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Evaluation of the Role of Pediatric Dentist in Thriving a Positive Perception and Consciousness of Parents towards Dental Trauma in Children: A Cross Sectional Study

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KEYWORDS

Paediatric Dentistry; Traumatic Dental Injuries; Parental Education; Dental Trauma Prevention; Emergency Management; Dentist Attitudes

ABSTRACT:

Background: Traumatic dental injuries (TDIs) are common among children, particularly in the age groups of 2–3 years and 7–12 years. Delayed or inappropriate management can lead to poor prognosis. Paediatric dentists are ideally positioned to provide anticipatory guidance and parental education, which is crucial for prevention and timely management.

Aim: To evaluate the attitudes and practices of paediatric dentists in India towards parental guidance on dental trauma.

Materials and Methodology: A cross-sectional survey was conducted among paediatric dentists and practitioners with at least one year of paediatric dental experience. A validated questionnaire was distributed via Google Forms to approximately 450 professionals across different Indian states. A total of 400 responses were analysed. Data were assessed using the Chi-square test to determine associations between demographic variables (age, gender, qualification, experience, and professional role) and responses regarding parental education on TDIs.

Results: Of the respondents, 66.5% were females and 33.5% males, with the majority

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aged 31–50 years. Most participants practiced in Madhya Pradesh (44.8%), Kerala (44.3%), and Tamil Nadu (11%). While 78% of paediatric dentists considered parental education "extremely important," only 22% provided it regularly. Social media was regarded by 44.5% as the most effective communication tool. Time constraints were identified as a major barrier (77.5%). Additionally, 33.3% had not received specific training on parental education in dental trauma, and 66% did not reinforce it during recall visits. Chi-square analysis showed significant associations between demographic factors and responses ($p < 0.05$).

Conclusion: The study revealed that the overall attitude and practice of pediatric dentists towards parental education on TDIs were suboptimal. Despite acknowledging its importance, many dentists provided guidance inconsistently, with lack of time and training being key barriers. Strengthening educational strategies and incorporating technology-based tools could enhance parental awareness and improve trauma management outcomes in children.

Introduction

Traumatic dental injuries (TDIs) are a major public health issue and are widely seen among children and adolescents, affecting both the primary and permanent dentition, and commonly they result in aesthetic, functional, and psychological sequelae if not managed properly[1,2]. In India, systematic reviews estimate that ,prevalence of TDIs in permanent teeth are around 11–13% among children and adolescents, with risk factors including male gender, inadequate lip coverage, and increased overjet being consistently identified[3,4]. Apart from aesthetic, functional, and psychological issues, emergency treatment is usually required in young children involved with TDIs. Studies in various Indian regions have reported varying prevalence rates: for instance, a study in Belgaum district found dental trauma in 14.7% of primary school children aged 6–11 years, with significant associations to overjet >3 mm and lip incompetence[5]; another in Rohtak, Haryana, observed a 16.1% prevalence among 8–12-year-olds, with most injured children not receiving any treatment.[6] Epidemiological data are increasing still; less attention has been paid to the practices and attitudes of paediatric dentists with respect to parental guidance and anticipatory education on dental trauma. Parental awareness is crucial because parents are frequently first responders when an injury occurs, and their decisions[7]. For example, a recent global survey revealed that many paediatric dentists do not consistently educate parents about dental trauma prevention or management, particularly in relation to primary teeth and emergency handling[8].Moreover, studies among parents show that knowledge gaps are common, including misunderstanding of what constitutes dental trauma, underreporting of incidents, and lack of clarity about appropriate first steps when trauma occurs[9,10]. Given the morbidity associated with dental trauma and the modifiable nature of many risk factors and responses, understanding how paediatric dentists currently approach parental guidanceand what barriers or facilitators

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existis essential. This forms the basis of the present study, which aims to assess the attitudes and practices of paediatric dentists regarding parental education about dental trauma, especially in emergency situations and preventive contexts in various states of India.

