International Journal of Dental Sciences
www.dentaljournal.in
ISSN: 2663-4708
Received: 29-09-2026, Accepted: 29-10-2026, Published: 13-11-2026
Volume 8, Issue 4, 2026, Page No. 68-75

Evaluation of parental awareness and acceptability of full mouth rehabilitation under general anaesthesia for children with early childhood caries: A questionnaire-based cross-sectional study

Dr. Savitha Sathyaprasad[1], Dr. Sarika Hegde[2], Sivapriya N[3], Alfina P M[3]
[1] Head, Department of Paediatric and Preventive Dentistry, KVG Dental college and hospital Sullia, Karnataka, India
[2] Department of Paediatric and Preventive Dentistry, KVG Dental college and hospital Sullia, Karnataka, India
[3] Intern, KVG Dental college and hospital Sullia, Karnataka, India
DOI: https://doi.org/10.66856/ijds.2026.8.4.8154

Abstract
Background: Early Childhood Caries (ECC) can progress rapidly and may cause pain, infection, and difficulties with eating and speech. Children with extensive disease may require comprehensive dental rehabilitation under general anaesthesia (GA). Parental awareness and concerns may influence acceptance of this treatment.
Aim: To assess parental awareness of ECC and its risk factors and consequences, and to evaluate awareness and acceptance of dental treatment under GA.
Materials and methods: A questionnaire-based cross-sectional survey was represented in the supplied response spreadsheet. The dataset contained 269 response records. Frequencies and percentages were used to summarise responses. The available spreadsheet did not contain demographic variables or a predefined composite awareness-score algorithm; therefore, demographic associations and composite awareness categories were not calculated for this manuscript.
Results: A total of 269 responses were available. Awareness of ECC/baby-bottle tooth decay was reported by 236 (87.7%) respondents. Only 134 (49.8%) recognised night-time bottle feeding as a caries risk, and 137 (50.9%) recognised white/brown spots as an initial sign. Previous awareness of GA in dentistry was reported by 158 (58.7%), while 191 (71.0%) knew that medical assessment is undertaken before GA. Overall, 167 (62.1%) stated that they would prefer or suggest GA for the described condition. Side effects/risk factors (108/254; 42.5%) and safety (106/254; 41.7%) were the most commonly reported concerns.
Conclusion: General awareness of ECC was high, but knowledge of specific risk factors and early signs was inconsistent. Most respondents expressed acceptance of GA, although concerns about risks and safety remained common. Clear, evidence-based parental counselling is important for informed decision-making.

Keywords: Early childhood caries, parental awareness, general anesthesia, full mouth rehabilitation, paediatric dentistry, parental acceptance

Introduction

Early Childhood Caries (ECC) is one of the most prevalent chronic diseases affecting children worldwide. It is a multifactorial, biofilm-mediated, sugar-driven disease characterized by the presence of one or more decayed, missing or filled surfaces in any primary tooth in a child aged 71 months or younger. Frequent sugar consumption, inadequate oral hygiene, inappropriate feeding practices and insufficient fluoride exposure are important contributing factors. Due to the susceptibility of primary teeth, ECC can progress rapidly, resulting in extensive destruction of multiple teeth. [1,2]

Untreated ECC can lead to dental pain, pulpal and periapical infections, difficulty in eating, disturbed sleep and compromised nutritional status, thereby affecting a child's growth, development and quality of life. Premature loss of primary teeth may also result in space loss and disturbances in permanent tooth eruption. Therefore, early diagnosis, preventive interventions and timely dental treatment are essential to minimize disease progression and its complications. [1,2]

Management of children with extensive ECC can be challenging due to their young age, limited cooperation, dental anxiety and the complexity of treatment required. In such situations, comprehensive dental rehabilitation under general anaesthesia (GA) may be considered to facilitate multiple dental procedures in a single session. Although GA offers advantages in terms of treatment completion and patient cooperation, concerns regarding anaesthetic risks, postoperative complications and long-term safety may influence parental decisions. [3,4]

Parents play a crucial role in maintaining children's oral health and making decisions regarding dental treatment. Their knowledge of ECC, its risk factors and consequences can influence preventive practices and timely dental visits. Similarly, parental awareness, perceptions and misconceptions regarding GA may affect its acceptance as a treatment modality. A recent cross-sectional study by Dai *et al*. (2025) highlighted the influence of parental knowledge and dental anxiety on the acceptance of dental GA. [5]

Parental acceptance of GA may also be influenced by concerns regarding anaesthetic complications, postoperative recovery, financial considerations and perceived risks. Understanding these concerns is important for providing appropriate counselling and facilitating informed treatment decisions. [6,7]

Therefore, the present questionnaire-based study aimed to assess parental awareness regarding ECC, its risk factors and consequences, knowledge of dental rehabilitation under GA, and parental acceptance of GA for children requiring

extensive dental treatment. The findings may help identify gaps in parental knowledge and improve awareness, counselling and acceptance of appropriate dental treatment.

