

Success of Dental Restorations Performed Under Various Behavior Guidance Techniques

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Purpose

To compare the success rates of dental restorations completed under nitrous oxide (N₂O) and general anesthesia (GA) for pediatric patients with early childhood caries (ECC).

Introduction

According to the American Academy of Pediatric Dentistry, ECC is defined as the presence of one or more decayed, missing, or filled tooth surfaces in a child between birth and 71 months.¹

Dentists use basic and advanced behavior guidance techniques to provide care safely and effectively for children with ECC.²

The overall longevity of restorations completed under different modalities can influence the decision-making process for pediatric dentists. Amin et al., concluded that one third of patients who underwent comprehensive dental treatment under GA experienced treatment failure within three years.³

The restoration type and treatment performed are also important to consider. A common finding among several studies is that stainless steel crowns are the most successful restorations with all behavior guidance techniques.^{4,5,6,7}

Methods

- Retrospective chart review
- Duration: January 2014 to December 2018
- 307 of 1,724** subjects were eligible for this study
 - 189 subjects in the N₂O group (Group A)
 - 118 subjects in the GA group (Group B)

- Inclusion criteria:
 - ASA I-II children age 3 to 6 years old who received treatment at BronxCare Health System Pediatric Dental Clinic via N₂O or GA
 - Returned for periodic exam within 12-24 months
- For the two groups, the following were evaluated:
 - Gender
 - Age
 - Date of treatment
 - Number of class II composites, pulpotomies, stainless steel crown (SSC)
 - Date of recall examination
 - Number of successful class II composites, pulpotomies, SSC

Results

Demographics:

- Gender:
 - Group A: 98 males and 91 females
 - Group B: 66 males and 52 females
- Average age:
 - Group A: 4.9 years old
 - Group B: 4 years old

