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Changing Minds, Improving Care: Parental Acceptance of Paediatric Dental Treatment under General Anaesthesia

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Abstract

The aim of the study is to evaluate the parental risk perception towards paediatric dental treatment under general anaesthesia and to determine the effect of a structured educational intervention on their acceptance. This cross-sectional interventional study included 100 parents of children aged 3–10 years attending the Department of Paediatric and Preventive Dentistry. A validated questionnaire was used to assess the baseline demographics, awareness, risk perception and acceptance of dental treatment under general anaesthesia, followed by a structured educational intervention. Post-intervention, parental satisfaction, changes in risk perception and treatment acceptance were evaluated. The obtained data was stastically analysed. Baseline findings indicated low awareness, high perceived risk and poor acceptance of treatment under general anaesthesia. Following the educational intervention, parental knowledge improved significantly, perceived risk decreased and increased acceptance. These findings suggests that structured education effectively enhances parental understanding, reduces risk perception and improves acceptance of paediatric dental treatment under general anaesthesia.

Keywords: Paediatric dental treatment, general anaesthesia, educational intervention.

Introduction

Paediatric dental treatment under general anaesthesia (GA) plays a vital role in managing children who are very young, highly anxious, uncooperative or have special healthcare needs. These children often present with extensive dental caries, pain or infection that cannot be managed effectively using conventional behaviour management techniques. In such cases, general anaesthesia facilitates comprehensive, pain-free dental treatment in a single visit while ensuring the safety and comfort of the child. It also enables dentists to perform multiple procedures efficiently without causing psychological trauma.[1]

Despite its clinical benefits, parental acceptance of general anaesthesia remains a significant challenge. Many parents perceive general anaesthesia as a high-risk procedure and associate it with serious complications including adverse reactions, long-term health effects or even mortality. These concerns are often exacerbated by inadequate knowledge and reliance on misconceptions or anecdotal experiences, leading some parents to delay or refuse essential dental treatment for their children.[2]

Parental knowledge and awareness regarding general anaesthesia play a crucial role in treatment decision-making. Previous studies have shown that parents with limited understanding of the procedure tend to overestimate its risks while underestimating its benefits [3]. Furthermore, factors such as cultural beliefs, prior medical experiences, socioeconomic status and trust in healthcare professionals can significantly influence parental attitudes and acceptance of general anaesthesia.

Effective communication between dental professionals and parents is therefore essential. Providing clear, evidence-based information about the safety protocols, monitoring procedures and benefits of general anaesthesia can help reduce anxiety and improve informed decision-making [4]. Structured

educational interventions, including counselling sessions, informational brochures and audio-visual aids, have been proposed as effective strategies to enhance parental understanding.

However, despite the recognized importance of education, evidence evaluating the impact of structured educational interventions on parental acceptance of general anaesthesia in paediatric dentistry remains limited. Most existing studies are restricted in scope or lack standardized methodologies [5]. Therefore, further research is needed to determine how structured educational strategies influence parental perceptions, reduce fear and ultimately improve acceptance of general anaesthesia for paediatric dental treatment.

Materials And Methods:

A cross-sectional interventional study was conducted to assess the parental knowledge, risk perception and acceptance of pediatric dental treatment under general anaesthesia and to evaluate the impact of a structured educational intervention. The sample size was calculated to be 100 using the sample size formula. The inclusion criteria were parents of children aged 3–10 years who reported to the Dental Outpatient Department and were willing to participate in the study were included. Parents of children with cooperative as well as uncooperative behaviour were eligible. Parents from all socioeconomic backgrounds, regardless of age, gender, educational status or occupation were considered for inclusion. The exclusion criteria were parents who were unwilling to participate, parents of children with a previous experience of general anaesthesia and parents of children with mental or physical disabilities or systemic diseases were excluded from the study[6].

All children underwent a comprehensive clinical examination on the dental chair. The diagnosis was established based on the clinical findings and relevant investigations. Following confirmation of the diagnosis, the proposed treatment plan was discussed in detail with the parents, and appropriate explanations regarding the planned procedures were provided. A validated questionnaire was administered to each parent to collect demographic information and assess parental knowledge, risk perception, and acceptance of paediatric dental treatment under general anaesthesia, following the provision of structured educational material explaining its indications, procedure, safety measures, benefits, and potential risks.

