



BACKGROUND

- Sensory Processing Disorder (SPD) affects how the brain responds to sensory stimuli, causing heightened or reduced sensitivity to sounds, lights, textures, tastes, and environments.
- Regular Dental Environments (RDE) often fail to address these unique sensory needs.
- Pediatric dental visits can be overwhelming and distressing for children with SPD, leading to avoidance of oral care.

CURRENT GAPS

- Existing research on Sensory-Adapted Dental Environments (SADE) primarily focuses on autism spectrum disorder (ASD) or intellectual and developmental disabilities (IDD), overlooking SPD as a distinct condition that independently contributes to anxiety and behavioral challenges.
- Previous SADE models do not address all seven sensory domains.

OUR SOLUTION

A Comprehensive Sensory-Adapted Dental Environment (C-SADE) that systematically engages all seven sensory domains—designed specifically for children with SPD, independent of ASD—to redefine pediatric dental care.

PRIMARY OBJECTIVE

To determine whether C-SADE reduces dental anxiety and improves behavioral cooperation in children with SPD compared to RDE.

METHODS

20 children aged 2–17 years identified with clinically significant SPD characteristics attended two randomized dental visits, 3-4 months apart: one in RDE, one in C-SADE.



Figure 1. RDE



Figure 2. C-SADE

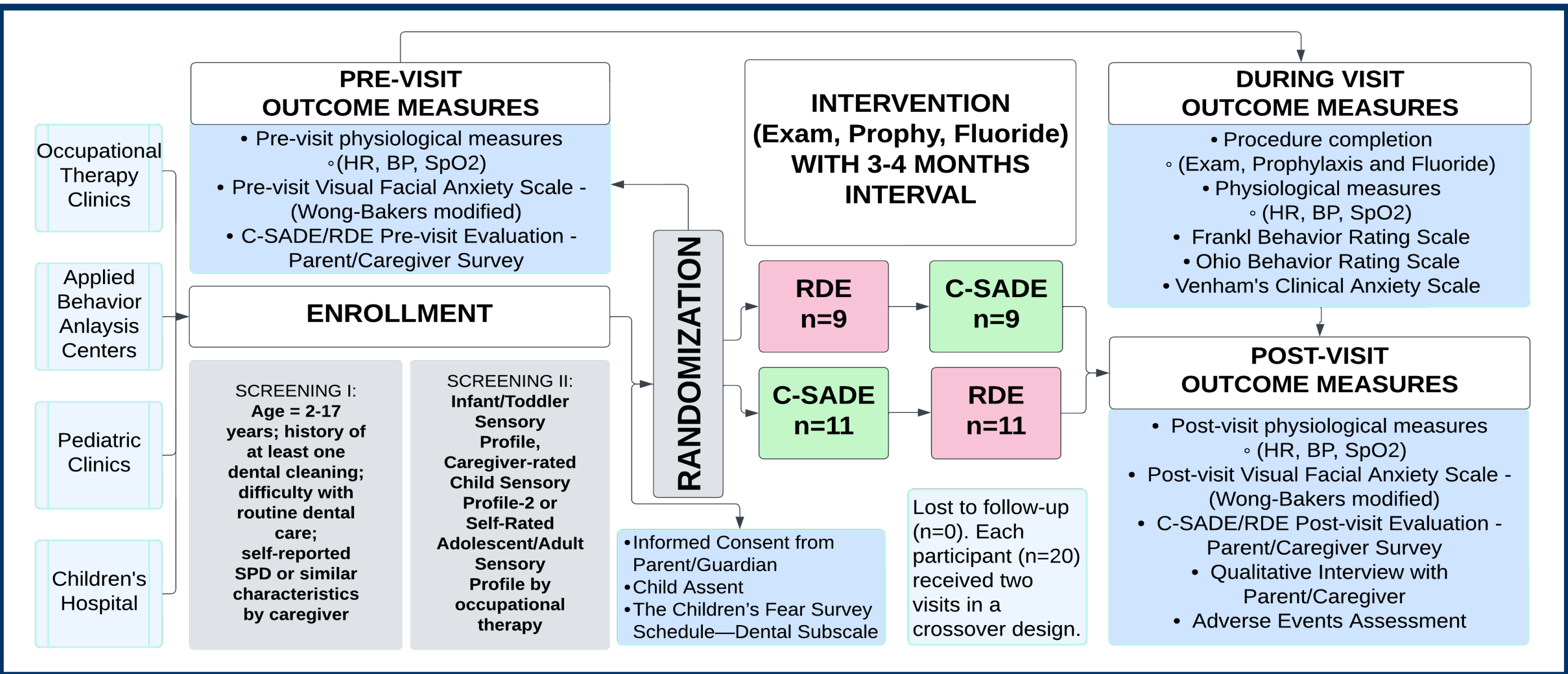
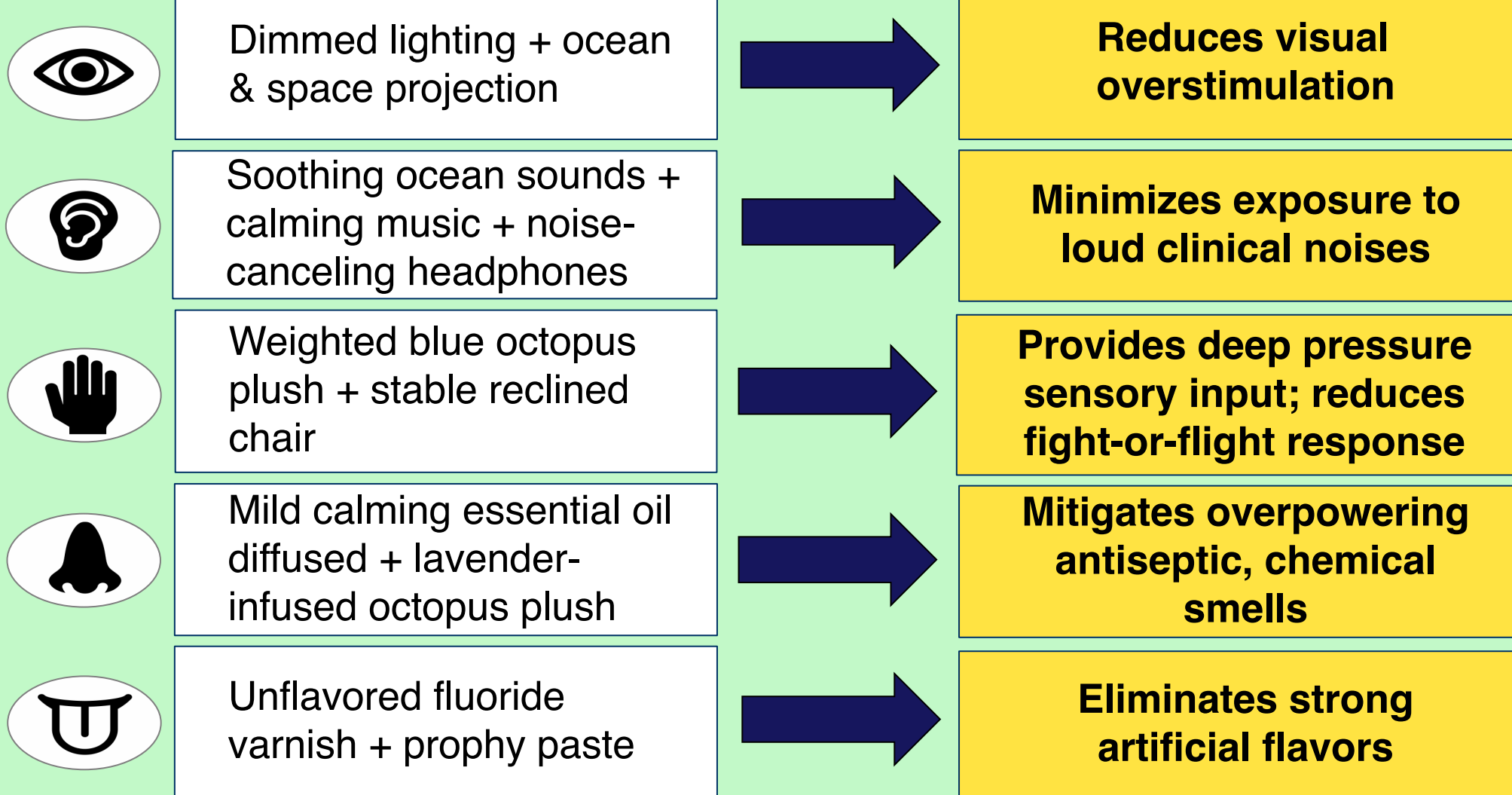


