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INTRODUCTION

- Dental caries is the most common disease found in children in the United States and globally.¹ It affects close to 45.8% percent of children in the United States²
- Early childhood caries (ECC) is defined as one or more decayed, missing or filled tooth surface in primary dentition with a child that is younger than 6 years of age. Some of the main risk factors for ECC are frequent sugar intake, poor oral hygiene and enamel hypoplasia.¹
- Silver diamine fluoride (SDF) is a topical, caries arresting medication that has been used on a worldwide scale to treat dental caries³
- Oral conscious sedation (OCS) and General Anesthesia are alternative methods to treat patients who are unable to complete treatment under regular conditions in the dental office.
- These three different treatment modalities give the provider different strategies for clinical success based on the patients needs

PURPOSE

The purpose of this study was to determine if there are differences in the post-treatment clinical outcomes between silver diamine fluoride (SDF), conscious sedation (SED), and/or general anesthesia (GA) treatment modalities for children with early childhood caries, specifically regarding post-treatment intraoral swelling, dental pain, new caries, broken restorations and/or space maintainers, additional visits, and extractions.

METHOD

- Data for 1203 children, from 2010-2020 was extracted by retrospective chart review comparing clinical outcomes for children with ECC under age seven who were treated with SDF, SED or GA
- Two sample t-test, fisher exact test, and ANOVA tests were used to examine the data

