Smiles For All: A Student–Patient Partnership Model to Improve Dental Comfort and Access for Individuals With Special Needs

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Introduction

Access to dental care remains a significant challenge for individuals with special health care needs due to sensory sensitivities, communication challenges, and limited provider availability[1]. This population faces significant barriers accessing preventative dental care and increasing disease burden, resulting in higher rates of untreated disease and costly emergency visits. In El Paso, nearly 40% of the population lives in a dental Health Professional Shortage Area (HPSA)[2], intensifying this gap. ***Smiles For All* is implemented as a student-patient partnership, exposure-based partnership model aimed at improving dental access, comfort, and cooperation for patients with special health care needs.** This program has been implemented within the Woody L. Hunt School of Dental Medicine Oral Health Clinic and continues to evolve as additional patients are incorporated.

Intervention

Study Design:

Case series involving 4 patients who are diagnosed with autism.

Intervention:

- Students were consistently paired with the same patient across visits
- Monthly, hour-long visits
- Conducted behavioral and sensory assessments
- Implemented environmental modifications
- Practiced stepwise desensitization techniques

Students were responsible for adapting treatment delivery based on patient response and progressively increasing procedural complexity.

Step-by-step desensitization model:

1. Establish rapport, introductions, and caregiver involvement
2. Control sensory environment (dimmed lights, quiet room, visual aids)
3. Gradual exposure: sitting in chair → touching instruments → hearing suction → allowing mirror exam
4. Positive reinforcement and predictable pacing

Clinical Aim

1. **To increase dental student confidence in treating patients with special healthcare needs**
2. **To enhance student competency in managing complex behavioral cases**
3. **To identify effective strategies and modifications**—including sensory-based tools, desensitization approaches, and alternative positioning techniques—that support successful dental care delivery.
4. **To compare patient progress across repeated visits** in order to understand how incremental exposure, caregiver involvement, environment modification, and individualized approaches influence treatment outcomes.

Patients

Patient A (Age 2)
Patient A is a 2-year-old nonverbal child with autism who presents with a friendly, curious disposition and strong interest in sensory stimulation. At home, his mother can brush his teeth.

Patient B (Age 9)
Patient B is a 9-year-old nonverbal child with autism who uses a bite stick for sensory regulation and shows strong interest in tactile tools like water-filled gloves. He has a long-standing aversion to all toothpaste despite extensive attempts at home.

Patient C (Age 8)
Patient C is an 8-year-old nonverbal twin who has higher functioning autism than his twin brother. He responds strongly to sensory-based approaches and prefers a quiet environment.

Patient D (Age 8)
Patient D is a 8-year-old nonverbal twin with low functioning autism who experiences significant distress in dental settings. This patient had the highest support needs of the group.

Photos taken with consent from parents of patients. Eyes blacked out for privacy.

Outcomes

Patient A (Age 2)
Showed steady incremental improvement. Initially resisted mouth opening and sensory stimuli but progressed to enjoying the air/water syringe and accepting prophy paste. Lap-to-lap exams became increasingly successful, with partial visualization achieved.

Patient B (Age 9)
Demonstrated the ability to tolerate structured sensory tools and respond to verbal cues. Successfully completed a panoramic and bitewing radiographs. Oral visualization tolerated briefly. SDF (silver diamine fluoride) treatment successfully applied where needed.

Patient C (Age 8)
Tolerated prophy paste, brushing, and fluoride application. Highly responsive to sensory input. Radiograph instrumentation successfully introduced, but films were not achieved. Overall cooperation improved, including acceptance of dental instruments intraorally.

Patient D (Age 8)
Remains highly sensitive to noise and environmental stimuli. Unable to tolerate intraoral exams, with frequent anxiety episodes and floor-seeking behavior. However, the consistent pairing with the same student has improved his willingness to enter the operatory and remain in the room longer. Parent informed researchers of notable improvements in other dental settings.

Significance

Despite differing levels of progress, all patients benefited from consistent exposure, sensory-informed adjustments, and predictable routines. Even minimal improvements (e.g., entering the room, touching instruments, accepting the chair) represent major behavioral milestones for children at this developmental stage of sensory tolerance. Students demonstrated a growth in competencies while working with special healthcare need patients. *Smiles For All* demonstrated meaningful progress using gradual desensitization and consistent student–patient pairing.

Student Involvement

Patient Barriers

1. **Sensory Overload (Noise, Touch, Tactile Stimuli)** All patients were highly sensitive to tactile and auditory stimuli.
2. **Oral Aversion & Texture Sensitivity** Patients A, B, and D showed significant oral defensiveness.
3. **Toothpaste Aversion** Patient B and D refused all toothpaste flavors and textures.
4. **Radiograph Intolerance** Patients C and D became overwhelmed by intraoral devices.
5. **High Anxiety & Escape Behaviors** Patient D frequently sat on the floor and resisted entering the operatory.

Student Solutions

1. **Noise minimization,** hand-over-hand modeling, gradual introduction of tools, and allowing self-regulation breaks.
2. **Slow introduction** of prophy paste, sponge-based tools, caregiver modeling techniques, and sensory desensitization strategies.
3. **Water-only** brushing, gel alternatives, and gradual desensitization with flavor-free options.
4. **Modeling** radiograph steps outside the mouth, using film holders as tactile objects first. Deferred radiographs until sensory readiness was achieved.
5. **Consistent provider pairing,** extended rapport-building before attempting procedures, allowing patient to choose preferred seating, and shorter exposure intervals.

General Barriers for the Autistic Population

Patients with autism tend to fear the unknown and will avert when presented with dental instruments. Stress and adrenaline-driven responses from the patients can increase traumatic experiences that can stay prevalent through the patients' life.

General Solutions for the Dental Students

Dental students must have patience and have high levels of adaptability. They must go in with confidence and should not be intimidated by the possible difficulties the patient may present.

Future Plans

- Measure student confidence pre- and post- participation
- Expansion of student participation
- Integration of structured special needs training earlier in the curriculum
- Develop individualized sensory profiles to tailor treatment approaches more precisely
- Increase session availability to meet community demand

Self-Assessment

Access to care is not just about availability, it is about adaptability. Success comes in many different forms, whether that's allowing a mirror exam or simply entering the operatory calmly. This program reshaped the perspective on vulnerability and patience. Being able to provide even one positive dental visit felt impactful beyond the procedure itself.

Students reported:

- Greater confidence treating neurodivergent patients
- Increased comfort managing challenging behaviors
- Improved empathy and communication skills
- Stronger clinical judgment in pacing and procedure sequencing

Areas to improve:

- Scheduling consistently, and working around their other therapies
- Parent modeling at home was not consistent across all patients
- Student providers should meet and discuss their patients individual methods and solutions to meet appointment goals.

References

Smiles for All Video

Taken with consent