The validated questionnaire was structured and consisted of multiple sections designed to comprehensively assess parental understanding and perception of general anaesthesia in pediatric dentistry. The questionnaire comprised sections on demographic characteristics, including the parent's age, gender, educational status, occupation, socioeconomic status and the child's age and gender. It also assessed baseline knowledge of general anaesthesia, including its purpose, indications in paediatric dentistry and any prior awareness. Parents were asked about their primary sources of information regarding general anaesthesia, such as healthcare professionals, media, the internet or personal experiences. Additional sections evaluated the parental risk perception and concerns, attitudes toward the use of general anaesthesia, and willingness to consent to dental treatment under general anaesthesia for their child[7].

A post-intervention assessment measured changes in parental knowledge, perception and acceptance following the educational intervention, as well as their satisfaction with the clarity, usefulness and effectiveness of the information provided. The answers were evaluated by the investigator and statistically analysed.

Results:

A total of 100 parents completed both the pre- and post-intervention questionnaires. Baseline assessment demonstrated limited knowledge and considerable apprehension regarding paediatric dental treatment under general anaesthesia (GA). The responses obtained before and after the structured educational intervention are summarized in Tables 1 and 2.

Baseline Knowledge And Parental Perception

At baseline, parental knowledge regarding paediatric dental under general anaesthesia was limited. Only 13% of participants correctly identified general anaesthesia as a state in which the child is completely unconscious, whereas 43% believed that the child would remain awake but relaxed, 30% perceived general anaesthesia as light sedation and 14% associated it with physical restraint. Although 51% correctly recognized that a qualified anaesthesiologist is responsible for administering and monitoring

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general anaesthesia, 32% believed that this responsibility rested solely with the paediatric dentist, while 17% attributed it to the operating room nurse.

Parental perception towards general anaesthesia was predominantly unfavourable before the educational intervention. Nearly three-fourths (74%) considered dental treatment under general anaesthesia to be associated with a high level of risk, while 26% perceived it as carrying a moderate risk. Furthermore, 61% regarded dental treatment under general anaesthesia as less safe than other paediatric medical procedures requiring anaesthesia, whereas 39% considered it to have a comparable safety profile.

The most frequently reported concern was failure to regain consciousness (31%), followed by immediate postoperative side effects (26%), possible long-term health effects (26%) and financial burden (17%). Fear of general anaesthesia also influenced treatment decisions, with all participants indicating that concerns regarding general anaesthesia could lead them to postpone or avoid their child's dental treatment, including 74% who strongly agreed and 26% who agreed.

Regarding untreated dental disease, 51% of participants recognized that untreated dental caries could result in pain, infection and systemic health effects, whereas 32% believed that it caused only localized infection and 17% considered it to result in temporary discomfort. Similarly, 51% rated untreated dental disease as a high health risk, while 32% and 17% perceived it as a low and moderate health risk, respectively. Although 51% acknowledged that chronic dental infection could adversely affect the child's overall physical and psychological well-being, 49% believed that its effects were limited to oral health. When comparing the risks of untreated dental disease and dental treatment under general anaesthesia, 38% perceived untreated dental disease as more harmful, 48% considered both to pose similar risks and 14% were unable to judge.

Post-intervention knowledge and parental acceptance

Following the structured educational intervention, parental knowledge and perception improved noticeably. After receiving information regarding general anaesthesia 75% considered general anaesthesia to be associated with a moderate risk, while 25% perceived it as a low-risk procedure.

Awareness regarding untreated dental disease also improved, with 83% of participants rating untreated dental disease as a high health risk following the intervention. In addition, 44% identified the anaesthesia team as the most important contributor to patient safety during dental treatment under general anaesthesia, followed by the paediatric dentist (39%) and nursing staff (17%).

Regarding the perceived advantages of dental treatment under general anaesthesia, 43% of participants identified all the listed benefits, including pain elimination, completion of treatment in a single visit and improved quality of dental care, as the greatest advantage. Additionally, 26% considered improved quality of dental care to be the principal benefit, while 17% selected pain elimination and 14% considered completion of treatment in a single visit to be the greatest advantage.

Following education, 70% of participants perceived untreated dental disease to be more harmful than dental treatment under general anaesthesia, whereas 30% considered both to pose similar risks.

