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Understanding the Knowledge, Attitude and Practice of Dentists in Implementing Behavior Management Techniques for Paediatric Dental Patients in Pune City.

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ABSTRACT

Introduction: Study investigates the knowledge, attitudes, and practices (KAP) of practicing dentists in Pune regarding behavior management techniques (BMTs) used in pediatric dentistry.

Methodology: Cross-sectional survey was conducted among 245 licensed dental practitioners, utilizing a structured questionnaire comprising 23 closed-ended questions focused on various BMTs, including tell-show-do, positive reinforcement, and sedation.

Result: The results indicate that a significant majority (91.3%) of practitioners implement BMTs, with a predominant focus on minimizing pain and anxiety while promoting cooperation among young patients. The findings reveal a strong preference for non-pharmacological techniques (73.5%), reflecting a growing recognition of their effectiveness in managing dental anxiety without the risks associated with pharmacological interventions.

Discussion: This research highlights the critical role of behavior management in pediatric dentistry and underscores the need for tailored strategies that consider the evolving dynamics of child behavior and parental involvement in treatment decisions. The findings aim to inform future training programs and enhance the quality of pediatric dental care in the region.

Conclusion: This study highlights the widespread adoption of behavior management techniques among dentists in Pune, particularly non-pharmacological methods, and emphasizes the need for enhanced training to improve pediatric dental care.

Keywords: Pediatric Dentistry, Behavior Management Techniques, Non-Pharmacological Techniques.

Introduction

Dentistry is a vital branch of healthcare that focuses on the diagnosis, prevention, and treatment of oral health issues. It plays a significant role in maintaining overall health, as oral diseases can impact various systemic conditions. The field has evolved considerably, incorporating advancements in technology, materials, and techniques to provide patients with more efficient and comfortable treatments. For

instance, according to a study by Wright G.Z.et.àl (2014), modern practices emphasize minimally invasive procedures that enhance patient comfort and recovery time. From routine dental checkups to complex surgical procedures, dentistry addresses a wide range of patient needs, ensuring that individuals of all ages can achieve optimal oral health.

Treating a child in the dental chair is as much an art as it is a science. Every child brings a unique personality, and no two visits are ever the same. Some children walk in with curiosity, while others shrink at the sight of dental tools. Managing this behavior requires more than technical skill; it demands empathy and patience. Behavior management techniques (BMTs) helps to ease anxiety, ensuring treatment runs smoothly effortlessly(1). As highlighted by a study conducted by Kuthy et al., effective BMTs significantly improve cooperation and reduce stress during dental visits.

Building trust with a child is the cornerstone of any successful visit. The 'tell-show-do technique'—the most traditional and widely used technique where the dentist explains, demonstrates, and performs the task—remains a favorite because it helps children feel involved and reduces fear. Research indicates that this approach not only calms anxious children but also fosters a positive perception of dental care in the long term [2]. Similarly 'positive reinforcement', like high-fives or small gifts, can turn a potentially scary experience into a confidence-boosting moment. For fidgety or nervous children, 'distractions' like cartoons or playful conversation work wonders in shifting their focus away from treatment.

That said, not every child responds well to gentle strategies. A firm but calm voice can help manage more disruptive behavior, though it must be used carefully, as it raises concerns among parents regarding its potential harshness. In rare situations, protective stabilization is needed, though dentists treat carefully here, given concerns about its psychological impact. Sedation or general anesthesia is kept as a last resort; although valuable for complex cases, it carries inherent risks.

Dentists combine their expertise, intuition, and experience to adapt their approach to the specific needs of each child. In a study done by McTigue et al shows pediatric specialists, often feel more comfortable using advanced methods, while general dentists may stick to basics like tell-show-do but this is not the same as cultural background and parental expectations also add layers to these decisions, as different families have varying opinions about what's appropriate(3). Understanding these family dynamics is essential, as highlighted by research from McTigue et al., which emphasizes the importance of family involvement in pediatric dental care decisions.

Understanding the perceptions of dentists regarding behavior management techniques is crucial for improving pediatric dental care. The choice of techniques directly impacts patient cooperation, the success of the treatment, and the overall experience for both the child and their parents(5). By examining the factors that influence dentists' knowledge, attitudes, and practices regarding behavior management techniques, dental professionals can more effectively customize their strategies to address the unique needs of pediatric patients. This tailored approach ensures that children receive compassionate and effective care in a supportive environment, ultimately enhancing their dental experience and promoting better oral health outcomes.

The aim of our study Is to investigate the knowledge, attitude, and practices (KAP) of practicing dentists regarding behavior management techniques in pediatric dentistry.