Materials and Methods

Study design and setting

The study was described in the supplied synopsis as a questionnaire-based cross-sectional study among parents/guardians of children residing in Sullia, Dakshina Kannada, Karnataka.

Study population and sample

The supplied response spreadsheet contained 269 records. The synopsis specified parents/guardians of children up to 6 years of age who were willing to participate, provided written informed consent and could understand the questionnaire in English or the local language. The synopsis calculated a minimum sample size of 262 and recommended approximately 289 after allowing for incomplete responses. The response file contained 269 records.

Questionnaire and variables

The questionnaire covered awareness of ECC/baby-bottle tooth decay, bottle-feeding and dietary practices, weaning age, sweetened pacifier use, early clinical signs and complications of ECC, consequences of untreated decay, awareness of GA in dentistry, perioperative information, postoperative expectations, parental concerns, and willingness to prefer or suggest GA.

Statistical analysis

Responses were summarised using frequencies and percentages. Percentages are based on valid responses for the relevant item where missing responses occurred. The source spreadsheet did not contain parental or child demographic variables, and no prespecified composite scoring algorithm was supplied. Consequently, this manuscript does not report demographic association tests or a composite overall-awareness classification. The supplied statistical-analysis document reports chi-square tests for selected response distributions; these are described only where the original analysis provided them.

Results

The dataset contained 269 questionnaire records. Findings are presented descriptively from the available responses.

Awareness of Early Childhood Caries

Awareness item	Yes, n (%)	No, n (%)	Valid n
Awareness of ECC/baby-bottle tooth decay	236 (87.7%)	33 (12.3%)	269
Night-time bottle feeding as a caries risk	134 (49.8%)	135 (50.2%)	269
Sweetened pacifier as a caries risk	164 (61.0%)	105 (39.0%)	269
Rapid progression of ECC	151 (56.1%)	118 (43.9%)	269
White/brown spots as an initial sign	137 (50.9%)	132 (49.1%)	269
Pulp involvement/abscess complications	164 (61.0%)	105 (39.0%)	269
Need for early diagnosis/treatment	159 (59.1%)	110 (40.9%)	269
Effects of untreated decay on eating, speech and health	152 (56.5%)	117 (43.5%)	269

Awareness of ECC/baby-bottle tooth decay was high (236; 87.7%). In contrast, awareness of night-time bottle feeding as a caries risk was approximately evenly divided (49.8% yes, 50.2% no). About half recognised white/brown spots as an initial sign (50.9%), while 59.1% reported awareness of the need for early diagnosis and treatment.

Feeding practices and weaning age

Feeding behaviour	Yes, n (%)	No, n (%)	Valid n
Child sleeps with bottle	84 (31.2%)	185 (68.8%)	269
Sugar added to milk	90 (33.5%)	179 (66.5%)	269
Fruit juice given in bottle	115 (42.8%)	154 (57.2%)	269
Reported weaning age	**n (%)**	**Count**	
12–18 months	87 (32.3%)	87	
6–12 months	76 (28.3%)	76	
After 18 months	56 (20.8%)	56	
Before 6 months	33 (12.3%)	33	
Not yet weaned	17 (6.3%)	17	

The supplied statistical analysis reported that 84 (31.2%) children slept with a bottle, 90 (33.5%) had sugar added to milk, and 115 (42.8%) were given fruit juice in a bottle. Reported weaning age was most commonly 12–18 months (87; 32.3%).

Awareness and acceptance of general anaesthesia

GA awareness/acceptance item	Yes, n (%)	No, n (%)	Valid n
Aware that involved teeth can be treated in one appointment under GA	142 (52.8%)	127 (47.2%)	269
Previously heard of GA in dentistry	158 (58.7%)	111 (41.3%)	269
Aware of medical assessment before GA	191 (71.0%)	78 (29.0%)	269
Knows GA keeps the child asleep during the procedure	142 (52.8%)	127 (47.2%)	269
Aware GA may be recommended for extensive treatment	159 (59.1%)	110 (40.9%)	269
Aware of short-stay/day-care nature	161 (59.9%)	108 (40.1%)	269

Knows complications may be fewer with appropriate precautions	153 (56.9%)	116 (43.1%)	269
Aware of possible mild postoperative pain/discomfort	157 (58.4%)	112 (41.6%)	269
Aware of preoperative fasting rules	174 (64.7%)	95 (35.3%)	269
Aware of recovery/walking after GA	163 (60.6%)	106 (39.4%)	269
Aware GA can reduce fear, pain, anxiety and stress	167 (62.1%)	102 (37.9%)	269
Aware child may not remember the procedure	155 (57.6%)	114 (42.4%)	269
Would prefer/suggest GA for the condition	167 (62.1%)	102 (37.9%)	269

Previous awareness of GA in dentistry was reported by 158 (58.7%) respondents. Awareness of the need for preoperative medical assessment was 191 (71.0%).

