Polyvagal Theory Improves Dental Desensitization Programs For Children With Intellectual Disability

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Introduction

- Individuals with ID often demonstrate noncompliance during routine dental procedures. Dental procedures are frequently uncomfortable and arduous for those with ID to endure. Individuals with ID have also been reported as having higher rates of anxiety and depression than those individuals without ID.
- To decrease non-compliant behaviors, dentists often use restraints, sedation or general anesthesia to complete the necessary oral health care procedures.
- To reduce the need for sedation, restraints and general anesthesia, methods of applied behavior analysis have been utilized as an effective intervention procedure for gaining compliance during necessary health care procedures.
- Desensitization programs may be implemented to help to decrease anxiety, remove the unpleasant nature of dental exams, and allow for systematic relaxation.

The Polyvagal Theory

- The Polyvagal Theory was proposed and developed by Dr. Stephen Porges to help explain this psychophysiological response to stress. The Polyvagal Theory refers to the complex system of neural circuits that regulate a mammal’s autonomic nervous system. The autonomic system controls breathing, heart rate and digestion.

Therapeutic Presence

- Therapeutic Presence requires the therapist to be completely engaged and fully immersed in the moment.

Methods

Participants
- The participants for this study included two children, one male and one female, each 14-years of age with a diagnosis of ID and ASO. Both participants had a history of non-compliance during dental procedures and were either restrained, papoosed or sedated during past routine dental exams.
- A trained ABA Instructor
- Dental hygienists provided all professional dental hygiene procedures within the desensitization program.

Materials
- A 29 Step Total Task procedure with forward chain presentation was used.
- A token economy board
- Isolated Reinforcers
- Dental tools

Procedure:
- As sections of the teeth were examined/cleaned, dental hygienists or instructors counted aloud. Steps that presented with a higher frequency of non-compliant behaviors received a count of 5. Steps that presented with a low frequency of non-compliant behaviors received a count of 10.
- The participant then received a token and brief break from dental procedures.
- Total Task steps were systematically targeted from least to most intrusive. Participants were given 3 attempts to complete a targeted step successfully (in the absence of non-compliant behaviors) before the session was terminated. Non-compliant behaviors were defined for each student and included any behaviors that prevented the dentist from doing their job. The Instructor terminated the session upon reaching individual session goals or if the participant demonstrated precursor aggressive or self-injurious behaviors.

Results

Dental Exam Graph For Anna

- Phase A: Pairing
- Phase B: Total Task

Dental Exam Total Task Graph For John

- Baseline TT 0.0%
- Baseline TT 27.5%

*Note: Phase A was implemented for Anna due to the severe nature of her aggression and self-injurious behaviors.

Discussion

- Both Anna and John were able to appropriately tolerate a full dental exam and cleaning upon completion of the desensitization procedure.
- The instructor was trained in therapeutic presence and assessed with a therapeutic inventory.
- Through direct observation, the researcher rated the instructor using a Likert-like scale. All observer and instructor inventories yielded scores of 100%.

- This type of intervention proved highly effective for both participants.
- It should be noted that scheduling conflicts resulted in occasional large gaps between visits. This may have impacted the participants' rate of toleration acquisition.
- Further research is needed to assess if acquired toleration skills are maintained over time.
- Future research should focus on desensitization of other dental procedures and incorporate a reinforcement fading procedure.