

## Introduction

Dental fear and anxiety affect roughly one-third of children, leading to missed appointments, reduced cooperation, and poorer oral-health-related quality of life.<sup>1,2,3,4,5</sup> Due to their high prevalence and clinical impact, recognizing and managing pediatric dental anxiety is considered a core competency in pediatric dentistry and a key area of collaboration with clinical psychology.<sup>6</sup>

Pediatric dental residents (PDR) receive specialized training in nonpharmacological basic behavior guidance techniques (for example, communication guidance, positive pre-visit imagery, tell-show-do, positive reinforcement, distraction, and desensitization) and advanced behavior guidance strategies (such as protective stabilization, oral conscious sedation, and general anesthesia).<sup>7</sup>

Research suggests that many dentists struggle to recognize and manage patient anxiety, often finding anxious patients stressful to treat and reporting low confidence in their skills. In contrast, those who receive additional training (e.g. CE courses) tend to feel more capable treating patients with anxiety. PDR may benefit from deeper, skills-based instruction and practice in concrete anxiety-management techniques that can be readily integrated into routine clinical care. There is limited research specifically examining pediatric dentists' comfort and competence in managing dental anxiety, so we aim to explore whether integrating interprofessional training with clinical psychology into pediatric dental residency curricula could enhance residents' confidence and skills in this area.<sup>8,9,10</sup>

Interprofessional collaboration between clinical psychology and pediatric dentistry offers a promising avenue to address this gap. Literature suggests that psychologists can effectively train dental providers to deliver basic CBT techniques and other behavior guidance strategies in a time-efficient manner suitable for busy clinical environments.<sup>11,12,13,14</sup> However, there is a need to systematically evaluate whether concise educational interventions are acceptable to trainees, increase their knowledge of evidence-based approaches, and meaningfully shift their confidence and intended clinical behavior.

## Primary Objective

To evaluate the feasibility, utility, and efficacy of a one-hour interactive training for pediatric dental residents on managing dental anxiety in pediatric patients.

## Methodology

### Study Design

The study follows a one-group pretest-posttest quasi-experimental design.

### Subjects

A total of 16 PDRs were included in this study and were recruited via an email announcement. All 16 participants were currently enrolled as a PGY-1 or PGY-2 at Montefiore Medical Center's pediatric dental residency program in the academic year 2025-26.

## Methodology

### Protocol

Informed consent was obtained at the beginning of the presentation. Participants completed anonymous pre- and post-training questionnaires via Microsoft Forms (Fig 1), administered at the beginning and end of the training, respectively. The questionnaires assessed pre- and post-training knowledge, confidence, and likelihood to use specific interventions in clinical settings. The training was conducted in person in March of 2026 by Charlotte Marratta, MS (Psychology Intern) and Courtney Brenner, DDS (PGY-2 Pediatric Dental Resident).

Figure 1. A screenshot of the questionnaire that participants filled out before and after the training. The questionnaire included categorical items and the respondents used a 5-point Likert scale to rate the degree to which they agree or disagree with the statement.

Figure 2. The four interventions in focus included (1) tell show do, (2) positive reinforcement, (3) relaxation training, and (4) audiovisual distraction.

The presentation included a review of current practices and evidence-based non-pharmacological behavior guidance techniques in pediatric dentistry, as well as information on recognizing anxiety in patients. The training focused on the four behavior guidance interventions (Fig 2). The interventions were taught to the participants via role play and interactive exercises (Fig 3).

Figure 3. Sample slides from the presentation used for the interactive training. The interventions were introduced and explained and then the participants were asked to perform an interactive role-play activity to apply the interventions to realistic clinical scenarios.

## Results

	T1 Mean	T2 Mean	p-value
Comfort level with anxious patients	3.99	4.50	0.04
Confidence identifying anxiety in patients	4.14	4.62	0.06
Confidence in ability (TSD)	4.57	4.75	0.39
Confidence in ability (PR)	4.50	4.68	0.38
Confidence in ability (RT)	2.71	4.18	0.0004
Confidence in ability (AVD)	3.29	4.38	0.016
Likelihood to utilize (TSD)	5.00	4.94	0.83
Likelihood to utilize (PR)	5.00	4.94	0.33
Likelihood to utilize (RT)	3.43	4.44	0.025
Likelihood to utilize (AVD)	4.00	4.56	0.21

Table 1. Descriptive statistics for pre-test and post-test questionnaires.

A total of 14 participants completed the T1 (pre-test, or pre-presentation) questionnaire, and 16 participants completed the T2 (post-test, or post-presentation) questionnaire. Data were analyzed in Microsoft Excel using an independent-samples t-test assuming unequal variances to compare mean rankings between pre-test and post-test conditions. The analysis used a two-tailed test with an alpha level of 0.05. Pre-test results indicated that participants were highly familiar with TSD and PR, and less familiar with RT and AVD (Table 1). For all four interventions, confidence in ability to perform the intervention was shown to be higher in T2 compared to T1, however, only the differences in confidence in RT and AVD were statistically significant (Fig 4). Interestingly, the data showed that the likelihood of using TSD and PR declined after the training; however, these differences were not statistically significant (Fig 5).