A total of 167 (62.1%) respondents stated that they would prefer or suggest GA for the condition described in the questionnaire.

Parental concerns regarding GA

Major concern	n (%)	Count
Side effects/risk factors	108 (42.5%)	108
Safety	106 (41.7%)	106
Cost	40 (15.7%)	40

Among 254 usable responses to the concern item, side effects/risk factors were reported by 108 (42.5%), safety by 106 (41.7%), and cost by 40 (15.7%). Fifteen records did not provide a usable response for this item. The spelling variant "saftey" was grouped with "safety" for descriptive reporting.

Graphical presentation of all nine figures

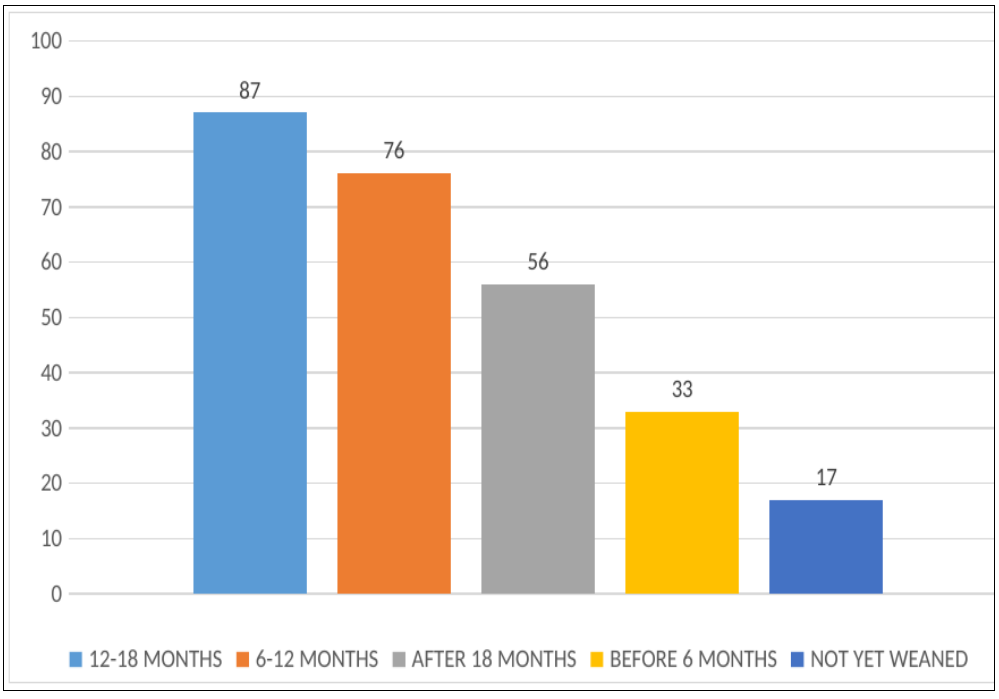


Fig 1: Comparison of reported weaning age among the study population.

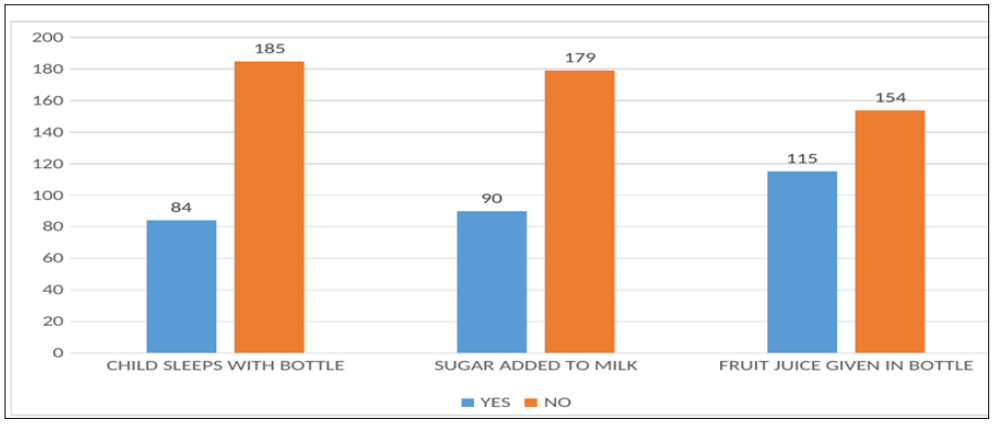


Fig 2: Comparison of feeding behaviours among the study population.