Materials and Methods

Study design and area: Across-sectional survey study with a validated questionnaire was conducted in the Department of Paediatric and Preventive Dentistry, Bhabha College of Dental Science, Bhopal, Madhya Pradesh. This was a **cross-sectional questionnaire-based survey** designed to assess the attitudes and practices of paediatric dentists towards parental education on dental trauma in various states of India. A Validated questionnaire emailed through Google form to approximately 450 paediatric dentists. Only paediatric dentists and BDS graduates with a minimum of one year of clinical experience in paediatric outpatient departments were included in the study. Non-paediatric dental specialists and GP dentists were also excluded from the sample. The sampling method was listing based sampling followed by simple Randonsampling. Participants were recruited through personal contacts and social media groups. Informed consent was obtained through the first page of the survey. The questionnaire consisted of three domains; the first part collected demographic characteristics of paediatric dentists, having seven questions on age, gender, qualification, years of experience, the number of patients seen per day, country, and place of practice. The second section gathered the attitude of paediatric dentists about parental education on dental trauma with questions in it. The third domain of the questionnaire evaluated their practices concerning parental education on dental trauma during the child's first dental visits with questions in it. The content validity of the questionnaire was assessed by distributing it to a panel of experts in paediatric dentistry (Bhabha College of Dental Science, Bhopal, Madhya Pradesh). The required changes were carried out in the questionnaire after receiving feedback at each stage. Participation in the study was voluntary and completely confidential. The nature of the study was explained at the beginning of the questionnaire, and consent was taken from each participant. The participants were told about the time to complete the survey and data privacy. The data collection was completed within a time frame of one and half month up on sending the Google forms. Data was analysed using the statistical package SPSS 26.0 (SPSS Inc., Chicago, IL) and level of significance was set at $p<0.05$. Descriptive statistics was performed to assess the mean and standard deviation of the respective groups. Between groups comparison was done using Chi square test.

Results

A total of 400 paediatric dentists participated in the study. The majority of respondents were female (66.5%), while males accounted for 33.5%.Most participants (66.5%) were in the 31–50 years age group, followed by thoseunder 30 years (22.5%) and over 60 years (11%). In terms of regional distribution, the highest representation came from Madhya Pradesh (44.8%) and Kerala (44.3%), with a smaller proportion from Tamil Nadu (11%). With respect to qualifications, 66.5% were MDS in Paediatric Dentistry and 33.5% were

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BDS graduates with paediatric experience. More than half of the respondents (55.8%) were working in academics, while 22.3% were hospital-based paediatric dentists and 22% were in private practice. Nearly half (44.5%) attended to 0–10 paediatric patients per day, while 33.5% saw 21–30 patients daily. The majority of participants (78%) reported 1–10 years of clinical experience, while 22% had 11–20 years. Regarding attitudes, 78% of respondents considered parental education on dental trauma as extremely important, while 22% considered it very important. Online platforms were perceived by 44.5% as the most effective tool for delivering education, followed by direct discussions (33.5%), brochures (11%), and educational campaigns (11%). Almost half (44.8%) believed parental education was moderately effective in reducing the incidence of traumatic dental injuries, while 44.3% rated it as extremely effective. In terms of practices, 55.8% reported that they routinely provided information to parents on prevention and emergency management of traumatic dental injuries, whereas 22.3% did so only upon parental request and 11% reported that they did not provide such information at all. With respect to frequency, 45% of respondents provided information when needed, 22% routinely, 11% on request, and 22% did not provide it at all. During the child's first dental visit, the most common topics discussed with parents were prevention-oriented interventions (22.5%), teething (22.3%), oral hygiene (22%), and the role of primary teeth (22%). In relation to dental trauma, 55.3% of dentists routinely provided first-aid instructions for injuries to primary teeth, 33.3% emphasized primary prevention at home, and 22.3% highlighted either the impact of trauma on children's quality of life or first aid in orofacial trauma. Notably, 33% of respondents reported that they did not routinely discuss trauma prevention during check-ups. When asked about barriers to parental education, the vast majority (77.5%) cited lack of time during appointments as the main challenge, while 11.3% each reported lack of training and parental disinterest. Most respondents (44%) reported spending less than five minutes educating parents about trauma during the first visit, while 33.5% spent 5–10 minutes and only 22.5% spent more than 10 minutes. Furthermore, 66.5% did not reinforce trauma education during recall visits. In terms of training, 33.3% had not received any formal instruction on how to educate parents about dental trauma. Nevertheless, 44.3% of the respondents believed that paediatric dentists were more experienced and trusted in imparting such information compared to other practitioners.

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Table 1: Association Table between Gender Vs Questions