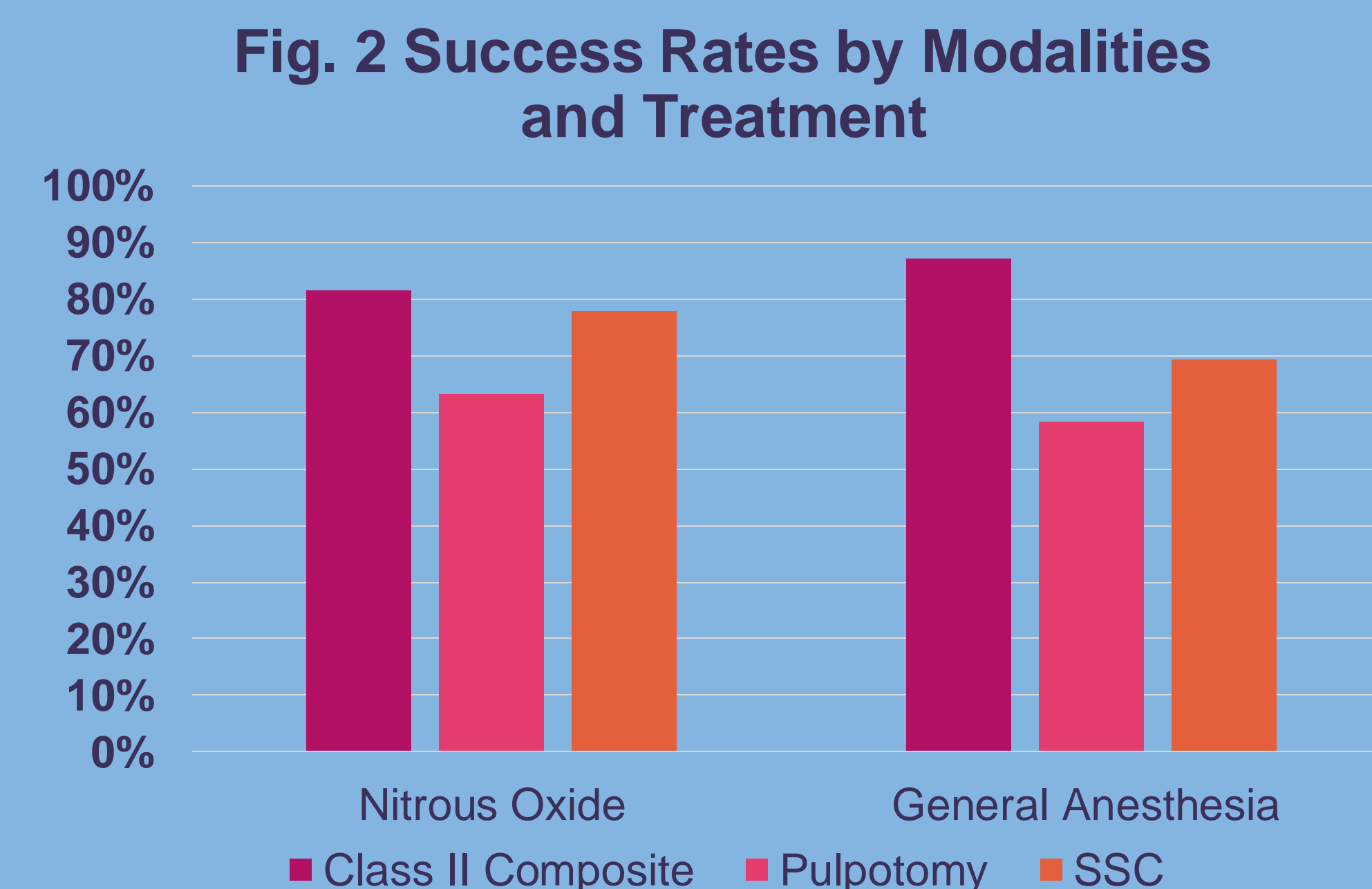
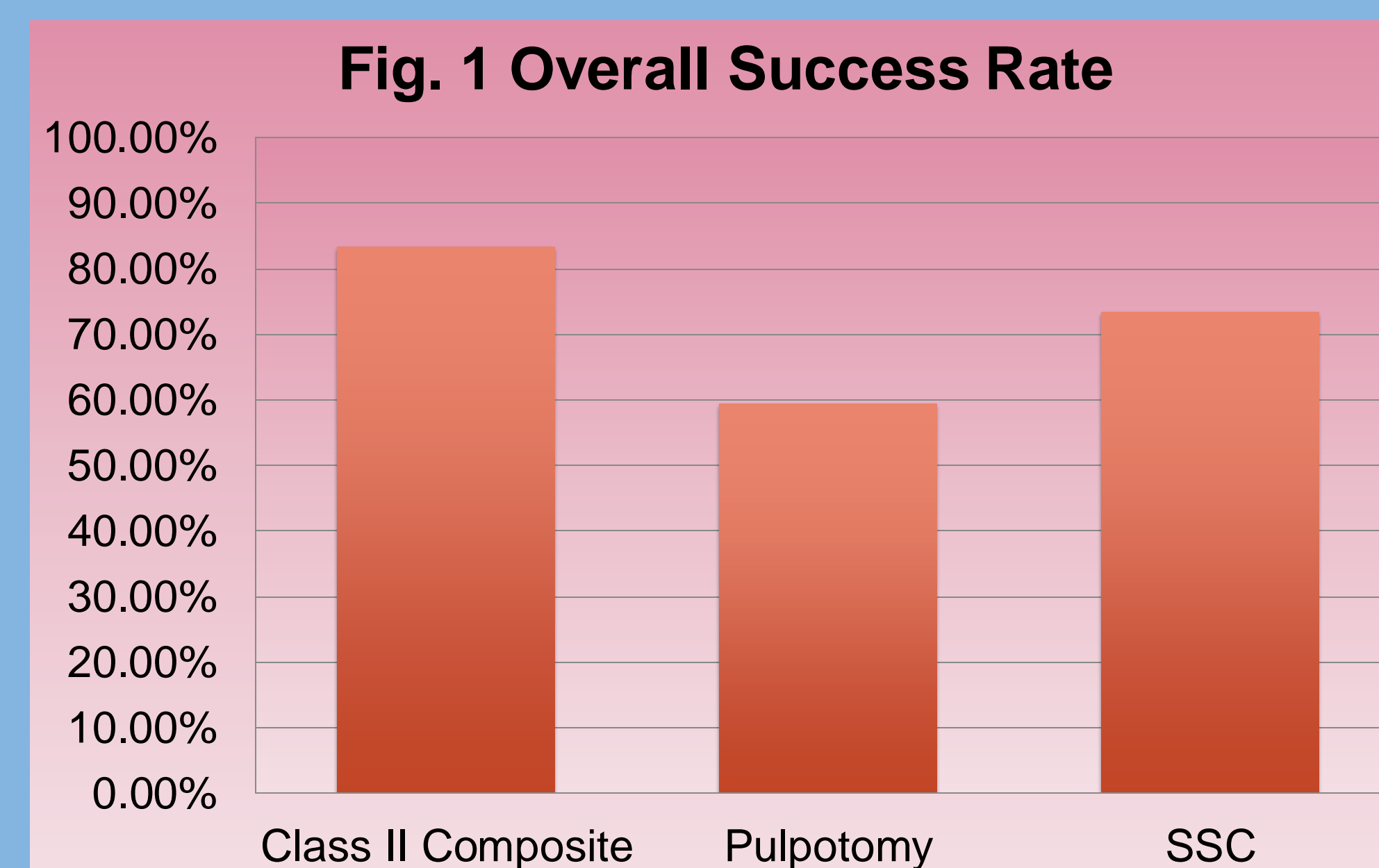
Total Number of Restorations:

- Group A: 570 restorations
- Group B: 640 restorations
- SSC was the most common (50%)

Overall Success Rates (Fig. 1)

- Class II Composite: 83.5%
- Pulpotomy: 59.4%
- SSC: 73.4%

- Success rate of class II composite restorations was the highest for both groups (Fig. 2).
- Success rate of pulpotomies was the lowest for both groups (Fig. 2).



Discussion

- While previous studies found that SSC were the most successful restoration with all behavior guidance techniques, this study showed that class II restorations were most successful

- Gender distribution and average age of subjects were approximately similar
- Limitations to this study:
 - Reduced sample size as the majority of subjects were excluded due to failure for returning for recall exams
 - Treatment success may vary as treatment completed by multiple clinicians
- Future studies should also include other behavior guidance modalities such as moderate sedation

Conclusions

- Class II composite restoration was the most successful restoration regardless of treatment modality.
- Success rate of pulpotomy was the lowest regardless of treatment modality.

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