Methodology

This cross-sectional study was conducted among practicing dentists in Pune city to assess their knowledge, attitudes, and practices (KAP) regarding behavior management techniques (BMTs) used in

pediatric dental care. A structured questionnaire was designed to collect relevant data. The questionnaire included 23 closed-ended questions, covering topics such as the use of tell-show-do, positive reinforcement, protective stabilization, and sedation in managing child patients.

Inclusion criteria:- Licensed dental practitioners (both general and specialist) practicing in Pune, willing to participate in the study were included in the present study.

Exclusion criteria:- Dental practioners not willing to participate in study were excluded from the present study.

To ensure clarity and reliability, a pilot study was conducted before the main survey, where responses from 50 dentists was collected and necessary modifications were made based on the feedback received.The pilot study revealed a cronbach value of 0.8 which shows good reliability.

The formula used for sample size estimation is:

$$N = (Z^2 \times p \times (1-p)) / E^2$$

The sample size was found to be 245 after utilizing the above formula. The study sample was selected using a convenience sampling method, targeting dentists who had experience treating pediatric patients. Participants were informed about the purpose of the study, through google forms via social platform and their consent was obtained before administering the questionnaire. All responses were collected anonymously to ensure participant confidentiality and encourage honest feedback.

The collected data were compiled and analyzed using Statistical Package for the Social Sciences (SPSS) software, version 25. Descriptive statistics, such as frequencies and percentages, were used to summarize categorical variables, while means and standard deviations were calculated for continuous variables. Inferential statistics, including chi-square tests, were applied to identify significant associations between demographic factors and BMT preferences. A p-value of <0.05 was considered statistically significant.

Result

In this study, there were 146 females & and 99 males with total of 245 study participants. Their professional practice types were predominantly general dentists (64.3%) followed by Pediatric dentists and practitioners of various other BDS specialities. The average professional experience among respondents was 4.17 ± 4.26 years. The predominant practice setting among respondents is private practice accounting for 44.1% of the total.

The study reveals that a significant majority of practitioners 91.3% implement behavior management techniques in their practice. This indicates a widespread adoption of these techniques amongst dental practitioners highlighting the importance of pediatric dentistry. The primary goal of most practitioners when implementing behavior management techniques is to minimize pain and anxiety while promoting cooperation, as indicated by 44.87% of respondents. while a majority of respondents (68.6%) reported using audio-visual aids for behavior management, nearly (37.6%) of respondents identified patients' inability to understand as the main challenge in implementing non-pharmacological behavior management techniques behavior management techniques. The study further showed that (73.5%) preferred non-pharmacological techniques over pharmacological ones.

Pharmacological techniques were predominantly used during emergencies (34.7%) or with children with disabilities (32.7%), while dental fear (22.9%) and gag reflex management (9.8%) were less common reasons.

The majority (71.4%) strongly agreed that behavior management techniques enhance the overall dental

experience for children. Trends in pediatric behavior observed included an increased reliance on digital devices during appointments (49.0%) and more active parental involvement in health decisions (16.7%). Table 1 shows that in predicting the future of pediatric behavior management, respondents anticipated a greater emphasis on non-pharmacological techniques (39.6%) and the integration of advanced technologies (24.5%).

Table 1 Future Trends of pediatric behavior management techniques:

Response	Count	Percentage
Use more non-pharmacological techniques	97	39.6%
Incorporate technologies	60	24.5%
Follow research-based methods	51	20.8%
Work with other professionals	37	15.1%