		GENDER		TOTAL	P Value
		FEMALE	MALE		
Parental education regarding dental trauma?	Extremely important	222	90	312	0.0001*
	Very important	44	44	88	
How frequently do you provide information to parents	Not providing at all	44	44	88	0.0001*
	On parenteral request	44	0	44	
	Routinely	88	0	88	
	When needed	90	90	180	
Most effective way to educate parents about dental trauma?	Brochures/printed materials	44	0	44	0.0001*
	Discussions	44	90	134	
	Educational campaigns	44	0	44	
	Online sources	134	44	178	
Information given to parents during child's first dental visit	Bottle fed caries	45	0	45	0.0001*
	oral hygiene	88	0	88	
	Prevention oriented interventions	45	45	90	
	Primary teeth role	44	44	88	
	Teething	44	45	89	
General information given to parents on dental trauma	First aid in orofacial and dental trauma	44	45	89	0.0001*
	I do not give	0	44	44	
	Impact of traumatic dental injuries on QOL of young children	89	0	89	
	Primary prevention at home	133	0	133	
	Primary prevention at sport environment	0	45	45	
Routinely discuss dental trauma prevention with parents ?	No	88	44	132	0.96
	Yes	178	90	268	
What barriers , if any , do you face when trying to educate parents about dental trauma?	Lack of knowledge or training	45	0	45	0.0001*
	Lack of time during appointments	176	134	310	
	parents lack of interest	45	0	45	
How effective do you think parental education is in reducing the incidence of dental trauma?	Extremely effective	132	45	177	0.0001*
	Moderately effective	134	45	179	
	Unsure	0	44	44	
How much time do you typically spend educating parents about dental trauma during first visit?	11-15 minutes	45	45	90	0.0001*
	5-10 minutes	89	45	134	
	Less than 5 minutes	132	44	176	
Do you routinely reinforce dental trauma education during recall visits?	No	177	89	266	0.98
	Yes	89	45	134	

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Table 2: Association Table between Age Group Vs Questions

		Age Groups				P Value
		<30	31-50	60+	TOTAL	
Most effective way to educate parents about dental trauma?	Brochures/printed materials	0	44	0	44	0.0001*
	Discussions	0	134	0	134	
	Educational campaigns	0	44	0	44	
	Online sources	90	44	44	178	
Information given to parents during child's first dental visit	Bottle fed caries	45	0	0	45	0.0001*
	oral hygiene	0	88	0	88	
	Prevention oriented interventions	45	45	0	90	
	Primary teeth role	0	44	44	88	
	Teething	0	89	0	89	
What barriers, if any, do you face when trying to educate parents about dental trauma?	Lack of knowledge or training	45	0	0	45	0.0001*
	Lack of time during appointments	0	266	44	310	
	parents lack of interest	45	0	0	45	

Table 3: Association Table between Qualification Vs Questions

		QUALIFICATION		TOTAL	P Val
		BDS	MDS-PEDO		
Parental education regarding dental trauma?	Extremely important	90	222	312	0.000
	Very important	44	44	88	
Most effective way to educate parents about dental trauma?	Brochures/printed materials	0	44	44	0.000
	Discussions	0	134	134	
	Educational campaigns	0	44	44	
	Online sources	134	44	178	
Information given to parents during child's first dental visit	Bottle fed caries	45	0	45	0.000
	oral hygiene	0	88	88	
	Prevention oriented interventions	45	45	90	
	Primary teeth role	44	44	88	
	Teething	0	89	89	
What barriers , if any , do you face when trying to educate parents about dental trauma?	Lack of knowledge or training	45	0	45	0.000
	Lack of time during appointments	44	266	310	
	parents lack of interest	45	0	45	

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Table 4: Association Table between Professional Role Vs Questions

		Professional Role			Total	P Value
		Academics	Hospital Based Pedo	Private Based Pedo		
Parental education regarding dental trauma?	Extremely important	179	45	88	312	0.0001*
	Very important	44	44	0	88	
Information given to parents during child's first dental visit	Bottle fed caries	0	45	0	45	0.0001*
	oral hygiene	44	0	44	88	
	Prevention oriented interventions	90	0	0	90	
	Primary teeth role	0	44	44	88	
	Teething	89	0	0	89	
Routinely discuss dental trauma prevention with parents ?	No	88	44	0	132	0.0001*
	Yes	135	45	88	268	
What barriers, if any, do you face when trying to educate parents about dental trauma?	Lack of knowledge or training	0	45	0	45	0.0001*
	Lack of time during appointments	178	44	88	310	
	parents lack of interest	45	0	0	45	
How much time do you typically spend educating parents about dental trauma during first visit?	11-15 minutes	45	45	0	90	0.0001*
	5-10 minutes	134	0	0	134	
	Less than 5 minutes	44	44	88	176	

Table 5: Association Table between Years of Experience Vs Questions

		EXPERIENCE		TOTAL	P Value
		11-20	21-30		
Parental education regarding dental trauma?	Extremely important	312	0	312	0.0001*
	Very important	0	88	88	
Information given to parents during child's first dental visit	Bottle fed caries	45	0	45	0.0001*
	oral hygiene	44	44	88	
	Prevention oriented interventions	90	0	90	
	Primary teeth role	44	44	88	
	Teething	89	0	89	
What barriers , if any , do you face when trying to educate parents about dental trauma?	Lack of knowledge or training	45	0	45	0.0001*
	Lack of time during appointments	222	88	310	
	parents lack of interest	45	0	45	
How effective do you think parental education is in reducing the incidence of dental trauma?	Extremely effective	177	0	177	0.0001*
	Moderately effective	135	44	179	
	Unsure	0	44	44	
How much time do you typically spend educating parents about dental trauma during first visit?	11-15 minutes	90	0	90	0.0001*
	5-10 minutes	134	0	134	
	Less than 5 minutes	88	88	176	

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Statistical analysis revealed that gender, age, qualification, professional role, and years of experience were significantly associated with most of the responses ($p<0.05$). However, no significant association was observed between gender and routine reinforcement of parental education ($p>0.05$). Years of experience also influenced the perceived effectiveness of parental education and the time allocated for it, with more experienced practitioners showing significant differences in responses ($p<0.05$).

