearson Chi-square. The results of the chi-square test compared parents' educational qualification with knowledge on topical fluoride application, pit & fissure sealants and habit breaking appliances, revealed that the parents with good and poor educational qualifications had less knowledge and awareness in terms of fluoride application, pit and fissure sealants and habit breaking appliances.

#### 4. Discussion

The survey was conducted in South Zone of Chhatrapati Sambhajnagar to evaluate the awareness and knowledge of preventive dentistry among parents of paediatric patients. Children's oral health is primarily influenced by parents, who are responsible for making decisions about their dental treatments<sup>11</sup>. The current survey indicates that parents think children should visit dentist only when they experience a toothache. According to Vinay et al.,<sup>12</sup> the surveyed parents from Bangalore, India, believed that children should have a dental visit only if they have a toothache, which was similar to our study where 56.6% of parents visited the dentist after pain. Parents should be educated about the importance of regular dental visits to ensure that any decay or conditions are detected and prevented early on. Parents lacked awareness that dental caries is a preventable disease and that it can be prevented. They also lacked awareness about the benefits of topical fluoride application in reducing dental caries. Additionally, parents showed limited knowledge regarding the use of fluoridated toothpaste to prevent cavities, which aligns with findings from a study conducted by Alshehri and Kujan<sup>6</sup> in which the respondents were unaware of the beneficial effects of fluoride in preventing dental caries. In a study by Naidu and Devis, it was found that a significant percentage of parents were unaware of the preventive effects of fluoride in toothpaste against dental decay. Specifically, 27% of parents did not know if their child's toothpaste contained fluoride and 82.6% were unaware of fluoride's benefits<sup>7</sup>. Similarly our study revealed that 50% of parents did not know fluoride toothpaste's ability to prevent dental caries. These findings contrast with those of a study conducted by Abdulrhman Mohammed Alyousef stated that parents were using fluoridated toothpaste and parents in this study were knowledgeable about fluoridated toothpaste uses<sup>13</sup>. In a study by Lakshmanan and Gurunathan,<sup>5</sup> Total 71% of the participants agreed that pit and fissure sealants are effective in preventing dental caries, but in our study, 64% do not know about the application of pit and fissure sealants for the prevention of dental caries which might be attributed to a lack of knowledge about preventive measures. In the present study, it was observed that 47% of parents were unaware of adverse oral habits, which was found contradictory to a study conducted by Vishnu Prasanna and Ravindran<sup>8</sup>, where 92% were aware of thumb-sucking habits, 75% were knowledgeable about mouth breathing, and 71% were familiar with bruxism. In a study conducted by Sanguida et al.,<sup>14</sup> overall 51% of parents did not know that premature extractions of primary teeth can lead to malocclusion. In a study conducted by Ali et al.,<sup>15</sup> it was found that around 82.1% of parents were not aware of space maintainers, nor did they receive any information about their benefits. Confirming our findings, that there is a lack of knowledge of space maintainers and space management among parents. In this study, A total of 270 parents were unaware of children's oral health, which aligns with the findings of the study conducted by Leghari<sup>16</sup>. It was observed that parents have a low level of awareness

regarding their children's oral health. Parents of preschoolers lack sufficient knowledge about the risk factors for caries and methods of prevention. In a study conducted by Chen et al.,<sup>17</sup> it was discovered that parents with a strong educational foundation exhibited better knowledge about oral health compared to their counterparts, a finding that directly contrasts with the outcomes of the current study. It was observed that parents, regardless of their educational background whether poor or good, had a limited understanding of topical fluoride applications, pit and fissure sealants, and habit-breaking appliances.