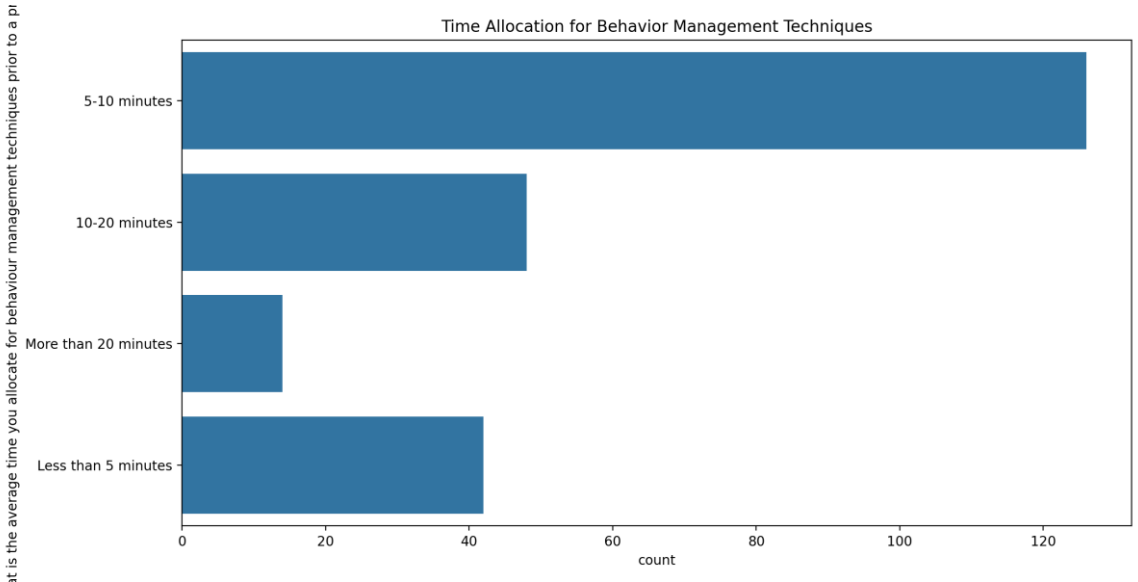

Fig 1 The bar graph illustrates the distribution of time allocated by practitioners for behavior management techniques prior to a procedure. The majority of respondents (approximately 85.65%) allocate 5-10 minutes, indicating a balanced approach to patient preparation. This suggests that practitioners prioritize a moderate amount of time to ensure effective behavior management without significantly delaying the procedure.

Table 2: Relationship Between Behavior Management Techniques and Influencing Factors in Pediatric Dentistry

Variable 1	**Variable2**	**P-Value**
18. What medical conditions do you think are contraindicated when using pharmacological behaviour management techniques in paediatric patients?	21. How relevant do you find studies on behaviour management techniques for both pharmacological and non pharmacological techniques, for improving outcomes in paediatric care?	**0.0001**
9. According to you which non-pharmacological behaviour	22. In your practice what trends have you noticed in paediatric patient's behaviour over	**0.0001**

management technique is most effective?	the years?	
9. According to you which non-pharmacological behaviour management technique is most effective?	17. What factors are to be taken into consideration while using pharmacological behaviour management techniques?	**0.0001**
9. According to you which non-pharmacological behaviour management technique is most effective?	18. What medical conditions do you think are contraindicated when using pharmacological behaviour management techniques in paediatric patients?	**0.0002**
1. Do you implement behaviour management techniques in your practice?	18. What medical conditions do you think are contraindicated when using pharmacological behaviour management techniques in paediatric patients?	**0.0093**
1. Do you implement behaviour management technique...	6.Have you received any formal training in behavior...	0.206
2. What is the primary goal of behaviour managemen...	3. What is the average time you allocate for behav...	0.183

Chi square test where p value <0.005 is considered statically significant

The analysis of the relationships between pairs of questions revealed varying degrees of statistical significance, providing insights into the connections among different aspects of behavior management in pediatric dentistry. A number of highly significant relationships (p-value < 0.001) were identified. For instance, there was a strong association between medical conditions contraindicated for pharmacological behavior management and the relevance of studies on behavior management techniques. This suggests that understanding contraindications is crucial for effective pediatric care. Additionally, the effectiveness of non-pharmacological techniques was significantly related to observed trends in pediatric behavior , indicating that shifts in behavior may influence perceptions of these techniques' effectiveness. Furthermore, the interplay between non-pharmacological techniques and factors considered for pharmacological techniques highlights the importance of integrating various management strategies. The relationship between non-pharmacological techniques and contraindicated medical conditions further emphasizes the need for careful consideration when selecting appropriate management strategies.

The examination of non significant relationship (>0.05), specifically 0.206, suggesting a lack of strong statistical significance. This implies that there is a 20.6% probability that any observed correlation between the implementation of behavior management strategies and formal training occurred by chance. Consequently, this suggests that formal training may not be a reliable predictor of whether practitioners utilize these techniques, indicating that many may adopt such strategies independently of their training background.

In a similar context, another analysis yields a p-value of 0.183, which also points to limited statistical significance. This value indicates an 18.3% likelihood that any observed relationship between the goals of behavior management and the time allocated for these activities is due to random variation. This finding suggests a potential disconnect between the intended objectives of behavior management and the actual time practitioners invest in these strategies.

Overall, these findings provide an understanding of the interrelationships among various factors in behavior management within pediatric dentistry, highlighting the importance of these when developing effective management strategies.

