

INTRODUCTION:

Dental anxiety in young children can significantly hinder the delivery of safe and effective dental care. When basic non-pharmacologic behavioral guidance techniques are insufficient, moderate sedation is commonly used in pediatric dentistry to facilitate treatment.

Midazolam, a short-acting benzodiazepine, is frequently used for moderate sedation due to its anxiolytic, sedative, and amnesic properties. It is often combined with hydroxyzine to enhance sedative effects and prolong duration of action. Despite widespread use, the optimal oral midazolam dosage for achieving favorable behavior without compromising physiologic stability remains controversial.

Purpose: To compare the effectiveness and safety of 0.5 mg/kg versus 0.6 mg/kg oral midazolam, each combined with hydroxyzine, in pediatric dental patients undergoing restorative treatment.

METHODS:

- A retrospective chart review was performed involving pediatric patients aged 4–7 years who underwent restorative dental treatment at GMC between June 2020 and June 2024.
- Patients received moderate sedation with either 0.5 mg/kg or 0.6 mg/kg midazolam combined with 1.0 mg/kg hydroxyzine.
- All dental treatments were performed using local anesthesia and nitrous oxide.
- Behavioral outcomes were evaluated using Frankl and Houpt scales. Physiologic parameters were recorded.

CONCLUSION:

- Both oral midazolam regimens provided safe and effective moderate sedation for pediatric dental patients undergoing restorative treatment. Patients receiving 0.6 mg/kg oral midazolam in combination with hydroxyzine demonstrated improved cooperative behavior and a higher rate of treatment success compared to those receiving 0.5 mg/kg.
- Importantly, no clinically significant differences in physiologic safety parameters were observed between dosage groups.
- In summary, a modest increase in oral midazolam dosage may enhance behavioral outcomes without increasing safety risk in appropriately selected pediatric patients.

RESULTS:

Table 1. Demographics and baseline characteristics.

	Overall (n= 114)	Moderate Sedation		P-value
		0.5 mg/kg midazolam and 1.0 mg/kg hydroxyzine (n= 52)	0.6 mg/kg midazolam and 1.0 mg/kg hydroxyzine (n= 62)	
Female	60 (53%)	24 (46%)	36 (58%)	.205
Male	54 (47%)	28 (54%)	26 (42%)	
Median age in years at time of procedure	6	6 (5, 7)	6 (5, 7)	.696
Mean age in years at time of procedure	5.76	5.73	5.79	

Figure 1: Treatment Success by Midazolam Dosage.

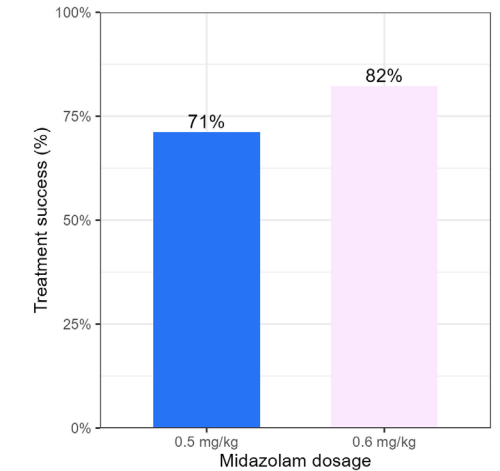


Figure 2: Boxplot of Frankl score by Midazolam Dosage.

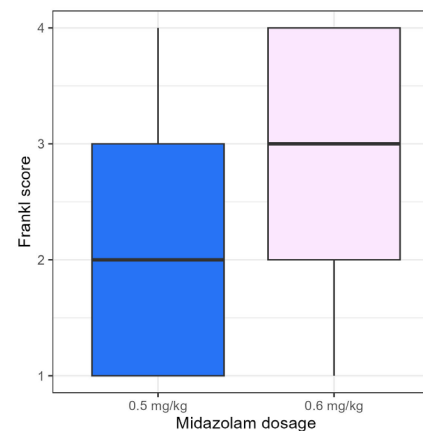


Figure 3: Boxplot of Houpt rating by Midazolam Dosage.

