

Factors Influencing the Use of Protective Stabilization During Pediatric Moderate Sedations.

Impact of medication, age, gender, procedure type, medical conditions and prior moderate sedation history.

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INTRODUCTION

Moderate sedation plays a key role in pediatric dentistry, especially for patients who experience dental anxiety or who need to undergo more complex procedures. Sedation medications are carefully chosen to balance safety, efficacy, and comfort, ensuring the child is relaxed and pain-free throughout the procedure. In some pediatric dental procedures, particularly for younger children, those with special health care needs, or those experiencing high anxiety, moderate sedation alone may not be enough to ensure the child's safety and cooperation. In such cases, protective stabilization may be employed. This technique involves physically securing the child in a safe, controlled manner to prevent unintended movements that could cause injury or disrupt the dental procedure. Protective stabilization helps ensure that the dental treatment can be completed effectively and safely.

PURPOSE

- The primary goal of this research is to examine how different factors, including sedation medication, patient demographics (age, gender, medical history) and procedural complexity affect the decision to employ protective stabilization in pediatric dental moderate sedation.
- By identifying these factors, this study aims to provide valuable insights that can guide dental professionals in making informed, evidence-based decisions. These findings will help improve clinical practices, reduce variability in treatment approaches, and ensure that protective stabilization is used in a manner that prioritizes patient safety and comfort.

METHODS

Study Design & Setting : Single-site retrospective chart review of moderate sedation visits.
Participants : N = 50 visits.
Eligibility : Ages 3–12; moderate sedation for restorative procedures and/or extractions (2024–2025). Incomplete records excluded; early-terminated visits included as “aborted.”
Variables & Outcome : Collected: age, sex, sedation regimen, prior moderate sedation, procedure type, and relevant medical/behavioral history (e.g., anxiety, ADHD, autism).
Primary outcome : use of protective stabilization (yes/no), including wrist restraints, head holders, or stabilization boards.
Statistical Analysis : Descriptive statistics, Comparative analysis between groups, Significance set at $p < 0.05$.

