Behavior Changes at Recall after Oral Conscious Sedation

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ABSTRACT

This study aims to evaluate the effect of moderate sedation on behavior at future recall appointments in pediatric dental patients aged 3-8 years. A retrospective chart review was conducted on cases involving moderate oral conscious sedation at NYU Langone Hospital – Brooklyn from November 2023 to July 2024. Patients included in the chart reviews met the following criteria: Age 3 to 8 years old , ASAI, ASAII, successfully completed treatment with oral midazolam or a midazolam/hydroxyzine combination, recall completed before and after sedation within a year. Patients were excluded if they had treatment done without sedation in between their sedation and recall appointments or had neurological special needs such as autism and ADHD. The primary objective of this project is to demonstrate the effectiveness of oral conscious sedation, highlighting its potential as a valuable adjunctive tool for patients suffering from dental phobia. This approach aims to provide a solution for individuals who are unable to endure treatment in the dental chair, whether or not nitrous oxide is utilized, ultimately enabling the completion of comprehensive and definitive dental care.

BACKGROUND

There are several behavior management techniques that dentists use for their pediatric patients. Basic behavior techniques include tell-show-do (TSD), positive reinforcement, distraction, voice control, desensitization and modeling. Advanced behavior techniques include protective stabilization, nitrous oxide, moderate sedation and general anesthesia. Methods are selected based on the patient's age, temperament, and treatment needs. Each of these methods have their benefits, risks and long-term effect on patient behavior. Commonly used in the dental office is oral conscious sedation (OCS), a form of moderate sedation. According to the American Academy of Pediatric Dentistry (AAPD), oral conscious sedation refers to a method of administering a sedative medication to a child before a dental procedure, allowing them to remain awake, but in a relaxed state. Pediatric dentists may opt for moderate oral conscious sedation to assist in managing anxious or uncooperative young patients when nitrous oxide alone isn't effective. At the NYU Langone Sunset Park clinic, midazolam or a combination of midazolam and hydroxyzine is used for moderate sedation. Midazolam is a short-acting benzodiazepine with rapid onset of action, allowing patients to feel more relaxed shortly after administration. It provides anxiolysis, reducing patient anxiety and amnesia, providing anterograde memory loss. Hydroxyzine, an antihistamine, also induces a relaxed and drowsy state in a patient. It provides anxiety relief, is an antiemetic and can extend sedation time for lengthy procedures. For every visit, child behavior is documented in clinical notes using the Frankl scale, which rates behavior on a scale from 1 to 4.

•1 (Definitely negative): Refusal of treatment, forceful crying, extreme fearfulness
•2 (Negative): Reluctance to accept treatment, uncooperativeness, some negative attitude
•3 (Positive): Acceptance of treatment, cautious behavior, willingness to comply with the dentist
•4 (Definitely positive): Good rapport with the dentist, interest in procedures, enjoyment

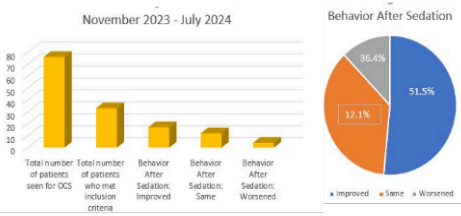
Behavior scores were collected for each patient who met the inclusion criteria from their pre- and post-sedation recall appointments for comparison.

METHOD

Patients were included if they were between three and eight years old at the time of sedation and received oral midazolam or a midazolam/hydroxyzine combination. Patients also had to be classified as ASA I or ASA II and have recall appointments both before and after sedation within a one-year period. The one-year time limit was implemented to control for age-related maturity that could lead to positive behavior trends. Patients were excluded if they had neurological special needs or received treatment without sedation between their sedation and recall appointments, in order to prevent any negative treatment experiences from influencing future behavior.

RESULTS

Number of OCS patients total: **76**
Number of patients who met inclusion criteria: **33**
What percent of patients had improved behavior score at the recall after sedation compared to the behavior score pre-sedation? 17 (**51.5%**)
What percent of patients had the same behavior score at the recall after sedation compared to the behavior score pre-sedation? 12 (**36.4%**)
What percent of patients had worsened behavior score at the recall after sedation compared to the behavior score pre-sedation? 4 (**12.1%**)



DISCUSSION

It is important to note that the data collected in this chart review represents only a small portion of the patient's overall dental history. There are several external factors that could influence a child's behavior at the dental office. For example, children who had non-dental hospitalizations during the study period may show worsened behavior at recall appointments compared to those who did not. Pediatric patients who received treatment in the ER or had overnight hospital stays might exhibit more challenging behavior at their next dental visit due to a heightened fear of doctors from recent experiences. Although behavior scores were extracted from clinical notes, it's worth mentioning that twelve different residents/providers contributed to the data.

CONCLUSION

Oral conscious sedation has emerged as a vital tool in pediatric dentistry, providing a safe and effective means to manage anxiety, discomfort, and pain in young patients. This approach is especially valuable in emergency situations where prompt intervention is necessary to alleviate urgent pain. Through a retrospective chart review of patients treated at the NYU Langone Hospital-Brooklyn Dental Clinic from May 2023 to July 2024, this study aimed to better understand the effects of oral conscious sedation on pediatric patients' future behavior at recall visits. While the data gathered offers valuable insight, it represents only a small portion of each patient's complete dental history, external factors, such as recent hospitalizations, and emergency room visits could also influence outcomes. Additionally, the involvement of multiple providers in assessing behavior could introduce variability in the application of the Frankl scale due to differences in provider experience and interpretation. While sedation can be highly effective in creating a calm and cooperative environment during treatment, its impact on a child's behavior during future recall visits can vary depending on the level of sedation. Other drugs commonly used in pediatric dentistry for moderate oral conscious sedation include diazepam, promethazine, clonidine, triazolam, zolpidem. Further research is crucial to better understand the long-term effects of moderate oral conscious sedation, as it could help improve clinical practices and identify which medications are best suited for achieving positive long-term outcomes. Oral conscious sedation is a crucial service to offer, particularly for patients who are on the general anesthesia waitlist or experiencing urgent dental pain, providing them with a timely and effective alternative to alleviate discomfort and facilitate necessary treatment.

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