Figure 1: Post-operative intraoral swelling

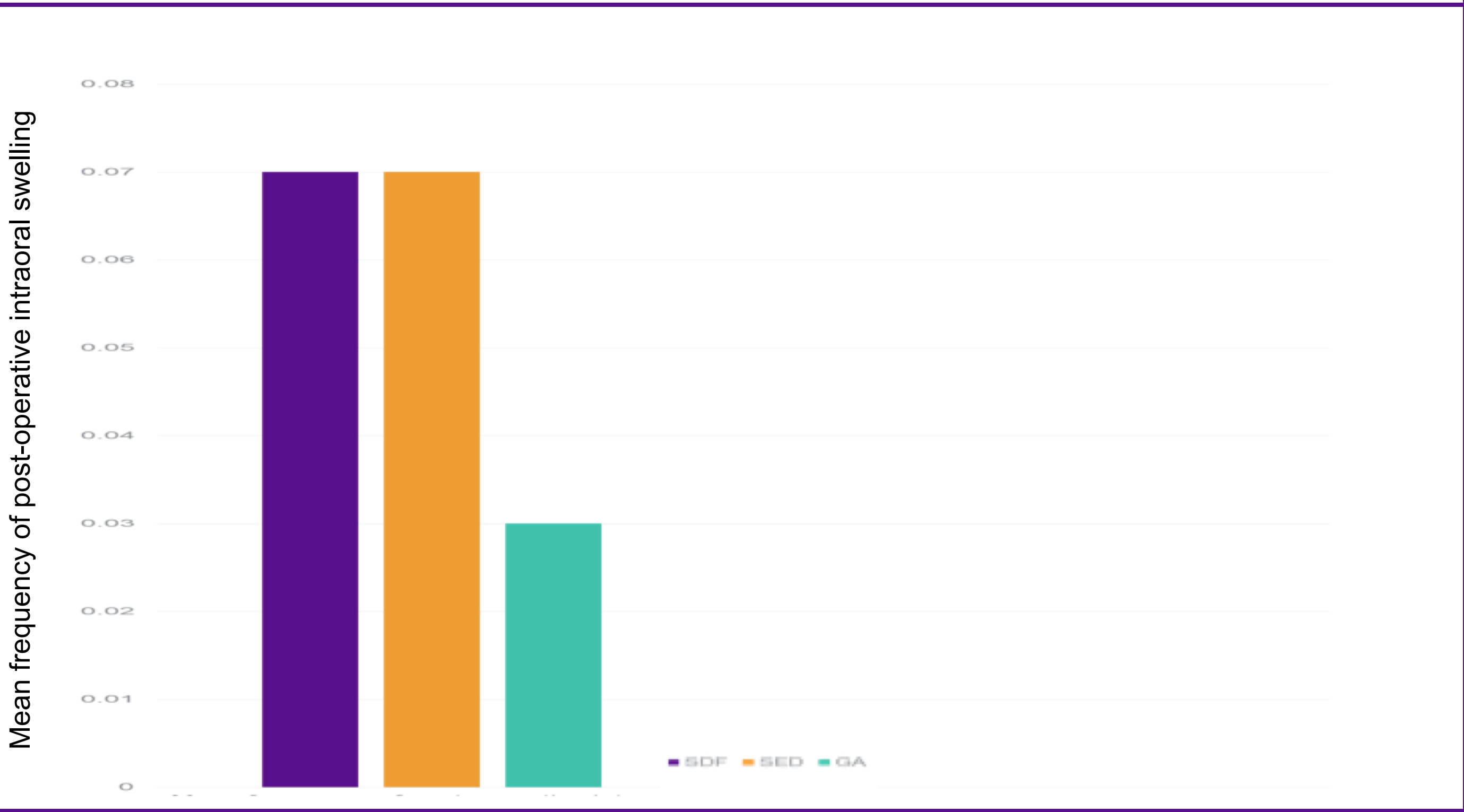


Figure 2: Broken