Figure 4. Participants' confidence in applying the four interventions before and after the training.

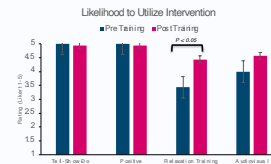


Figure 5. Participants' likelihood to utilize the four interventions before and after the training.

## Discussion

This pilot study suggests that pediatric dental residents already feel relatively comfortable using core behavior guidance techniques such as TSD and PR when managing anxious pediatric patients. Interestingly, reported likelihood of using TSD and PR showed a small, non-significant decrease after the training, which should be interpreted cautiously but may indicate that residents became more open to drawing from a wider range of strategies rather than relying on TSD and PR alone. Once exposed to additional techniques such as muscle relaxation and audiovisual distraction, residents may have begun to consider alternative and more individualized behavior guidance approaches for anxious children. However, our findings also indicate that residents remain less familiar and confident with some evidence-based strategies, particularly those incorporating CBT, underscoring an opportunity to enhance residency curricula through structured collaboration with clinical psychology.

Learning a broader set of nonpharmacological techniques is important because it may reduce reliance on advanced behavior guidance methods such as protective stabilization, sedation, and general anesthesia, which can be traumatic, costly, resource-intensive, and can carry risks of severe medical complications.<sup>7,15</sup>

Several limitations should be considered, including the small, single-program sample, which reduces statistical power and limits generalizability. A larger sample size and a broader range of behavior guidance modalities would better characterize which techniques are well known versus underutilized among PDRs. Future directions could also include offering similar trainings to general practice residents and incorporating follow-up assessments to determine whether gains in self-reported confidence translate into sustained changes in chairside behavior and patient outcomes.

### Participant Feedback

## References

- Wise SA. A review and analysis of children's fearful behavior in dental settings. Child Dev. 1982;53(5):1111-1133.
- Wu L, Gao X. Children's dental fear and anxiety: exploring family related factors. BMC Oral Health. 2018;18(1):100. Published 2018 Jun 4. doi:10.1186/s12903-018-0050-z
- Klingberg D, Boring AJ. Dental behavior and dental behavior management problems in children and adolescents: a review of prevalence and associated psychosocial factors. Int J Paediatr Dent. 2007;7(6):391-396. doi:10.1111/j.1365-3010.2007.01677.x
- Khan AM, Sabhan R. Identifying barriers to pediatric dental appointments: insights from a study at Prince Faisal Bin Abdulaziz Hospital. J Med Life. 2024;17(8):2418-2424. doi:10.21973/2418-2424
- Pfizer CM, James D, Kline DG, et al. Single session computerized cognitive behavioral therapy for dental anxiety: a case series. Clin Case Stud. 2016;15(1):3-10.
- Courtesy M, Wessell M, Austin R, Wrayson R. The Effectiveness of Cognitive Behavioral Interventions on Dental Anxiety during Pregnancy in 7-10 Year-Old Children: A Clinical Trial. Front Dent. 2023;20:32. Published 2023 Aug 26. doi:10.3389/fdnt.2023.10588
- American Academy of Pediatric Dentistry. Behavioral guidance for the pediatric dental patient. The Reference Manual of Pediatric Dentistry. Chicago, IL: American Academy of Pediatric Dentistry; 2023:379-398.
- Wang H, Wang H, Wang H, et al. The effect of dental anxiety management techniques on the anxiety of patients. Br Dent J. 2024;137(12):2000. doi:10.1038/s41742-024-02028-7
- Hopwood R, Ripstone M, Robinson C, Walsh L. Evaluation of the ability of dental clinicians to take dental anxiety. Eur J Oral Sci. 2019;127:455-461.
- Strain K, Reinberg A, Swann A, et al. Dentists' use of behavioral management techniques and their attitudes towards treating pediatric patients with dental anxiety. Eur Arch Paediatr Dent. 16. 249-255 (2015). <https://doi.org/10.1007/s40201-014-0181-4>
- Arborelius RP, Astley PF, Bower DL, Lombardo G, Riley P. Non-pharmacological interventions for managing dental anxiety in children. Cochrane Database of Systematic Reviews 2017, Issue 4. Art. No. CD010476. DOI: 10.1002/14651914.CD010476
- Bucci SM, Crane ML, Cocchi DJ, Bud ES, Galic C. Observational Study on Progressive Muscle Relaxation and Breathing Control for Reducing Dental Anxiety in Children. Medicine. 2025;104(18):e32789. <https://doi.org/10.1093/med/104.18/e32789>
- Diaz V, Gattai E, Jayaraman A, et al. Non-pharmacological Behavior Guidance for the Pediatric Dental Patient. Pediatric Dent. 2023;45(3):384-410.
- Wang H, Wang H, Wang H, et al. Non-pharmacological interventions for reducing dental anxiety in pediatric dentistry: a network meta-analysis. BMC Oral Health. 2024;24(1):100. doi:10.1186/s12903-024-0481-4
- American Academy of Pediatric Dentistry. The pediatrician's role in the evaluation and preparation of pediatric patients undergoing anesthesia. Pediatrics. 2014;134(3):e578.