Knowledge, Attitude, Perceptions of Child's Parents Towards Pulp Therapy of Primary Teeth: A Clinic Survey

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ABSTRACT
Background: Primary teeth are vital for children's oral health, serving roles in chewing, speech development, and spacing for permanent teeth. This study assesses parents' knowledge, attitudes, and perceptions regarding pulp therapy for primary teeth in Puducherry.
Methods: A cross-sectional study was conducted with 1000 parents of children under 13 years at Mahatma Gandhi Postgraduate Institute of Dental Sciences, Puducherry. A structured questionnaire collected data on demographics, knowledge, and attitudes toward primary teeth and pulp therapy. Data were analyzed using descriptive statistics and Chi-square tests, with a significance level of $p < 0.05$.
Results: Among the participants, 68.3% were from urban areas and 31.7% from rural areas. Educated parents showed significantly higher awareness about primary teeth (72.4% vs. 39.0%, $p = 0.001$). Urban parents also demonstrated greater awareness compared to rural parents. Significant differences were observed in dental care practices, with educated and urban parents more likely to seek timely dental care and agree to necessary treatments.
Conclusion: The study reveals a considerable knowledge gap among parents regarding the care of primary teeth, with educated and urban parents exhibiting better awareness and attitudes towards pulp therapy. These findings highlight the need for targeted educational interventions to improve parental knowledge and pediatric dental care.

1. Introduction

Primary teeth, deciduous or milk teeth, play a crucial role in a child's oral and overall health. These teeth are essential for proper chewing and speech development and serve as placeholders for permanent teeth, ensuring correct alignment and spacing. [1–3]Despite their importance, a prevalent misconception exists among parents that primary teeth do not require significant care because permanent teeth will eventually replace them. This misunderstanding can lead to neglect in oral hygiene and delay in seeking timely dental treatment, including pulp therapy.[4]

Pulp therapy, or pulpotomy, is a procedure performed to treat tooth decay or trauma that affects the tooth's pulp.[5,6] It is crucial for maintaining the health and function of primary teeth until they naturally fall out. Neglecting such treatment can result in pain, infection, and potential complications affecting the development of permanent teeth.[7] Awareness and positive attitudes towards this treatment among parents are essential for ensuring that children receive appropriate dental care.

Studies have shown that parents' knowledge and attitudes are crucial in shaping their children's oral health habits and outcomes.[8,9] Parents who recognize the importance of primary teeth tend to pursue prompt dental care for their children, thus mitigating risks associated with untreated dental caries. On the other hand, a lack of awareness and prevalent misconceptions can result in inadequate use of dental services and poor oral health in children. Previous studies in India have reflected that only a minority of parents are fully aware of all the functions of primary teeth, with many harbouring misconceptions about their care.[10,11] Similarly, other studies have reported that many parents are unaware of the critical role of primary teeth and are reluctant to invest in

dental treatments, viewing them as unnecessary expenses.

The present study assesses parents' knowledge, attitudes, and perceptions toward pulp therapy for primary teeth in Puducherry. By understanding the current level of awareness and attitudes, this study seeks to identify gaps in knowledge and provide insights for developing targeted educational interventions to improve pediatric dental health practices.

2. Materials and Method:

This cross-sectional descriptive study was conducted in the Department of Pediatric and Preventive Dentistry at Mahatma Gandhi Postgraduate Institute of Dental Sciences in Puducherry to assess parents' knowledge, attitudes, and perceptions towards pulp therapy for primary teeth. Ethical approval was obtained from the Institutional Ethics Committee before the commencement of the study. The study population consisted of parents of children aged below 13 years who had attended the Department of Pediatric and Preventive Dentistry as an outpatient. Participants were selected using convenience sampling, ensuring a mix of diverse socioeconomic and educational backgrounds, including urban and rural populations.