FIGURES 1 & 2

Figure 1: Mean age by stabilization group

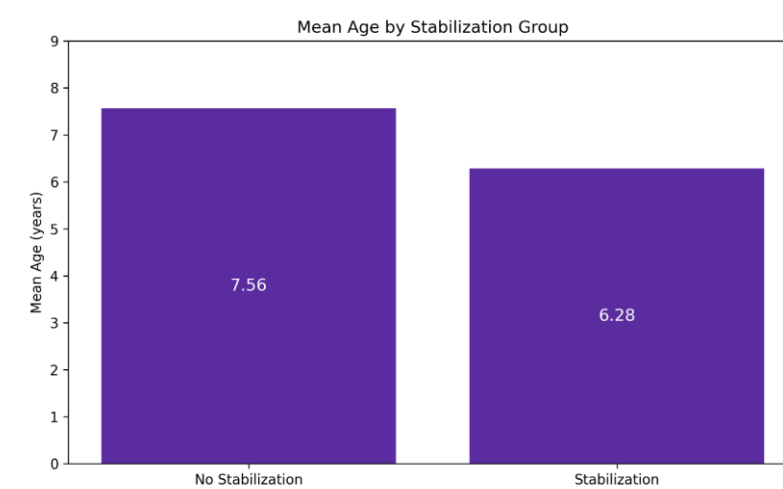


Figure 2: Current stabilization by prior stabilization history

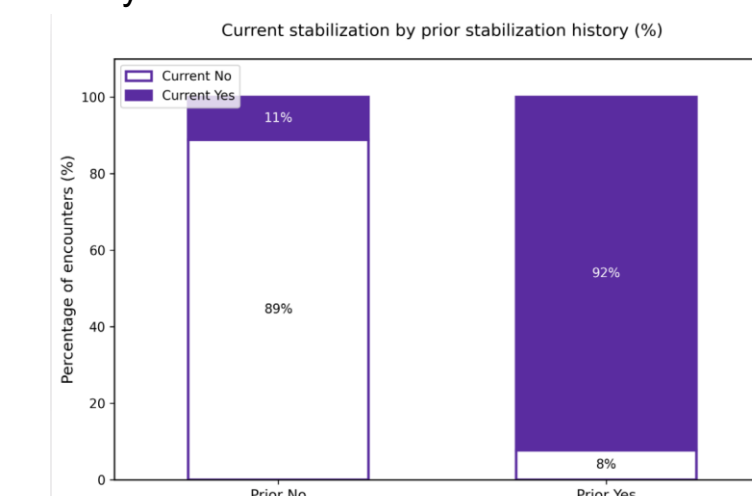
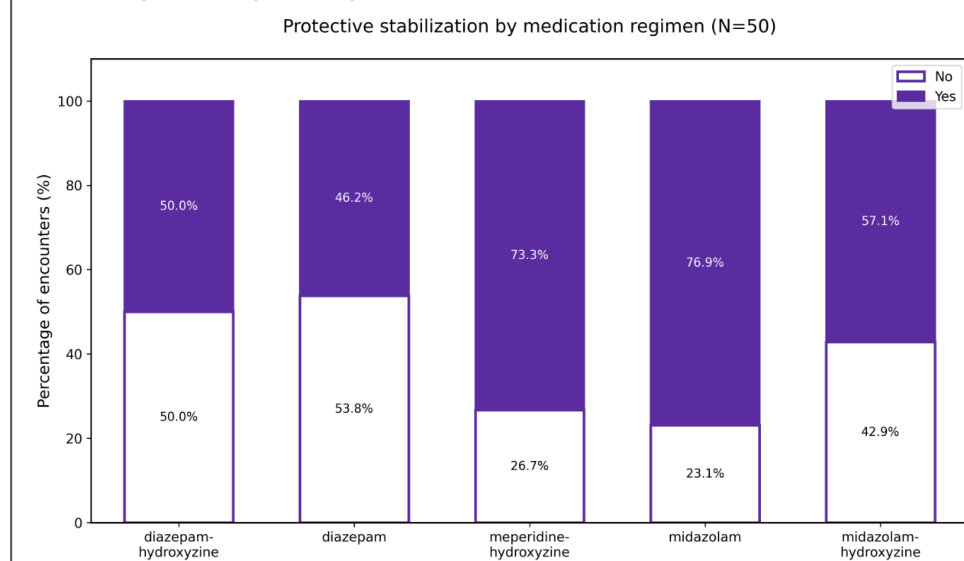


FIGURE 3

Figure 3: Protective stabilization by medication regimen (N=50)



RESULTS

- Sample** : 50 pediatric sedation visits; mean age 6.74 ± 2.26 years
- Procedures** : extractions 50% (25/50), restorative care 40% (20/50), aborted visits 10% (5/50)
- Medical/behavioral diagnoses** : rare (96% of charts had none documented)
- Protective stabilization** : used in 64% (32/50; 95% CI 50–76%)
- Prior sedation history** : 40% (20/50) had previous moderate sedations
- Associations with stabilization** :
 - Not significant** : procedure type, gender, medication regimen, documented medical/behavioral history, prior sedation alone (all $p > 0.30$)
 - Age trend** : younger patients more likely to require stabilization (6.28 ± 2.25 vs 7.56 ± 2.09 years; $p = 0.054$)
- Prior stabilization predicts future need** :
 - Subgroup with prior moderate sedation (N = 20): stabilization used in 11 (55%)
 - Prior stabilization strongly associated with current use (10/11 [91%] vs 1/9 [11%]; OR = 80.0, 95% CI 4.3–1488.6; $p = 0.002$)
- Medication choice** : did not predict stabilization, likely reflecting individualized clinical decisions rather than direct pharmacologic effect.

CONCLUSION

- Protective stabilization was used in 64%** of pediatric moderate sedation visits (95% CI 50%–76%), indicating that sedation alone does not reliably prevent movement in all children.
- Younger age showed a consistent trend** toward higher stabilization use, reflecting lower tolerance for unfamiliar stimuli, reduced ability to follow instructions, and higher baseline distress, although this was not statistically significant.
- No significant associations** were observed between stabilization use and procedure type, patient sex, sedation medication regimen, documented medical/behavioral history, or prior moderate sedation history in unadjusted analyses.
- Prior stabilization strongly predicted future stabilization (OR 80.0; $p = 0.002$)**, suggesting that stabilization needs may be patient-specific and reproducible over time, likely influenced by underlying behavioral traits or caregiver–child dynamics.
- Medication regimen showed no detectable effect**, but this should be interpreted cautiously due to small sample size and potential confounding, as clinicians may choose regimens based on anticipated behavior.

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