Discussion

The results of this study on behavior management techniques in pediatric dentistry provide a comprehensive overview of current practices, challenges, and future directions in the field. The demographic profile of the respondents, which includes a significant majority of general dentists and pediatric dentists, highlights the importance of understanding behavior management techniques as a critical component of pediatric dental care. The high percentage of practitioners (91.30%) who implement behavior management techniques indicates a strong recognition of their necessity in fostering cooperation and minimizing anxiety in young patients. This finding is consistent with existing literature that emphasizes the role of effective behavior management in enhancing the overall dental experience for children [(18)]. Previous studies by Casamassimo et al. (2018) have also shown that the implementation of behavior management techniques is essential for addressing the multi-faceted nature of dental anxiety in children.[(18)]

The primary goals identified by practitioners—minimizing pain and anxiety while promoting cooperation—reflect a comprehensive understanding of the challenges faced in pediatric dentistry. The fact that 44.87% of respondents prioritize minimizing pain and anxiety aligns with previous studies that have highlighted the effectiveness of non-pharmacological techniques, such as the tell-show-do method, in achieving these objectives [(22)]. This focus on creating a comfortable environment for pediatric patients is crucial, as anxiety and fear can significantly hinder treatment outcomes. The findings suggest that practitioners are increasingly aware of the psychological aspects of dental care, which is essential for fostering a positive dental experience for children [(23)]. Moreover, the emphasis on non-pharmacological techniques is supported by research conducted by Goettems et al. (2017), indicating that such methods can effectively alleviate anxiety without the risks associated with pharmacological interventions.[(28)]

The data also reveal a notable preference for non-pharmacological techniques over pharmacological ones, with 73.5% of respondents favoring the former. This preference is consistent with the growing body of evidence supporting the effectiveness of non-pharmacological methods in managing dental anxiety and promoting cooperation among children [(28)]. The challenges identified in implementing these techniques, such as patients' inability to understand and time constraints, highlight the need for ongoing training and support for dental practitioners. This aligns with findings from other studies that emphasize the importance of training in enhancing the effectiveness of behavior management techniques [(29)]. Furthermore, the necessity for adequate training in behavior management techniques has been corroborated by studies indicating that many dental students feel unprepared to apply these methods in practice.[(29)]

The significant use of audio-visual aids (68.6%) among practitioners further supports the notion that integrating technology can enhance behavior management strategies. The Research done by Thosar In 2022 has demonstrated that audiovisual aids can effectively reduce anxiety and improve cooperation in pediatric patients [(35)]. The findings suggest that practitioners are adapting to modern approaches in managing children's behavior, which is crucial in an era where digital engagement is prevalent among younger populations. This trend reflects a broader shift towards incorporating innovative techniques in

pediatric dentistry to meet the evolving needs of patients [31]. Additionally, the increasing reliance on digital devices during appointments, noted by 49.0% of respondents, aligns with the findings of other studies that emphasize the importance of adapting behavior management strategies to contemporary patient dynamics.[36]

Moreover, the statistical analysis of the relationships between various questions reveals critical insights into the interconnectedness of different aspects of behavior management. The strong association between understanding contraindications for pharmacological techniques and the relevance of behavior management studies underscores the importance of informed decision-making in pediatric dental care [31]. This finding emphasizes the necessity for practitioners to stay updated on current research and best practices in behavior management to ensure safe and effective treatment for their young patients. Another significant relationship identified was between the effectiveness of non-pharmacological techniques and observed trends in pediatric behavior (p-value < 0.001). This indicates that practitioners' perceptions of the effectiveness of these techniques may be influenced by their observations of changing behaviors in pediatric patients over time[30]. Such insights are crucial for adapting behavior management strategies to meet the evolving needs of children in dental settings.

Moderately significant relationships were also observed, such as between the primary goals of behavior management techniques and trends in pediatric behavior (p-value = 0.001). This finding suggests that as practitioners notice changes in pediatric behavior, they may adjust their management objectives accordingly. Additionally, the relationship between parental involvement and the effectiveness of non-pharmacological techniques (p-value = 0.002) underscores the importance of family dynamics in the success of behavior management strategies [32]. Previous research by Riba et al. (2018) has also highlighted the critical role of parental involvement in shaping children's responses to dental care, reinforcing the need for collaborative approaches in managing pediatric patients.[30]

Conclusion

In conclusion, the findings from this study provide a comprehensive overview of the current landscape of behavior management techniques in pediatric dentistry. The strong adoption of these techniques, coupled with a preference for non-pharmacological methods, indicates a positive trend towards enhancing the dental experience for children. However, the challenges identified in implementing these strategies highlight the need for continued education and support for practitioners. As the field evolves, it is essential for dental professionals to remain informed about the latest research and techniques to effectively manage children's behavior and promote positive dental experiences.

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