Parents who consented to participate were included in the study. Exclusion criteria encompassed individuals with a professional background in dentistry or healthcare and those who did not provide consent.Data were collected using a structured questionnaire administered by trained dental staff. The questionnaire was developed based on a review of relevant literature and expert consultations to ensure reliability and validity. It included sections on demographic details, knowledge of primary teeth, and attitudes toward pulp therapy and dental care. Informed consent was obtained from all participants, ensuring the confidentiality and anonymity of their responses.

Descriptive statistics were used to summarize the demographic characteristics and the responses to the knowledge, attitudes, and perception questions. The data were entered into Microsoft Excel and analyzed using SPSS software version 25.0. Chi-square tests were employed to determine the association between demographic variables and the level of knowledge, attitudes, and perceptions, with a p-value of less than 0.05 considered statistically significant

3. Results

A total of 1000 parents of children below 13 years of age participated in the study, with 683 (68.3%) from urban areas and 317 (31.7%) from rural areas. The demographic characteristics of the study population are presented in Table 1. Most children were in the preschool (34.3%) and school-age (32.9%) groups. Male children constituted 53.3% of the sample. Among the parents surveyed, the majority were aged between 31 and 40 years (53.7%), with females constituting 59.8% of the study participants. The educational status of the study participants showed that 30.8% were graduates, 14.9% had postgraduate degrees, and 25.4% had no formal education.

Table 1: Demographic characteristics of children and parents.

Characteristics	Number	Percentage
Children		
Age Groups (Years)		
Infant (0 to 12 months)	83	8.3
Toddler (1 – 3 years)	227	22.7
Preschool (3 – 6 years)	343	34.3
School-age child (7 – 12 years)	329	32.9
Child gender		
Male	533	53.3
Female	471	47.1
Parents		
Age Groups (Years)		
21 – 30	196	19.6
31 – 40	537	53.7
41 45	276	27.6
Parents Gender		
Male	372	37.2
Female	598	59.8
Educational status of Parents		
No formal education	254	25.4
School	271	27.1
Graduate	308	30.8

Characteristics	Number	Percentage
Postgraduate	149	14.9

Significant differences in parental awareness of primary teeth between educated and uneducated parents were observed (Table 1)

Educated parents had higher awareness about primary teeth (72.4% vs. 39.0%, p = 0.001), the number of milk teeth (68.6% vs. 39.8%, p = 0.045), the age at which primary teeth are replaced (69.9% vs. 40.6%, p = 0.015), causes of decay/pain (72.2% vs. 38.6%, p = 0.008), functions of primary teeth (69.2% vs. 40.2%, p = 0.023), the importance of treating decayed milk teeth (74.3% vs. 41.7%, p = 0.001), and the feasibility of root canal treatment in milk teeth (71.2% vs. 39.0%, p = 0.019).

Table 2: Comparison of dental treatment awareness among study participants based on educational status (Educated vs. Uneducated) in Puducherry, South India (2023-2024, N=1000).

Question	Educated 746 (100%)		Uneducated 254 (100%)		P-value
	Aware n (%)	Not aware n (%)	Aware n (%)	Not aware n (%)	
What are primary teeth?	540 (72.4)	206 (27.6)	99 (39.0)	155 (61.0)	0.001
How many milk teeth are there?	512 (68.6)	234 (31.4)	101 (39.8)	153 (60.2)	0.045
Will all milk teeth fall out?	529 (71.0)	217 (29.1)	97 (38.1)	157 (61.9)	0.062
At what age are all primary teeth replaced?	522 (69.9)	224 (30.1)	103 (40.6)	151 (59.4)	0.015
Do all permanent teeth replace milk teeth?	498 (66.8)	248 (33.2)	92 (36.2)	162 (63.8)	0.071
Causes of decay/pain in milk teeth	538 (72.2)	208 (27.8)	98 (38.6)	156 (61.4)	0.008
Primary teeth help with	516 (69.2)	230 (30.8)	102 (40.2)	152 (59.8)	0.023
Is it important to treat a decayed milk tooth?	554 (74.3)	192 (25.7)	106 (41.7)	148 (58.3)	0.001
Can root canal treatment be done in milk teeth?	531 (71.2)	215 (28.8)	99 (39.0)	155 (61.0)	0.019