Restorations and/or Space Maintainers

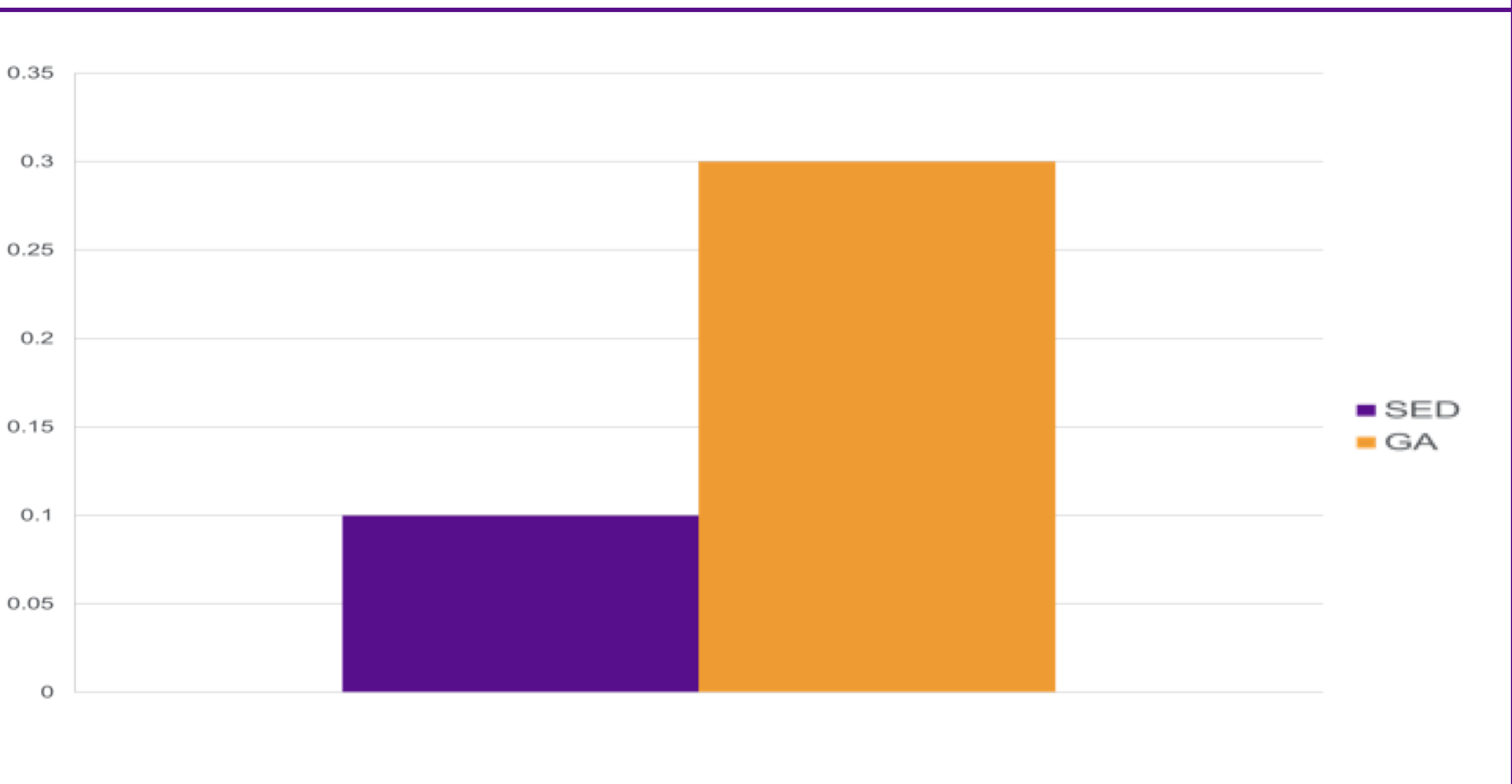


Figure 3: Post-op Extractions