Figure 3. Crossover Randomized Control Trial Schema

C-SADE: A NOVEL ADAPTATION OF SADE



Figure 4. Components of C-SADE



RESULTS

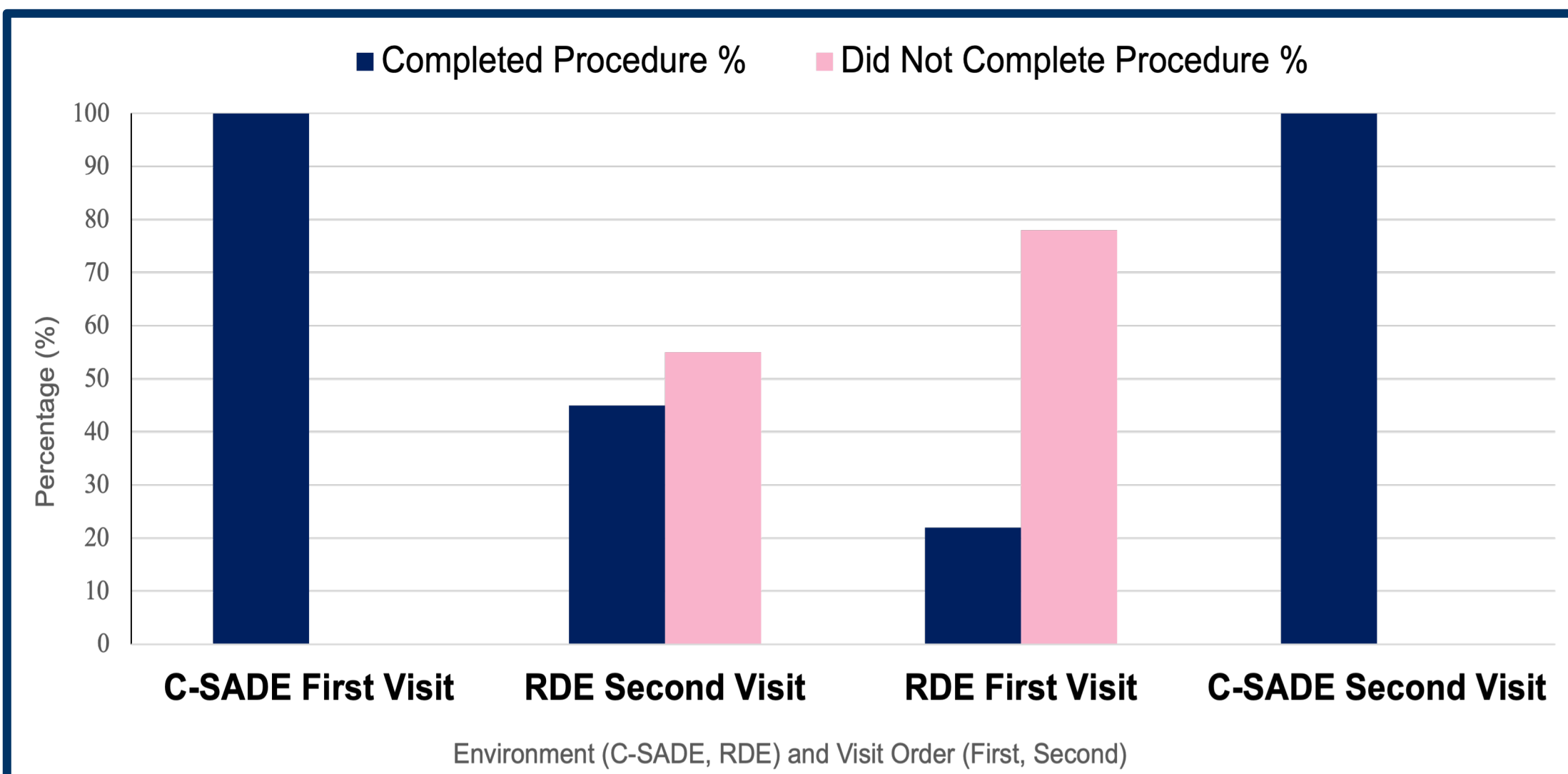


Figure 5. Procedure Completion % in C-SADE (100%) vs. RDE (22-45%)

RESULTS (cont.)