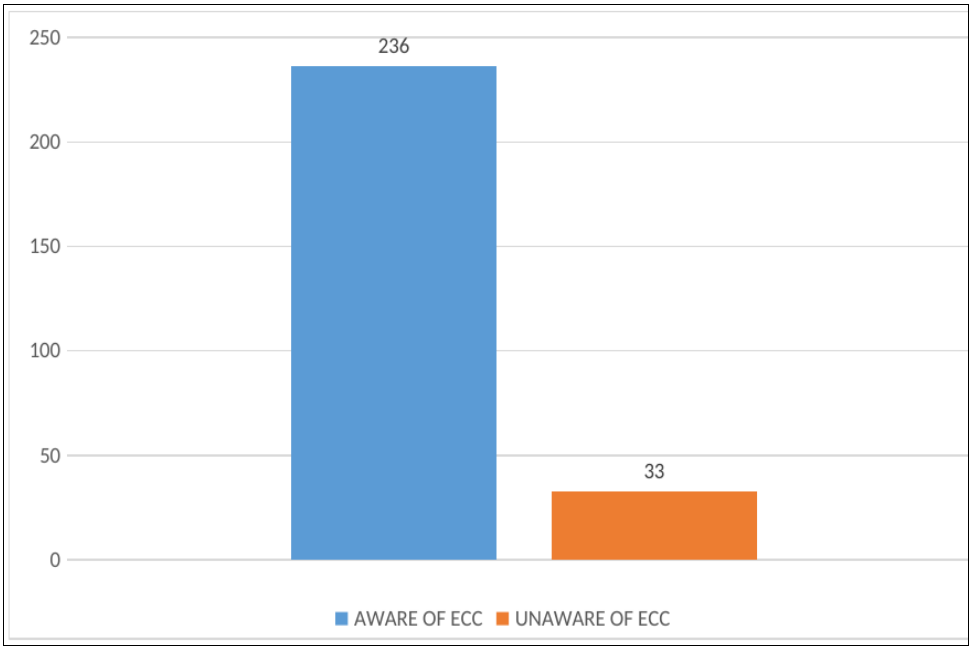


Fig 3: Awareness of ECC/baby-bottle tooth decay among study participants.

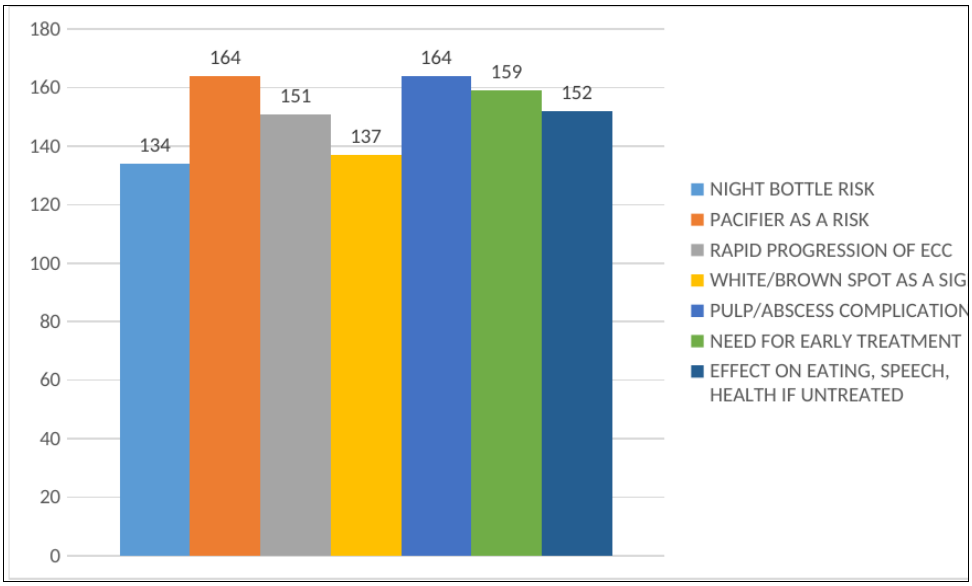


Fig 4: Positive responses to questions on awareness of ECC among study participants.

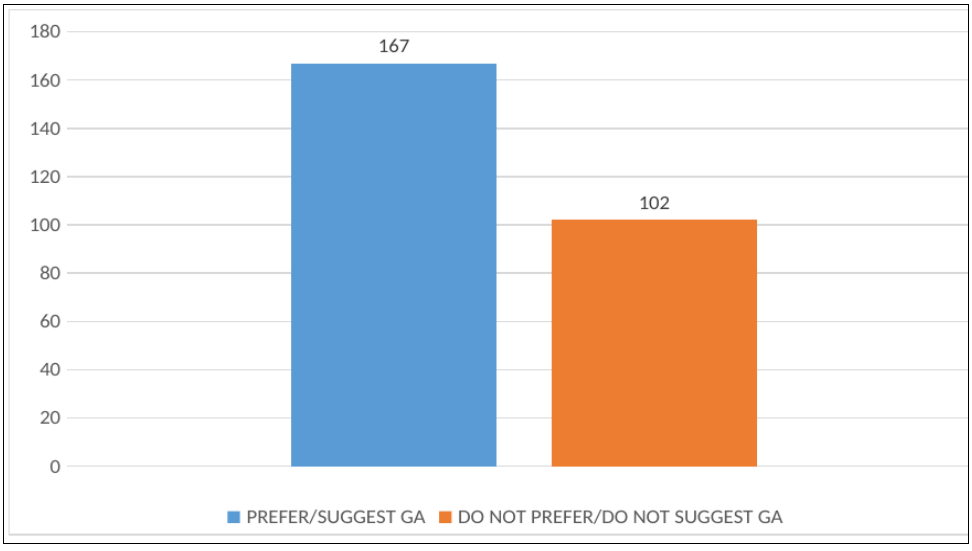


Fig 5: Parental acceptance of general anaesthesia for the described ECC condition.