after Sedation and GA

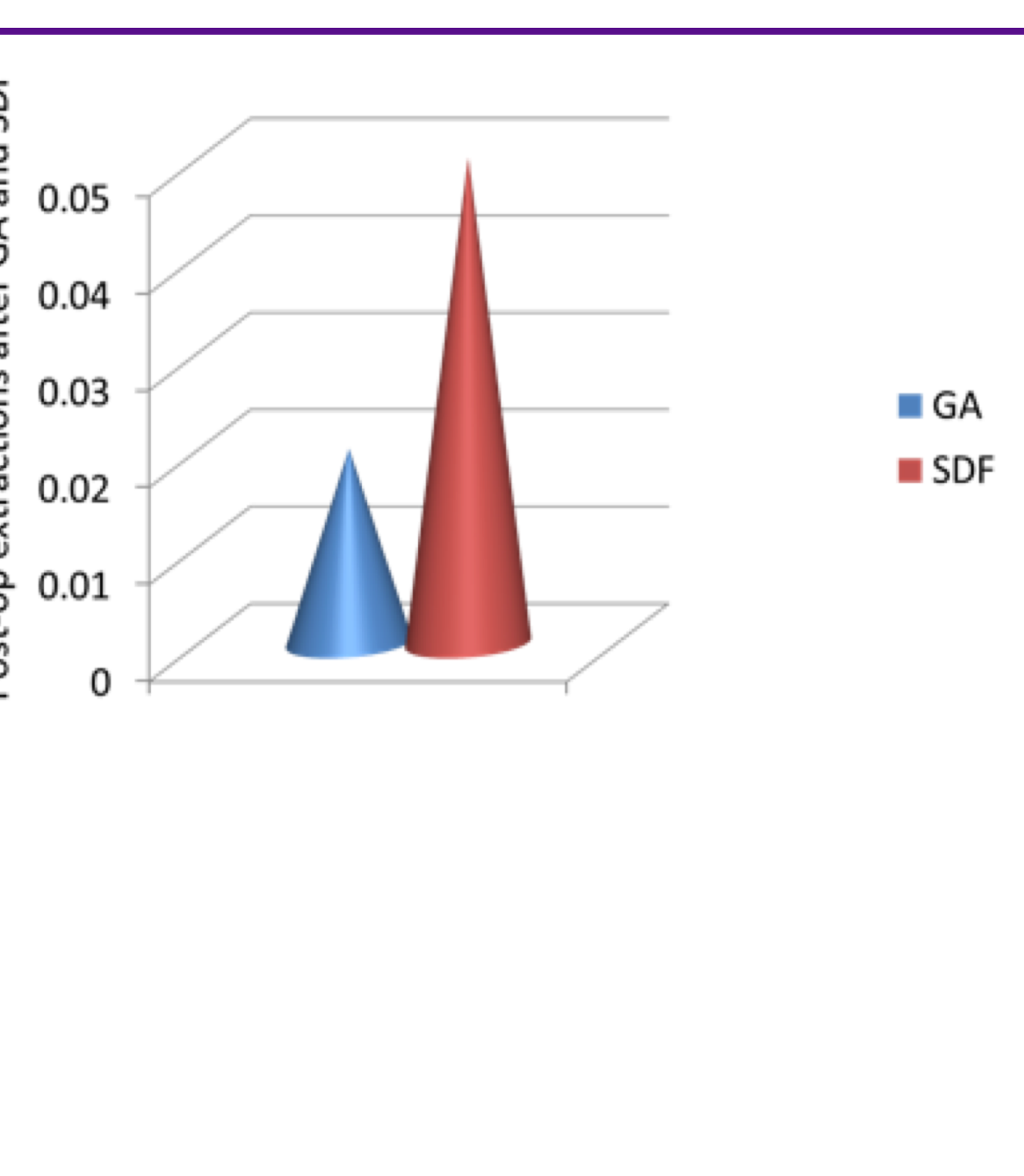
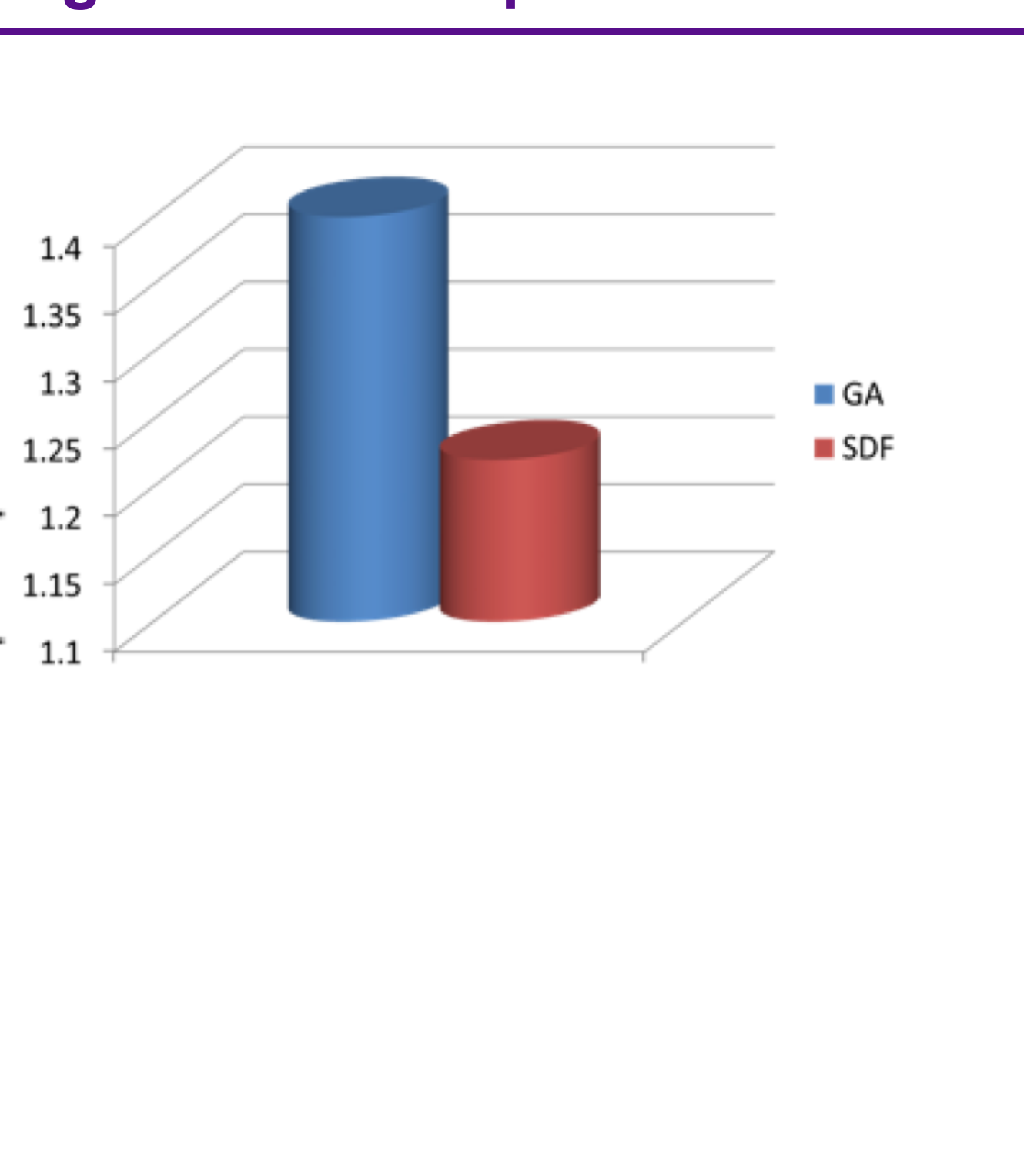