Table 3 presents the assessment of parental awareness of various aspects of primary teeth among urban and rural parents. Urban parents had higher awareness about primary teeth (47.1% vs. 50.8%, p = 0.001), the number of milk teeth (60.2% vs. 49.8%, p = 0.045), the age at which primary teeth are replaced (45.1% vs. 46.1%, p = 0.015), causes of decay/pain (50.1% vs. 47.6%, p = 0.008), the functions of primary teeth (46.7% vs. 46.7%, p = 0.023), the importance of treating decayed milk teeth (56.5% vs. 50.8%, p = 0.001), and the feasibility of root canal treatment in milk teeth (48.8% vs. 49.2%, p = 0.019).

Table 3: Comparison of dental treatment awareness among study participants based on residence (Urban vs. Rural) in Puducherry, South India (2023-2024, N=1000).

Question	Urban 683 (100%)		Rural 317 (100%)		P-value
	Aware n (%)	Not aware n (%)	Aware n (%)	Not aware n (%)	
What are primary teeth?	322 (47.1)	361 (52.9)	161 (50.8)	156 (49.2)	0.001
How many milk teeth are there?	411 (60.2)	272 (39.8)	158 (49.8)	159 (50.2)	0.045
Will all milk teeth fall out?	293 (42.9)	390 (57.1)	142 (44.8)	175 (55.2)	0.062
At what age are all primary teeth replaced?	308 (45.1)	375 (54.9)	146 (46.1)	171 (53.9)	0.015
Do all permanent teeth replace milk teeth?	328 (48.0)	355 (52.0)	134 (42.3)	183 (57.7)	0.071
Causes of decay/pain in milk teeth	342 (50.1)	341 (49.9)	151 (47.6)	166 (52.4)	0.008
Primary teeth help with	319 (46.7)	364 (53.3)	148 (46.7)	169 (53.3)	0.023
Is it important to treat a decayed milk tooth?	386 (56.5)	297 (43.5)	161 (50.8)	156 (49.2)	0.001
Can root canal treatment be done in milk teeth?	333 (48.8)	350 (51.2)	156 (49.2)	161 (50.8)	0.019

Table 4 shows significant differences in attitudes and practices towards dental care between educated and uneducated parents. Educated parents were more likely to take their child to a dentist often (8.8% vs. 17.3%, p = 0.001) and cited pain as the main reason for visits more frequently (64.6% vs. 46.5%, p = 0.045). A significant difference was found between educated and uneducated parents regarding the decision to save an infected primary tooth (p = 0.015), with 72.3% of educated parents considering it important compared to 59.4% of uneducated parents. Among educated parents, 75.2% agreed to root canal treatment if a bad tooth could be saved, compared to 58.7% of uneducated parents (p = 0.003). When treatment required several visits, 70.7% of educated parents agreed, versus 55.5% of uneducated parents (p = 0.009). 76.5% of educated parents agreed to extract an infected tooth, compared to 62.6% of uneducated parents (p = 0.007).

Table 4: Comparison of dental care practices and treatment acceptance among educated and uneducated study participants in Puducherry, South India (2023-2024, N=1000)