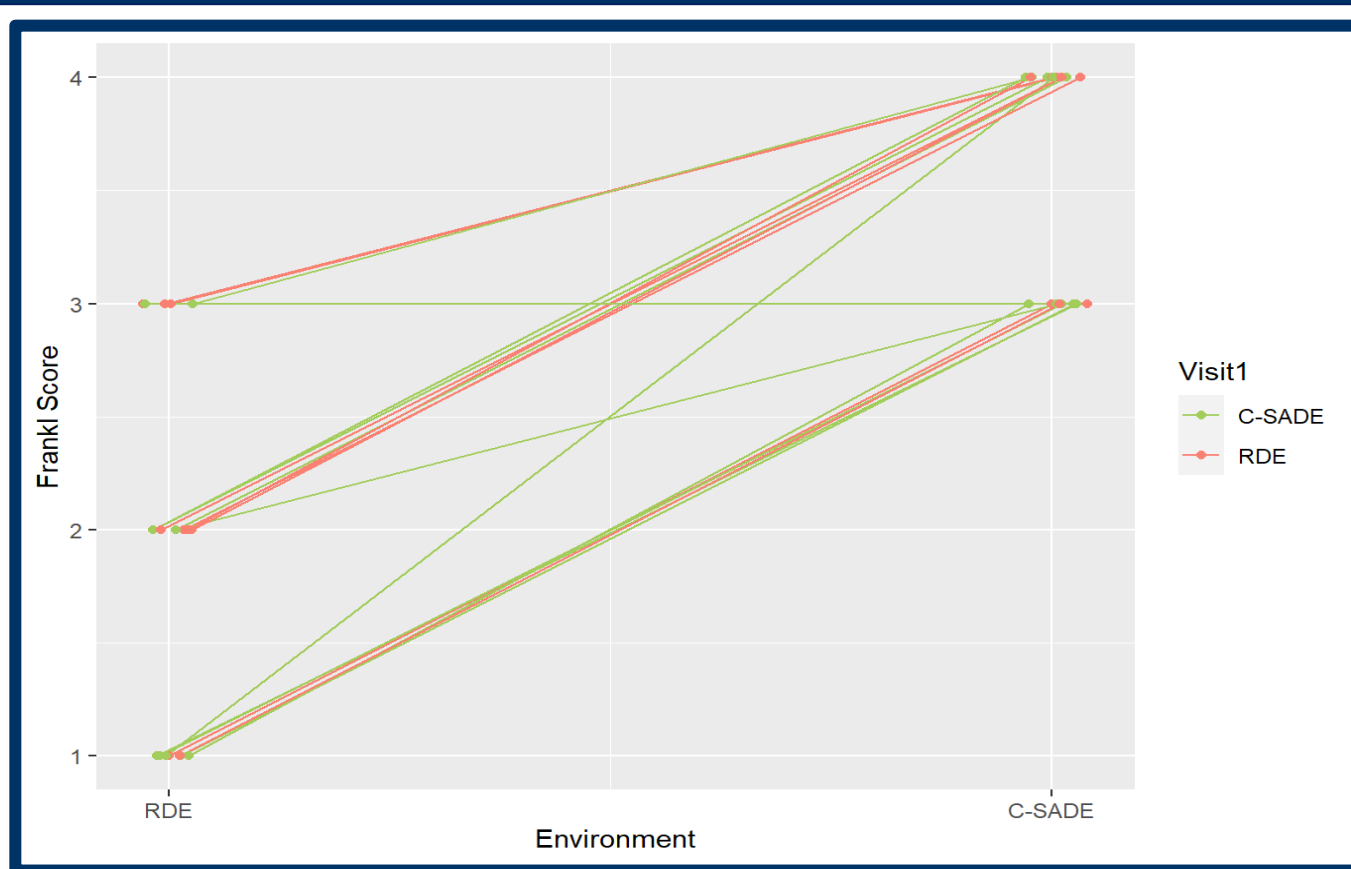


Figure 6. Improved Behavioral Cooperation: Frankl Scores RDE vs. C-SADE; $P < .001$