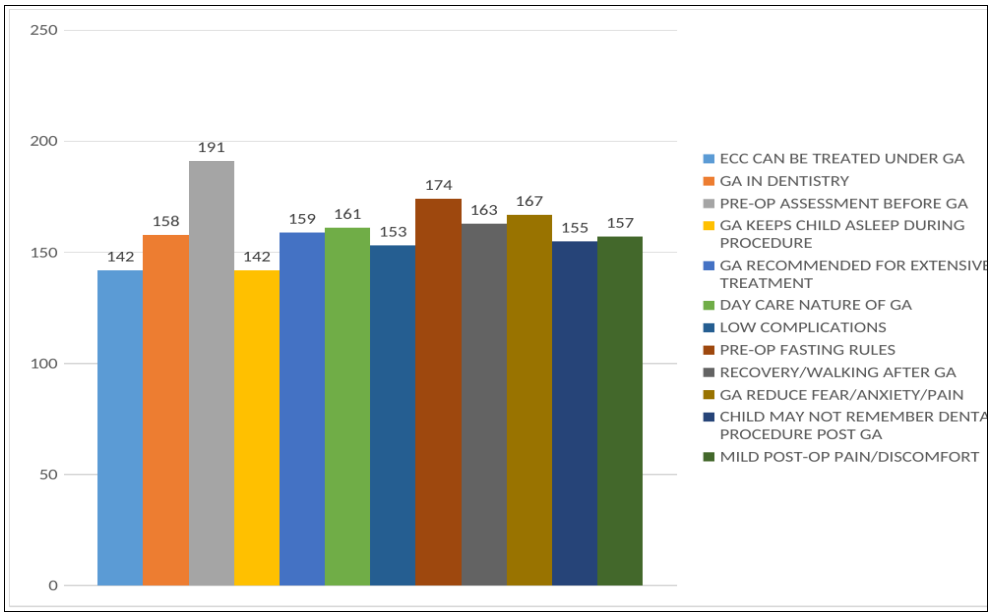


Fig 6: Positive responses to questions on awareness and acceptance of dental treatment under general anaesthesia.

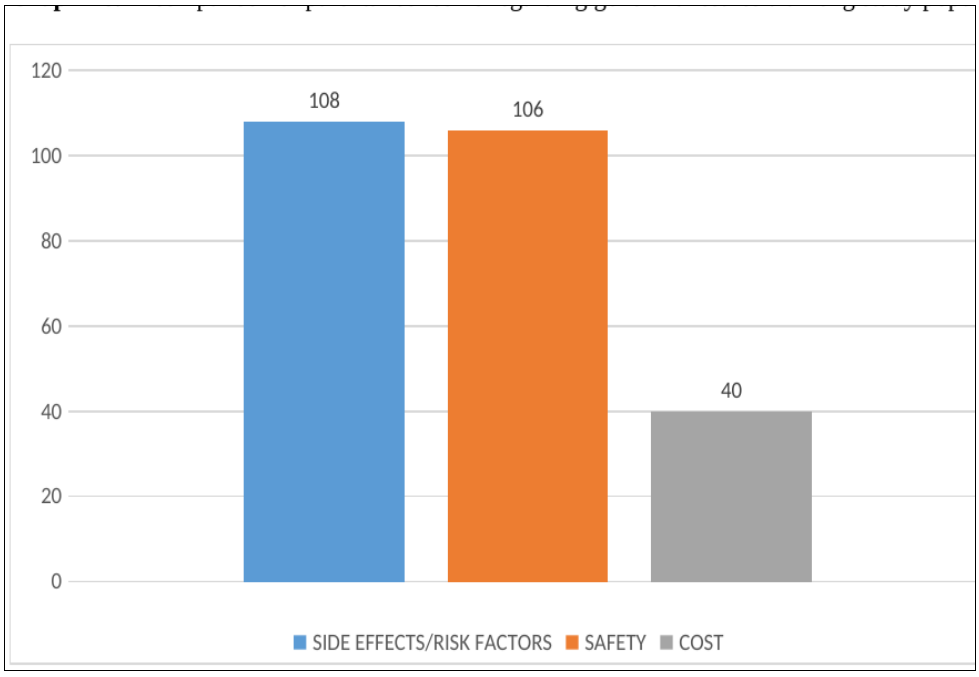


Fig 7: Parental concerns regarding general anaesthesia (valid responses, n = 254).