Question	Educated 746 (100%)	Uneducated 254 (100%)	P-value
Do you take your child to a dentist?			
Often	66 (8.8)	44 (17.3)	0.001
Only if needed	420 (56.3)	110 (43.3)	
Never	260 (34.9)	100 (39.4)	
Main reason for visiting the dentist?			
Pain	482 (64.6)	118 (46.5)	0.045
Swelling	127 (17.0)	41 (16.1)	
Discoloured tooth	89 (11.9)	55 (21.7)	
Tooth injury	48 (6.4)	42 (16.5)	
If a primary tooth is infected?			
It is important to save it	539 (72.3)	151 (59.4)	0.015
It is unnecessary since it will fall out	207 (27.7)	105 (40.6)	
Reason for not accepting treatment?			
Teeth fall out naturally	377 (50.5)	91 (35.8)	0.071
Child gets anxious	225 (30.2)	119 (46.9)	
Hard to visit multiple times	144 (19.3)	46 (18.1)	
Most common reason for non - willing of treatment?			
Time	337 (45.2)	111 (43.7)	0.058
Unnecessary	249 (33.4)	145 (57.1)	
If a bad tooth can be saved, do you agree to root canal?			
Yes	561 (75.2)	149 (58.7)	0.003
No	185 (24.8)	105 (41.3)	
If treatment requires several visits?			
Agree for treatment	527 (70.7)	141 (55.5)	0.009
Disagree for treatment	219 (29.3)	115 (44.5)	
Reason for denying treatment			
Time	221 (29.6)	75 (29.5)	0.089
Cost	359 (48.1)	101 (39.8)	
Unnecessary for a tooth that will fall out	166 (22.3)	178 (70.1)	
If extraction is the only option for an infected tooth			
Agree for extraction	571 (76.5)	159 (62.6)	0.007
Disagree for extraction	175 (23.5)	95 (37.4)	
Reason for denying treatment			
Fear it will affect eyes	121 (16.2)	61 (24.0)	0.091
Fear it will affect brain	151 (20.2)	71 (27.9)	
No need since the tooth will fall out	159 (21.3)	99 (38.8)	
Fear of pain/trauma for the child	181 (24.3)	91 (35.8)	
Cost	135 (18.1)	99 (38.8)	

Table 5 shows significant differences between urban and rural parents' attitudes and practices towards dental care. Urban parents were less likely to take their child to a dentist often (16.5% vs. 25.2%, p = 0.005), while pain was the most common reason for visiting the dentist in both groups (58.4% vs. 56.5%, p = 0.087). 55.6% of urban parents believed it was important to save an infected primary tooth compared to 47.6% of rural parents (p = 0.012). A higher proportion of urban parents agreed to root canal treatment if a bad tooth could be saved (61.4% vs. 50.2%, p = 0.003). 62.8% of urban parents agreed when treatment required several visits, versus 53.9% of rural parents (p = 0.009). For extracting an infected tooth, 64.6% of urban parents agreed, compared to 53.9% of rural parents (p = 0.007).

Table 5: Comparison of dental care practices and treatment acceptance among urban and rural study participantsin Puducherry, South India (2023-2024, N=1000)

Question	Urban 683 (100%)	Rural 317 (100%)	P-value
Do you take your child to a dentist?			
Often	113 (16.5)	80 (25.2)	0.005
Only if needed	350 (51.2)	130 (41.0)	
Never	220 (32.2)	107 (33.8)	
Main reason for visiting the dentist?			
Pain	399 (58.4)	179 (56.5)	0.087
Swelling	162 (23.7)	70 (22.1)	
Discoloured tooth	51 (7.5)	41 (12.9)	
Tooth injury	71 (10.4)	27 (8.5)	
If a primary tooth is infected?			
It is important to save it	380 (55.6)	151 (47.6)	0.012
It is unnecessary since it will fall out	303 (44.4)	166 (52.4)	

Question	Urban 683 (100%)	Rural 317 (100%)	P-value
Reason for not accepting treatment?			
Teeth fall out naturally	328 (48.0)	131 (41.3)	0.071
Child gets anxious	230 (33.7)	101 (31.9)	
Hard to visit multiple times	125 (18.3)	85 (26.8)	
Most common reason for non - willing of treatment?			
Time	349 (51.1)	149 (47.0)	0.058
Unnecessary	232 (34.0)	168 (53.0)	
If a bad tooth can be saved, do you agree to root canal?			
Yes	419 (61.4)	159 (50.2)	0.003
No	264 (38.6)	158 (49.8)	
If treatment requires several visits?			
Agree for treatment	429 (62.8)	171 (53.9)	0.009
Disagree for treatment	254 (37.2)	146 (46.1)	
Reason for denying treatment			
Time	181 (26.5)	89 (28.1)	0.089
Cost	302 (44.2)	101 (31.9)	
Unnecessary for a tooth that will fall out	199 (29.1)	127 (40.1)	
If extraction is the only option for an infected tooth			
Agree for extraction	441 (64.6)	171 (53.9)	0.007
Disagree for extraction	242 (35.4)	146 (46.1)	
Reason for denying treatment			
Fear it will affect eyes	121 (17.7)	91 (28.7)	0.091
Fear it will affect brain	131 (19.2)	91 (28.7)	
No need since the tooth will fall out	128 (18.7)	99 (31.2)	
Fear of pain/trauma for the child	199 (29.1)	101 (31.9)	
Cost	102 (14.9)	149 (47.0)	