Discussion

This survey highlights a gap between awareness and practice among pediatric dentists regarding parental education on traumatic dental injuries (TDIs). Although 78% of respondents rated parental education as extremely important, only 22% reported providing it routinely, and 66.5% did not reinforce it during recall visits. Similar discrepancies between professional knowledge and consistent delivery of preventive counselling have been reported in previous studies, where parents' knowledge of TDI emergency management remained low despite clinicians acknowledging its importance.[11,12] The main barrier identified was lack of time (77.5%), with nearly half of respondents (44%) spending less than five minutes on education during the first visit. Time pressure is frequently cited as a challenge in paediatric dental care and has been shown to limit the delivery of preventive guidance[13]. Our finding that academicians provided education more consistently than private practitioners is in line with studies suggesting that institutional environments provide more structured opportunities for preventive counselling.[14] Training gaps were also evident, with one-third of respondents reporting no formal training in parental education on TDIs. Dentists without training were significantly less likely to deliver routine guidance. This aligns with evidence from recent intervention studies, which demonstrated that structured continuing education and blended learning programs significantly improve dentists' competence and their willingness to educate parents[15,16]. Systematic reviews also support that better-trained providers are more successful in transferring emergency knowledge to parents, resulting in improved outcomes after dental trauma[17]. Digital platforms were considered the most effective communication tool by 44.5% of participants, reflecting a shift toward technology-based health education. Recent studies confirm that mobile applications such as *ToothSOS* and social media interventions like WhatsApp and YouTube are effective in improving parental awareness of TDIs[18,19]. However, the accuracy of freely available online resources remains variable, underlining the need for dentist-endorsed and evidence-based digital content[20]. Emerging technologies, including AI-driven chatbots, are also being piloted as adjuncts for parental education, though their safety and reliability must be validated before widespread use.[21] Demographic characteristics significantly influenced responses. Younger clinicians (<30 years) favoured digital tools, while mid-career and senior practitioners relied more on traditional formats such as discussions and brochures. Female dentists were more likely to emphasize preventive counselling, consistent with literature highlighting gender-linked differences in communication[22]. Additionally, specialists

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(MDS) and academicians were more likely to provide routine education compared with BDS graduates and private practitioners, reaffirming the role of advanced training and institutional settings in shaping preventive practices.[23,24] Despite its strengths, the study is limited by its self-reported design, which may be subject to bias, and the concentration of respondents from two states, which may limit generalizability. However, the findings are consistent with global evidence showing parental knowledge gaps and the promise of targeted training and digital interventions in bridging these deficiencies.[25,26]

Conclusion

This study highlights a clear gap between the perceived importance and the actual practice of parental education on traumatic dental injuries among pediatric dentists. While most respondents acknowledged its significance, only a minority provided routine and reinforced guidance. Barriers such as lack of time, inadequate training, and limited reinforcement opportunities were prominent. Demographic factors including age, gender, qualification, and professional role significantly influenced practices, with specialists and academicians demonstrating better adherence. Recent advances suggest that structured training programs, standardized chairside scripts, and digital platforms can effectively bridge these gaps. Strengthening professional education and integrating technology-driven interventions are essential to enhance parental preparedness and improve outcomes in the emergency management of dental trauma.

Future Recommendation

Future Studies Should Evaluate the long-term impact of parental education on emergency responses and outcomes of traumatic dental injuries through longitudinal and interventional trials. Incorporating structured counselling modules into dental curricula and continuing education programs is essential to build practitioner confidence. Digital innovations such as mobile apps, AI chatbots, and short video tools should be explored to overcome time barriers and provide real-time guidance. Community- and school-based outreach can extend awareness to parents, teachers, and caregivers, while cross-regional research will help identify cultural differences in practices. Finally, policy-level initiatives are needed to establish standardized national guidelines for parental education in pediatric dental care.

Limitations

The study relied on self-reported data, which may introduce recall and social desirability bias. The data were collected through an **online questionnaire**, which may have excluded practitioners with limited digital access and introduced selection bias. The sample was regionally concentrated, limiting generalizability, and the cross-sectional design prevents causal conclusions.

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