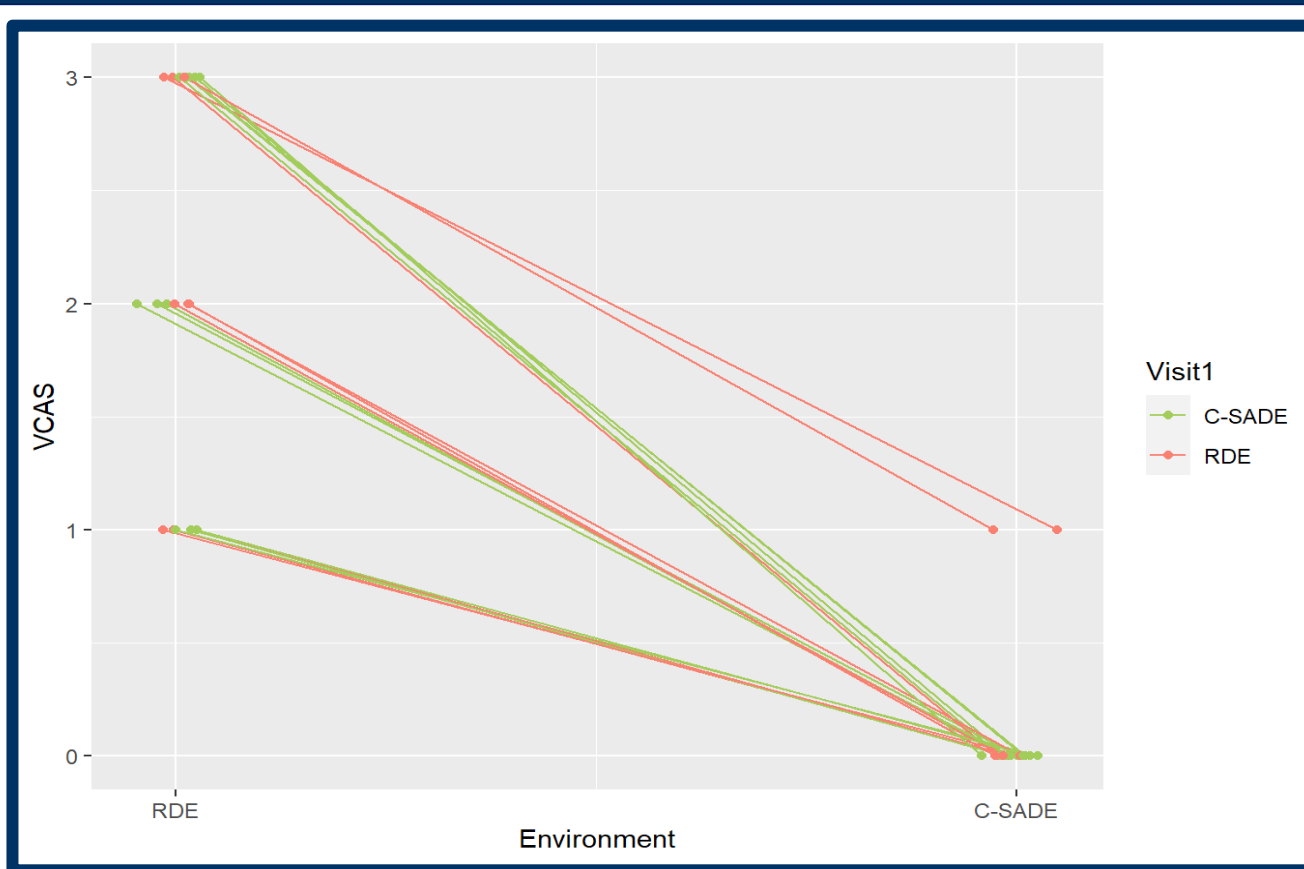


Figure 7. Reduction in Dental Anxiety: VCAS Scores RDE vs. C-SADE; $P < .001$

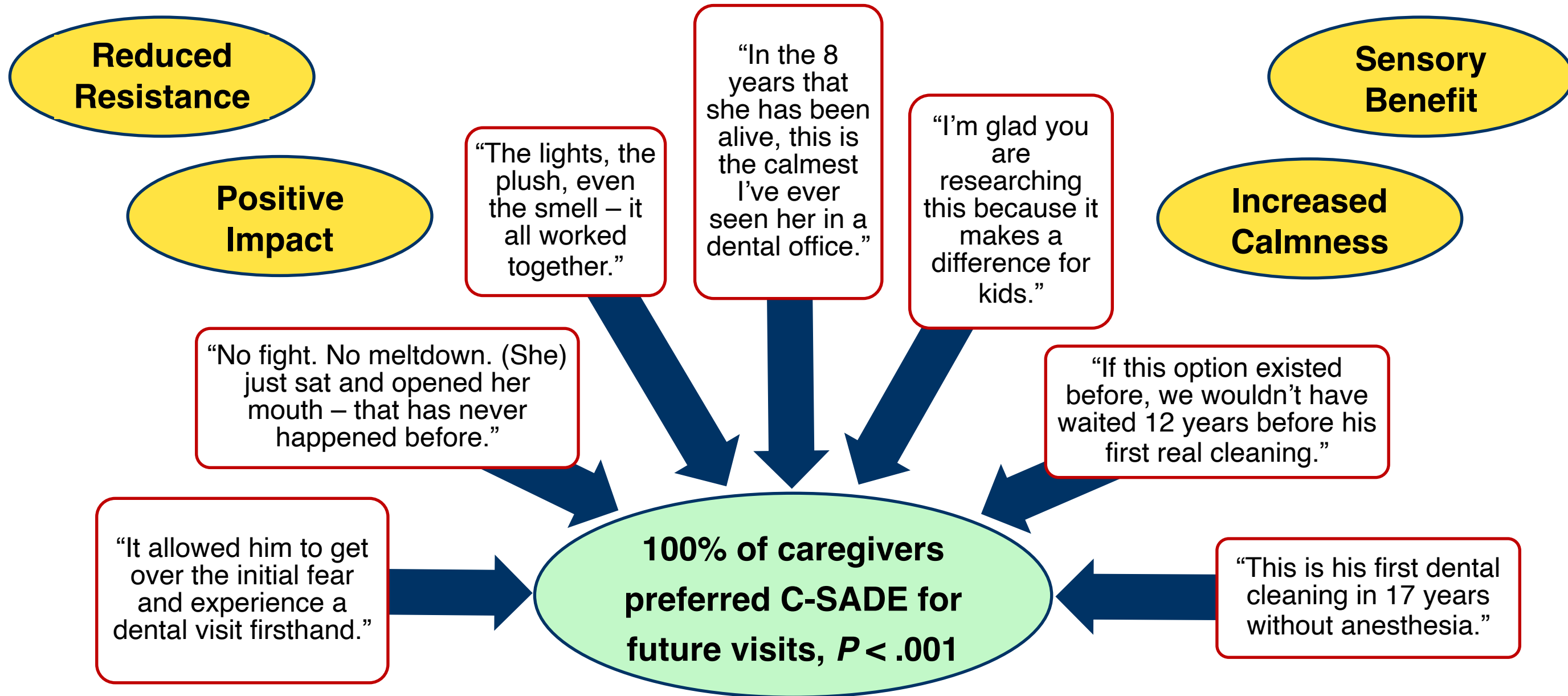


Figure 8. Caregiver Feedback

CONCLUSIONS

- C-SADE significantly reduces anxiety and improves behavioral cooperation in children with sensory processing disorders.
- SPD independently contributes to unmet oral health needs, irrespective of ASD.
- C-SADE significantly improves access to preventative care for children with SPD.
- Caregivers, patients, and providers unanimously prefer C-SADE over RDE.
- C-SADE is a scalable, evidence-based innovation that can be implemented today in the real world.

FUTURE DIRECTIONS

- Immediate Clinical Feasibility**
 - Low cost, easy installment.
- Public Health & Policy Implications**
 - Reduce treatments under general anesthesia, lowering healthcare costs.
 - Advocate for policy-level integration of sensory-friendly environments.
- Beyond Dentistry**
 - Adaptable across medical specialties to serve neurodiverse populations.
- Future research**
 - Long-term benefits, scalability, and multi-site trials.