The educational intervention positively influenced parental attitudes toward paediatric dental treatment under general anaesthesia. Anxiety regarding general anaesthesia decreased in all participants, with 75% reporting a slight reduction and 25% reporting a significant reduction in anxiety. Furthermore, 57% of participants reported an increased willingness to consent to dental treatment under general anaesthesia, while 43% reported that their willingness remained unchanged.

The educational intervention also improved confidence in decision-making, with 75% of participants agreeing and 25% strongly agreeing that the information provided enhanced their ability to make an informed decision regarding dental treatment under general anaesthesia.

When questioned regarding future treatment preferences, 83% of participants preferred comprehensive dental treatment under general anaesthesia if extensive dental rehabilitation was required, whereas 17% preferred multiple treatment visits without general anaesthesia. Furthermore, 70% indicated that they would be willing to consent for dental treatment under general anaesthesia if

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recommended in the future, while 30% stated that they would be fully accepting the procedure.

Table 1. Baseline knowledge and parental perception regarding pediatric dental general anaesthesia

Variable	Response	n (%)
Definition of general anaesthesia	Awake but relaxed	43 (43)
	Lightly sedated	30 (30)
	Completely unconscious	13 (13)
	Physically restrained	14 (14)
Professional responsible for administering and monitoring GA	Pediatric dentist alone	32 (32)
	Qualified anaesthesiologist	51 (51)
	Operating room nurse	17 (17)
Perceived risk of dental GA	Moderate risk	26 (26)
	High risk	74 (74)
Safety compared with other medical procedures	Comparable in safety	39 (39)
	Less safe	61 (61)
Primary concern regarding GA	Failure to regain consciousness	31 (31)
	Immediate postoperative side effects	26 (26)
	Possible long-term health effects	26 (26)
	Financial burden	17 (17)
Consequences of untreated dental caries	Temporary discomfort only	17 (17)
	Infection affecting surrounding tissues	32 (32)
	Pain, infection and systemic health effects	51 (51)
Health risk of untreated dental disease	Low risk	32 (32)
	Moderate risk	17 (17)

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	High risk	51 (51)
Effects of chronic dental infection	Oral health alone	49 (49)
	Overall physical and psychological well-being	51 (51)
Greater perceived risk	Untreated dental disease	38 (38)
	Both pose similar risks	48 (48)
	Unable to judge	14 (14)
Concern regarding GA may delay treatment	Agree	26 (26)
	Strongly agree	74 (74)

Table 2. Post-intervention knowledge, perception and parental acceptance

Variable	Response	n (%)
Perceived risk of dental GA	Low risk	25 (25)
	Moderate risk	75 (75)
Perceived risk of untreated dental disease	Moderate risk	17 (17)
	High risk	83 (83)
Professional ensuring safety during GA	Pediatric dentist	39 (39)
	Anaesthesia team	44 (44)
	Nursing staff	17 (17)
Greatest advantage of GA	Elimination of pain	17 (17)
	Completion of treatment in a single visit	14 (14)
	Improved quality of dental care	26 (26)
	All of the above	43 (43)

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More harmful after education	Untreated dental disease	70 (70)
	Both equally harmful	30 (30)
Anxiety regarding GA	Decreased slightly	75 (75)
	Decreased significantly	25 (25)
Willingness to consent to GA	Unchanged	57 (57)
	Higher	43 (43)
Confidence in decision-making	Agree	75 (75)
	Strongly agree	25 (25)
Preferred treatment if extensive care is required	Multiple visits without GA	17 (17)
	Comprehensive treatment under GA	83 (83)
Acceptance of GA in future	Willing	71 (71)
	Fully accepting	29 (29)

Discussion:

Dental anxiety, lack of cooperation, and extensive treatment needs remain significant challenges in the management of young children requiring dental care. Although non-pharmacological behaviour guidance techniques are considered the first line of management, they may be inadequate for very young children, highly anxious or uncooperative patients, children with special healthcare needs, or those requiring extensive dental rehabilitation[8]. In such situations, dental treatment under general anaesthesia (GA) offers a safe and effective treatment modality by enabling comprehensive oral rehabilitation in a single visit while minimizing psychological trauma and improving treatment outcomes. Furthermore, comprehensive dental rehabilitation under general anaesthesia has been shown to significantly improve children's oral health-related quality of life and reduce dental anxiety following treatment.