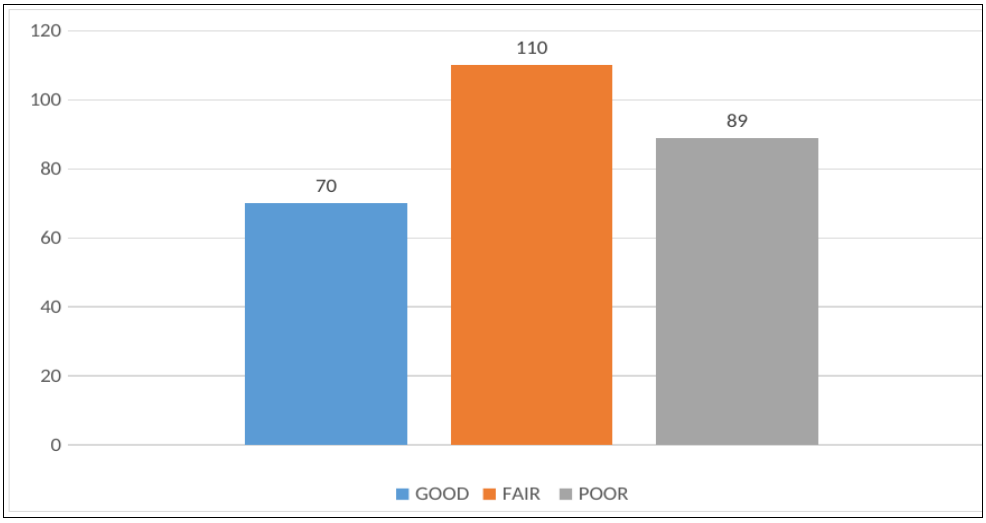


Fig 8: Overall awareness categories for ECC, as reported in the supplied statistical analysis.

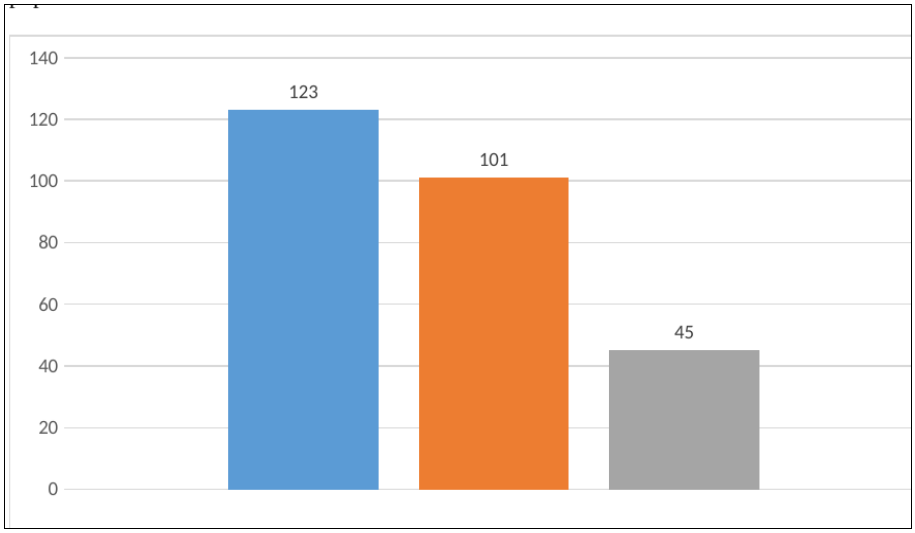


Fig 9: Overall awareness and acceptance categories for treatment under general anaesthesia, as reported in the supplied statistical analysis

Discussion

The findings of the present study indicate that although general awareness regarding Early Childhood Caries (ECC) was relatively high among parents, knowledge of specific risk factors and early clinical manifestations remained inconsistent. While 87.7% of respondents reported awareness of ECC or baby-bottle tooth decay, only 49.8% recognised night-time bottle feeding as a potential risk factor. Similarly, only 50.9% identified white or brown spots as early manifestations of dental caries. These findings highlight the difference between general awareness and practical knowledge of the disease. Nassar *et al*. (2022), in a cross-sectional study evaluating parental knowledge, attitudes and practices regarding ECC prevention in Saudi Arabia, highlighted deficiencies in parental understanding of preventive oral health practices. [8] Similarly, Sandy *et al*. (2024), in a systematic review and meta-analysis, identified dietary and nutritional factors, particularly carbohydrate exposure and feeding practices, as important contributors to ECC development. [9] These findings emphasize the need to improve parental understanding of early carious lesions and their associated risk factors.