Figure 4: Post-operative Visits



RESULTS

There was a statistically significant difference in the mean frequency of children who experienced:

- 1) post-operative intraoral swelling after GA (n=685) at 0.03 (standard deviation (SD)=0.18), SDF (n=777) at 0.07 (SD=0.31) and sedation (n=644) at 0.07 (SD=0.26) with p=0.002 (Figure 1)
- 2) post-operative broken restorations and/or space maintainers after GA (n=685) at 0.03 (SD=0.16) and sedation (n=644) at 0.01 (SD=0.10) with p=0.025 (Figure 2)
- 3) post-operative extractions after GA (n=685) at 0.02 (SD=0.15) and SDF (n=777) at 0.05 (SD=0.25) with p=0.002 (Figure 3)
- 4) post-operative visits after GA (n=685) at 1.40 (SD=0.64) and SDF (n=777) at 1.22 (SD=0.56) with p<0.001 (Figure 4)

There was a statistically significant difference in the number of children who experienced post-operative dental pain after GA (n=685) with 0 (0.0%) and SDF (n=777) with 7 (0.9%) with p=0.017.

There was no statistically significant difference in the mean frequency of children who experienced post-treatment new caries on molars after GA (n=641) at 0.04 (SD=0.19) and SDF (n=525) at 0.02 (SD=0.16) with p=0.173.

CONCLUSIONS

- General anesthesia showed favorable clinical outcomes in treating ECC in pediatric patients in multiple categories. Patients who underwent dental treatment with GA were less likely to experience post-operative intraoral swelling compared to SDF and sedation. When comparing GA to sedation, GA patients were less likely to undergo post-operative extractions. Lastly, children were more likely to experience post-operative dental pain after SDF compared to GA.
- Sedation also showed favorable outcomes in that patients were less likely to have broken restorations or space maintainers after sedation compared to GA.
- Patients were more likely to return for follow-up visits after GA compared to SDF, showing the need for stressing the importance of SDF follow up to prevent caries progression.
- Overall, general anesthesia remains a treatment modality of choice when treating pediatric patients with ECC.

REFERENCES

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3. Oliveira BH, Rajendra A Veitz-Keenan A, et al. The Effect of Silver Diamine Fluoride in Preventing Caries in the Primary Dentition: A Systematic Review and Meta-Analysis. *Caries Res.* 2018;53(1)24–32.