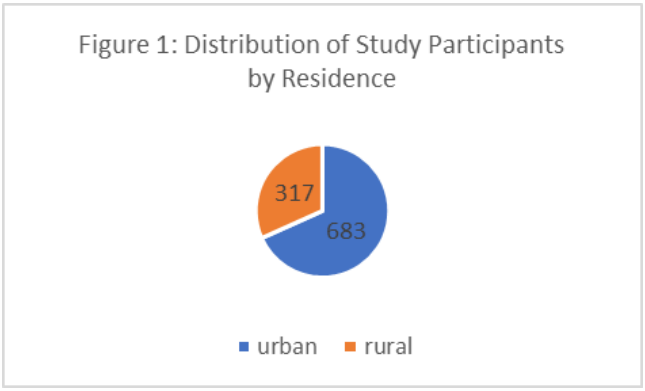

Figure 1: Distribution of Study Participants by Residence
317
683
urban
rural

4. Discussion

Our study aimed to evaluate the knowledge, attitudes, and perceptions of parents regarding pulp therapy for primary teeth in children. The findings highlighted parents' significant lack of comprehensive knowledge regarding the importance of primary teeth. Awareness of primary teeth, their role, and the necessity of treating them was higher among parents with

formal education than those without formal education. Parents residing in urban areas exhibited a higher level of awareness and more favorable attitudes toward pulp therapy than those residing in rural areas. The study results align with existing literature highlighting the lack of parental knowledge and attitudes toward pediatric

dental care. Malakar S et al. (2021) found that only a limited number of parents in urban and rural settings were aware of dental procedures such as pulpectomy. [12]. Mounissamy A et al. (2015) reported that most parents sought dental care for acute problems such as pain or trauma while generally neglecting preventive care measures.[13] These observations are consistent with our findings, where many parents only sought dental care when their child experienced pain. Our study revealed that although many parents recognized the importance of treating primary teeth, they frequently delayed or avoided dental visits until acute symptoms appeared. This aligns with the findings of Huew RM et al., who noted that parents possessed sufficient knowledge about the significance of primary teeth.[14] However, their practices did not align with this awareness, indicating a persistent gap between knowledge and actual dental care behaviors. The observed gap between knowledge and practice may stem from cultural beliefs, economic constraints, and logistical challenges. Previous studies by Ramakrishnan M et al. and Sharma A et al. found that many parents erroneously believe that primary teeth do not require treatment because they eventually fall out. [15,16]Moreover, the requirement for multiple dental visits and the associated costs further discourage parents from seeking timely dental care for their children.

This study's large sample size enhances the generalizability of its findings while using a structured questionnaire ensured consistent data collection. However, the cross-sectional design limits the ability to infer causality, and the convenience sampling strategy may introduce bias. Furthermore, differences in awareness and attitudes between urban and rural populations could be influenced by other factors, such as socioeconomic status and access to dental services.

5. Conclusion

This study underscores the necessity for targeted educational interventions to enhance parental knowledge regarding the significance of primary teeth and the benefits of pulp therapy in pediatric dental care. Also, qualitative research is needed to gain deeper insights into the cultural and socioeconomic factors influencing parental decisions in pediatric dental care.

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