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## 5. Conclusion

Parents need to be informed about preventive dental procedures, as this plays a crucial role in maintaining proper oral health and preventing dental issues. A lack of knowledge about these procedures not only affects the parents but also instills the same knowledge in their children, leading to poor oral habits and an increased risk of dental problems. Prevention is always preferable to curative treatments, offering advantages such as cost-effectiveness and long-term health benefits. Raising awareness about preventive dental care is essential to reducing the prevalence of oral diseases and promoting lifelong oral health for future generations. Public health initiatives and education campaigns can significantly contribute to this goal.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

There are no conflicts of interest.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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## References

- [1] Nazia Lone, Asif Yousuf, Parental Awareness and Attitudes Towards Preschool Oral Health of Children Visiting a Government Dental Hospital of Kashmir. *International Journal of Contemporary Medical Research* 2016,16(2):371-375
- [2] Snehal Patil, Harish Jadhav. Awareness of Parents toward Preventive Dentistry in North Maharashtra a Cross-sectional Survey. *Journal of Indian Association of Public Health Dentistry* 2024;22:120-3.
- [3] Almalki SA, Almutairi MS, Alotaibi AM, Almutairi AS, Albudayri LM, Almutairi RZ. Parental attitude and awareness toward preventive dentistry in Riyadh, Saudi Arabia: A cross-sectional study. *Journal of Pharmacy and Bio allied Sciences* 2021;13:S257-62.
- [4] Kagihara LE, Niederhauser VP, Stark M. Assessment, management, and prevention of early childhood caries. *Journal of the American Association of Nurse Practitioners* 2009;21:1-10.
- [5] Lakshmanan L, Gurunathan D. Parents' knowledge, attitude, and practice regarding the pit and fissure sealant therapy. *Journal of Family Medicine and Primary Care* 2020;9:385-9.
- [6] Alshehri M, Kujan O. Parental views on fluoride tooth brushing and its impact on oral health: Across-sectional study. *Journal of International Society Preventive and Community Dentistry* 2015;5:451-6.
- [7] Naidu RS, Davis L. Parents' views on factors influencing the dental health of Trinidadian pre-school children. *Community Dental Health Journal* 2008;25:44-9.
- [8] Vishnu Prasanna SG, Ravindran V. Knowledge and awareness on habits and habit breaking appliances among parents – A questionnaire survey. *Journal of Research in Medical and Dental Science* 2020;8:122-8.
- [9] Policy on the Role of Pediatric Dentists as Both Primary and Specialty Care Providers. *The Reference Manual of Pediatric Dentistry*; 2021 p. 158.
- [10] Chandak JN, Chahande J. Assessment of awareness among parents about preventive measures of oral health problems in children. *Journal of advances in Dental Practices & Research* 2023,10.25259
- [11] Folakemi O, Agbaje M. Ayedun O, Onajole A. "Assessment of mothers oral health knowledge: Towards oral health promotion for infants and children." *University Lagos Library*:2014

- [12] Vinay S. Naveen N, Naganandini N. Feeding and oral hygiene habits of children attending day-care centres in Bangalore and their caretaker's oral health knowledge, attitude and practices. *Indian Journal of Dental Research* 2011;22:561-6.
- [13] Alyousef AM, Almehrej BA, Alshahrani MA, Almutairi KM. Alqasir MA, Alassaf A, et al. Arabian Parents' Knowledge, Attitude and Practice towards their Children's Oral Health and Early Childhood Caries Resided in Riyadh Province: An Online-Based Cross-Sectional Survey. *Annals of Medical and Health Science Research* 2021;11:73-81.
- [14] Sanguida A, Vinothini V, Prathima GS, Santhadevy A, Premlal K. Kavitha M. Age and reasons for first dental visit and knowledge and attitude of parents toward dental procedures for Puducherry children aged 0-9 years. *Journal of Pharmacy and Bioallied Sciences* 2019;11:S413-9.
- [15] Ali A, Hebbal M, Aldakheel N, Al Ghamdi N, Eldwakhly E. Assessment of parental knowledge towards space maintainer as an essential intervention after premature extraction of primary teeth. *Healthcare (Basel)* 2022;10:1057.
- [16] Leghari MA. Association of dental caries and parents' knowledge of oral health, a cross-sectional survey of schools of Karachi, Pakistan. *Journal of Pakistan Dental Association* 2014;23:19.
- [17] Chen L, Hong J, Xiong D, Zhang L, Li Y, Huang S, et al. Are parents' education levels associated with either their oral health knowledge or their children's oral health behaviors? A survey of 8446 families in Wuhan. *BioMedCentral Oral Health* 2020;20:203.