Awareness regarding dental treatment under general anaesthesia (GA) demonstrated considerable variation among respondents. Nearly three-fifths of participants had previously heard about GA in dentistry, while 71.0% were aware of the need for medical assessment before treatment. Furthermore, 62.1% indicated that they would prefer or recommend GA for a child presenting with the described dental condition. This relatively favourable acceptance may reflect parental recognition of the challenges associated with extensive dental treatment in young or uncooperative children. Avenetti *et al*. (2021), in a cross-sectional survey involving 130 parents, reported that the dentist's recommendation was an important factor influencing parental selection of GA or moderate sedation. They also observed that parental knowledge regarding these treatment modalities was relatively limited. [10] Similarly, Djalali Talab and Geibel (2023), in a study involving parents and dental practitioners, found that previous experience with GA influenced parental perceptions, while concerns regarding risks and uncertainty affected treatment acceptance. [7] These findings support the importance of professional counselling in improving parental awareness and acceptance.

However, despite the relatively favourable acceptance observed in the present study, concerns regarding the safety of GA, potential side effects and associated risks remained prominent. Baghdadi *et al*. (2021), through a qualitative study involving children and their parents in Canada, explored the emotional and psychological experiences associated with dental treatment under GA. Their findings highlighted parental apprehension, emotional distress and feelings of guilt associated with their children's dental condition and treatment experience. [11] These observations emphasize the importance of preoperative counselling and appropriate psychological support for families. Parents should be informed about the indications, benefits, potential risks and postoperative expectations of GA to facilitate informed treatment decisions.

The study also identified certain feeding practices that may contribute to an increased risk of ECC. Bottle-sleeping was reported by 31.2% of respondents, while 33.5% reported adding sugar to milk and 42.8% reported giving fruit juice through a bottle. These findings highlight the persistence of potentially cariogenic feeding practices among young children. Khodke *et al*. (2023), in a cross-sectional study involving preschool children, reported associations between ECC and feeding practices such as falling asleep with a bottle, adding sugar to bottled milk and frequent sweet consumption. [12] Sandy *et al*. (2024) also highlighted the contribution of nutritional and dietary factors to ECC development. [9] During sleep, reduced salivary flow and diminished oral clearance may prolong carbohydrate exposure and favour acid production by cariogenic microorganisms. Therefore, parental counselling should emphasize avoiding bottle-feeding during sleep, discouraging the addition of sugar to milk, limiting sugary beverages and establishing appropriate oral hygiene practices from infancy.

The benefits of comprehensive dental rehabilitation under GA have also been demonstrated in studies evaluating children's oral health-related quality of life. Alantali *et al*. (2020), in a study involving preschool children in the UAE, reported significant improvements in oral health-related quality of life following restorative dental treatment under GA, including improvements in physical, psychological and social well-being. [13] Similarly, Boukhobza *et al*. (2021), in a study involving preschool children with ECC in Austria,

reported significant improvements in children's and families' oral health-related quality of life following dental treatment under GA. [14] These findings demonstrate that comprehensive dental rehabilitation under GA can extend benefits beyond the completion of dental procedures by improving the overall well-being of children and their families.

Overall, the findings suggest that although parents demonstrated reasonable general awareness of ECC and a relatively favourable attitude towards dental rehabilitation under GA, important gaps persist in their understanding of preventive practices and anaesthetic safety. Studies by Avenetti *et al*. (2021), Djalali Talab and Geibel (2023), and Baghdadi *et al*. (2021) further highlight the influence of professional recommendations, previous experiences and emotional concerns on parental decisions regarding GA. [10,7,11] Strengthening parental education through routine dental visits, anticipatory guidance and community-based oral health programmes may help address these gaps. A family-centred approach involving effective communication between paediatric dentists and caregivers is essential to promote preventive practices, timely dental attendance and informed treatment decisions.

Limitations

The analysis is limited to the variables present in the supplied spreadsheet. The response file did not contain parental/child demographic variables, so the objective of assessing demographic associations could not be addressed. No predefined composite awareness-score algorithm was available, and composite awareness categories were therefore not calculated. The cross-sectional questionnaire design also relies on self-reported responses and does not establish causal relationships. Findings should be interpreted in light of these limitations.

Conclusion

The present questionnaire-based study involving 269 respondents revealed that although general awareness regarding Early Childhood Caries (ECC) was relatively high, important gaps persisted in parental knowledge of specific risk factors, early clinical manifestations and preventive feeding practices. While a favorable stated preference towards dental rehabilitation under general anesthesia (GA) was observed for the described clinical condition, concerns regarding its safety, potential complications and postoperative effects remained evident. These findings highlight the need to strengthen parental awareness through structured oral health education, with emphasis on early recognition of ECC, appropriate feeding practices, preventive oral healthcare and timely dental intervention. Furthermore, comprehensive and transparent counselling regarding the indications, benefits, preoperative assessment, potential risks and postoperative recovery associated with GA is essential to address parental apprehensions and facilitate informed treatment decisions. A family-centered approach involving effective communication between pediatric dentists and parents may contribute to improved preventive practices, timely utilization of dental services and better oral health outcomes among children with extensive ECC.

Acknowledgement

I express my sincere gratitude to the management and Principal of KVG Dental College and Hospital, Sullia, for providing me with the necessary facilities and support to carry out this study.

I extend my heartfelt thanks to the Head of the Department and all the faculty members of the Department of Pediatric and Preventive Dentistry for their valuable guidance, encouragement and constant support throughout the study.

I am deeply grateful to all the parents who willingly participated in this study and took the time to share their knowledge, attitudes and perceptions regarding early childhood caries and dental treatment under general anaesthesia. Their cooperation made this research possible.

I also acknowledge the support and assistance of my colleagues, friends, postgraduate students and the staff members who contributed directly or indirectly to the successful completion of this study.

Finally, I thank my family for their constant encouragement, patience and unwavering support throughout this academic journey.

Competing Interests

NIL

Authors' Contributions

Dr. Savitha Sathyaprasad (Guide): Provided overall guidance, supervision and critical inputs during the conceptualization, planning and execution of the study, and reviewed the manuscript.

Dr. Sarika Hegde (Postgraduate Student): Assisted in coordinating the study, contributed to the interpretation of the findings, and helped in the preparation and critical revision of the manuscript.

Sivapriya. N and Alfina P M *(*Interns, study investigators): Were actively involved in conducting the study, participant recruitment, data collection, compilation and analysis of data, and preparation of the manuscript.

All contributors reviewed and approved the final manuscript.

References

1. American Academy of Pediatric Dentistry. Policy on early childhood caries (ECC): consequences and preventive strategies. The Reference Manual of Pediatric Dentistry. Chicago: AAPD, 2025.
2. American Academy of Pediatric Dentistry. Policy on early childhood caries (ECC): unique challenges and management considerations. The Reference Manual of Pediatric Dentistry. Chicago: AAPD, 2025.
3. American Academy of Pediatric Dentistry. Behavior guidance for the pediatric dental patient. The Reference Manual of Pediatric Dentistry. Chicago: AAPD, 2025.
4. American Academy of Pediatric Dentistry. Use of anesthesia providers in the administration of office-based deep sedation/general anesthesia to the pediatric dental patient. The Reference Manual of Pediatric Dentistry. Chicago: AAPD, 2024.
5. Wu T, Liu W, Chen Z, Huang J, Ye Y, Dai L. Association between children's dental anxiety and parental acceptance of dental general anesthesia: a cross-sectional study. J Clin Pediatr Dent,2025:49(2):126-36. doi:10.22514/jocpd.2025.032.
6. Alfarraj J, Alsaad S, Alturki R, Alshehri FS, Parameaswari PJ. Parents' perceptions and concerns

regarding pediatric dental care under general anesthesia in Riyadh (Saudi Arabia): a cross-sectional study. J Clin Pediatr Dent,2023:47(1):27-35.
7. Djalali Talab Y, Geibel MA. Comparison of parental and practitioner's acceptance for dental treatment under general anaesthesia in paediatric patients. BMC Pediatr,2023:23(1):45. doi:10.1186/s12887-022-03805-1.
8. Nassar AA, Fatani BA, Almobarak OT, Alotaibi SI, Alhazmi RA, Marghalani AA. Knowledge, attitude, and behavior of parents regarding early childhood caries prevention of preschool children in Western Region of Saudi Arabia: a cross-sectional study. Dent J (Basel),2022:10(12):218. doi:10.3390/dj10120218.
9. Sandy LPA, Helmyati S, Amalia R. Nutritional factors associated with early childhood caries: a systematic review and meta-analysis. Saudi Dent J,2024:36(3):413-419. doi:10.1016/j.sdentj.2023.12.001.
10. Avenetti D, Lee HH, Mehta N, Raja S, LeHew C. General anesthesia versus moderate sedation: factors affecting caregivers' decisions for children's dental treatment modality. J Dent Child (Chic),2021:88(3):187-195.
11. Baghdadi ZD, Jbara S, Muhajarine N. Children and parents' perspectives on children's dental treatment under general anesthesia: a narratology from Saskatoon, Canada. Eur Arch Paediatr Dent,2021:22(4):725-737. doi:10.1007/s40368-021-00613-6.
12. Khodke S, Naik S, Agarwal N. Infant dietary pattern and its association with early childhood caries in preschool children: a cross-sectional study. Int J Clin Pediatr Dent,2023:16(3):421-425. doi:10.5005/jp-journals-10005-2356.
13. Alantali K, Al-Halabi M, Hussein I, El-Tatari A, Hassan A, Kowash M. Changes in preschool children's oral health-related quality of life following restorative dental general anaesthesia. Br Dent J,2020:229(10):670-676. doi:10.1038/s41415-020-2335-7.
14. Boukhobza S, Stamm T, Glatthor J, Meißner N, Bekes K. Changes in oral health-related quality of life among Austrian preschool children following dental treatment under general anaesthesia. Clin Oral Investig,2021:25(5):2821-2826. doi:10.1007/s00784-020-03598-6.