

Sensory-Adapted Dental Environment for Pediatric Patients with Sensory Processing Disorders

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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. 2. 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 2. C-SADE

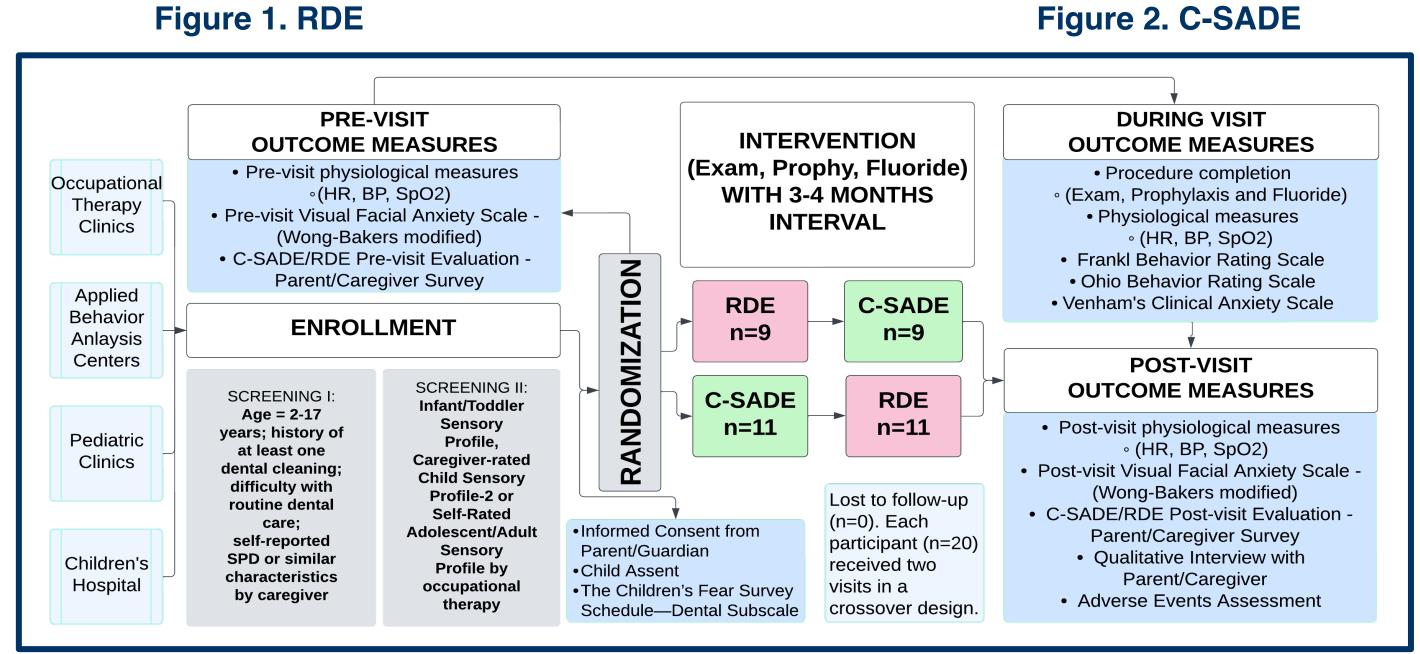


Figure 3. Crossover Randomized Control Trial Schema

C-SADE: A NOVEL ADAPTATION OF SADE

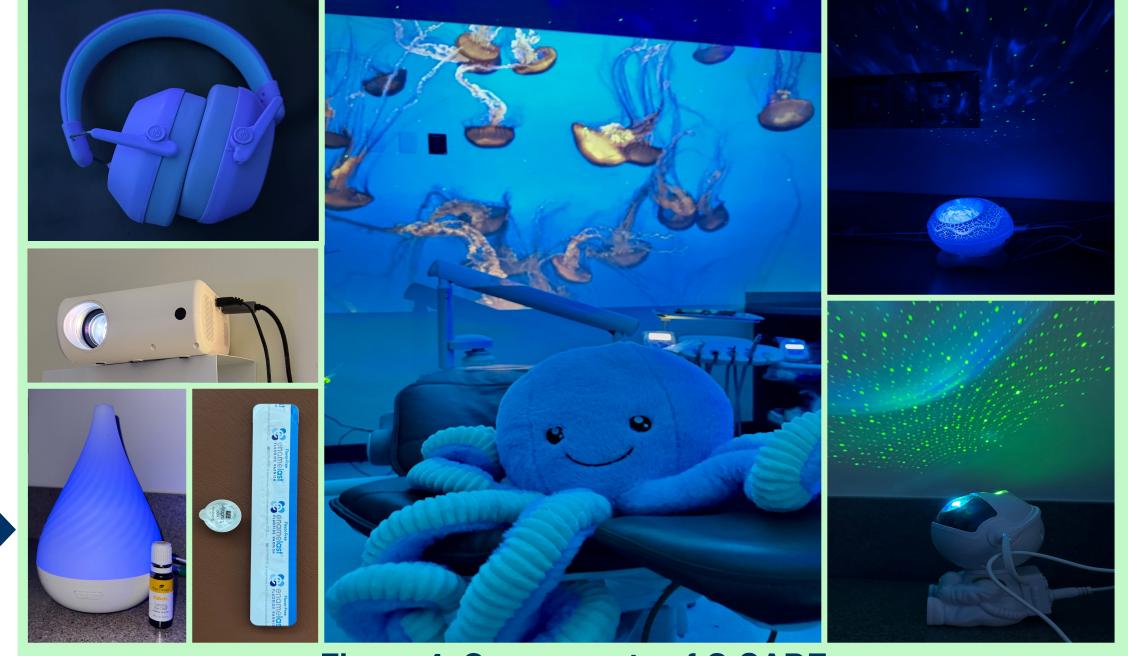
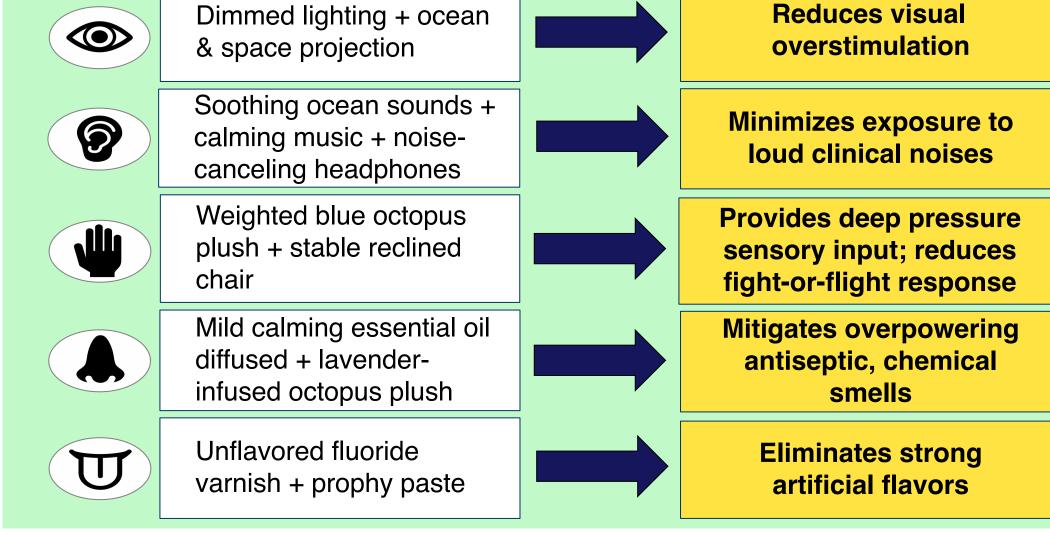