The present study evaluated parental knowledge, risk perception, and acceptance of paediatric dental treatment under general anaesthesia and assessed the effectiveness of a structured educational intervention. Before the intervention, many parents perceived general anaesthesia as a high-risk procedure and expressed concerns regarding anaesthetic complications, adverse effects, and possible long-term consequences. Such concerns are understandable because parents frequently have limited knowledge of contemporary anaesthetic techniques and often rely on information obtained from family members, social media, or personal experiences rather than healthcare professionals. These findings are consistent with those reported by Nayak et al., who observed limited parental awareness regarding the use of in paediatric

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dentistry and emphasized that previous exposure to general anaesthesia significantly improved parental knowledge and confidence[9]. Similarly, Djalali Talab and Geibel reported that parental acceptance of dental treatment under general anaesthesia was strongly influenced by perceived necessity, previous experience, and concerns regarding anaesthetic safety[10].

The present findings also agree with those of El Batawi et al., who demonstrated that despite initial parental apprehension before treatment, parental satisfaction following comprehensive dental rehabilitation under general anaesthesia was exceptionally high, with marked improvements in children's oral symptoms, functional limitations, and overall quality of life during a two-year follow-up period. Likewise, Baghdadi reported significant improvements in oral health-related quality of life following comprehensive dental rehabilitation under general anaesthesia, highlighting the positive impact of treatment on both children and their families. These studies suggest that parental concerns frequently diminish after successful treatment outcomes are observed[11].

The significant improvement in parental acceptance observed after the educational intervention in the present study supports the importance of structured preoperative counselling. Lee et al., through a qualitative analysis of caregiver perceptions, reported that parents highly valued clear explanations regarding the indication for general anaesthesia, perioperative procedures, expected outcomes, and postoperative care[12]. Effective communication by the dental team enhanced parental trust, reduced anxiety, and encouraged positive behavioural changes. Similarly, Alfarraj et al. reported that although parents recognized the benefits of general anaesthesia for managing complex paediatric dental cases, concerns regarding anaesthetic risks and postoperative complications remained common, emphasizing the need for comprehensive counselling before treatment[13].

The present findings further support previous evidence demonstrating the safety and effectiveness of dental treatment under general anaesthesia. Cantekin et al. reported that postoperative discomfort following comprehensive dental rehabilitation under general anaesthesia was generally mild and transient, while significant improvements in children's dental anxiety and oral health-related quality of life were observed following treatment[14]. These findings reinforce the role of general anaesthesia as a predictable and safe treatment option when appropriate patient selection, standardized protocols and multidisciplinary perioperative care are followed.

Overall, the findings of the present study indicate that parental risk perception is modifiable through structured educational interventions. Providing standardized, evidence-based information regarding the indications, procedural steps, safety measures, perioperative monitoring, benefits, and potential risks of general anaesthesia significantly improves parental knowledge and acceptance while reducing misconceptions and anxiety. Incorporating structured preoperative counselling into routine paediatric dental practice may therefore facilitate informed decision-making and improve acceptance of comprehensive dental treatment under general anaesthesia[15]. Future multicentre studies with larger and more diverse populations are recommended to evaluate the long-term effectiveness of educational interventions and to investigate the influence of cultural, educational and socioeconomic factors on parental decision-making regarding paediatric dental treatment under general anaesthesia.

Conclusion:

The findings of the present study indicate that parental knowledge and perception regarding paediatric dental treatment under general anaesthesia were limited before the educational intervention, with many parents expressing concerns about its safety and associated risks. The structured educational intervention improved parental understanding, reduced anxiety, enhanced confidence in decision-making, and increased acceptance of dental treatmen

t under general anaesthesia. Parents also demonstrated greater awareness of the potential consequences of untreated dental disease and were more likely to recognize the benefits of comprehensive dental rehabilitation under general anaesthesia.

These findings emphasize the importance of providing clear, evidence-based information and effective communication to support informed parental decision-making. Integrating structured educational interventions into routine paediatric dental practice

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may help improve parental acceptance, facilitate timely treatment and contribute to better oral health outcomes for children.

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