Figure 4. Components of C-SADE



RESULTS

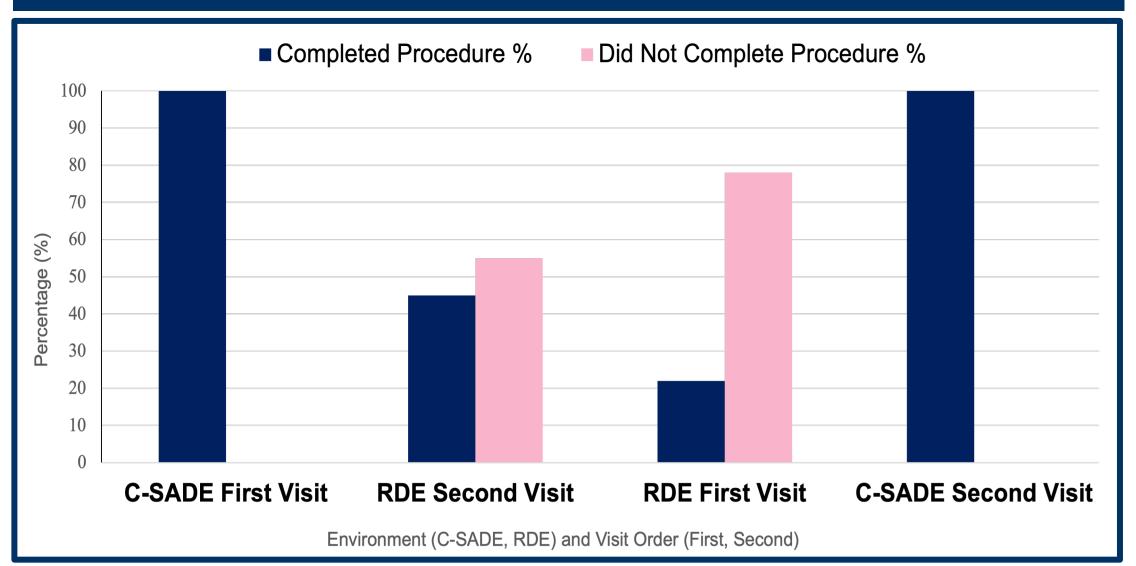


Figure 5. Procedure Completion % in C-SADE (100%) vs. RDE (22-45%)

RESULTS (cont.) C-SADE

Figure 6. Improved Behavioral Cooperation: Frankl Scores RDE vs. C-SADE;

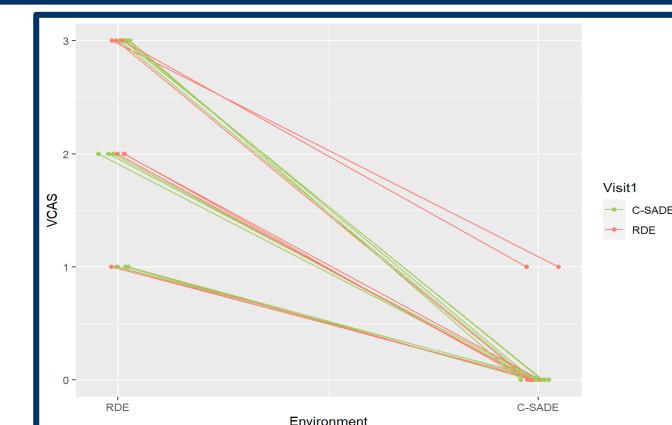


Figure 7. Reduction in Dental Anxiety: VCAS Scores RDE vs. C-SADE;

P < .001P< .001 Reduced "In the 8 Sensory vears that Resistance Benefit she has bee "I'm glad you **Positive Increased** the smell - i this because i all worked Calmness difference for "No fight. No meltdown. (She) "If this option existed just sat and opened her before, we wouldn't have mouth - that has never waited 12 years before his happened before." first real cleaning." "It allowed him to get 100% of caregivers "This is his first dental over the initial fear preferred C-SADE for cleaning in 17 years and experience a without anesthesia." dental visit firsthand future visits, *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
- 3. C-SADE significantly improves access to preventative care for children with SPD.
- Caregivers, patients, and providers unanimously prefer C-SADE over RDE.
- 5. 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.

DATA, RESOURCES, AND REFERENCES: