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Introduction

Dental caries, a widespread non-communicable disease, is a significant global public health problem and the most at-risk age groups are children and adolescents. Pain associated with dental caries can negatively impact a person's quality of life. Tooth decay is a frequent cause of absence from school or work.¹ The need to complete treatment under general anesthesia is a common scenario in the United States and other countries. This pathway for care, if accessible, may not be accessible in a timely manner.²⁻³

By reducing the rate of caries progression, SDF serves as an intermediate care path for pediatric patients on a waitlist for full-mouth dental rehab under general anesthesia.⁴ Accordingly, this study evaluated the outcomes of SDF application on carious lesions in general anesthesia waitlisted pediatric patients awaiting full-mouth dental rehabilitation.

Methods

A retrospective chart review was conducted to compare differences in the cumulative incidence of dental emergencies of pediatric dental patients waitlisted for dental treatment under general anesthesia from January 1, 2017 to April 30, 2022. SDF application, limited oral exam, restorative, extraction, and hospital CDT codes were obtained from the dental software program axiUm, to assess emergency visits that occurred while a patient, less than or equal to 10 years of age, was on the OR waitlist. Of the 594 patients, 469 with 3442 teeth met the inclusion criteria. A comparison study was completed to assess the success of SDF-treated lesions to non-SDF-treated lesions. Outcomes measured were the incidence of dental emergencies, restorations, and extractions. Descriptive statistics were used to analyze the data.

Results

This study reviewed axiUm data for 3442 teeth in 469 patients. Of those reviewed, 567 (16.5%), were treated with SDF, and 2875 (83.5%), did not receive an SDF application. Outcomes for SDF-treated teeth were similar to non-SDF-treated teeth as shown in Figure 1 for ultimate outcomes in terms of restorations, extractions, and emergency visits ($P>.05$). Teeth treated with SDF comprised 2 of 12 (16.7%) extractions at emergency visits. Figure 2 shows box plots for mean days until restoration and mean days until extraction. The mean days for non-SDF-treated and SDF-treated teeth to restoration were 184.1 and 206.9, respectively; this variation was statistically significant ($P=.0003$). The mean days for non-SDF-treated and SDF-treated teeth to extraction were 221.6 and 286.4, respectively; this variation was statistically significant ($P<.0001$). SDF application was not statistically significant concerning ultimate outcomes but may have provided some benefit for mitigating symptoms while on the waitlist for GA.

Figure 1. SDF vs Non-SDF Tooth Outcomes

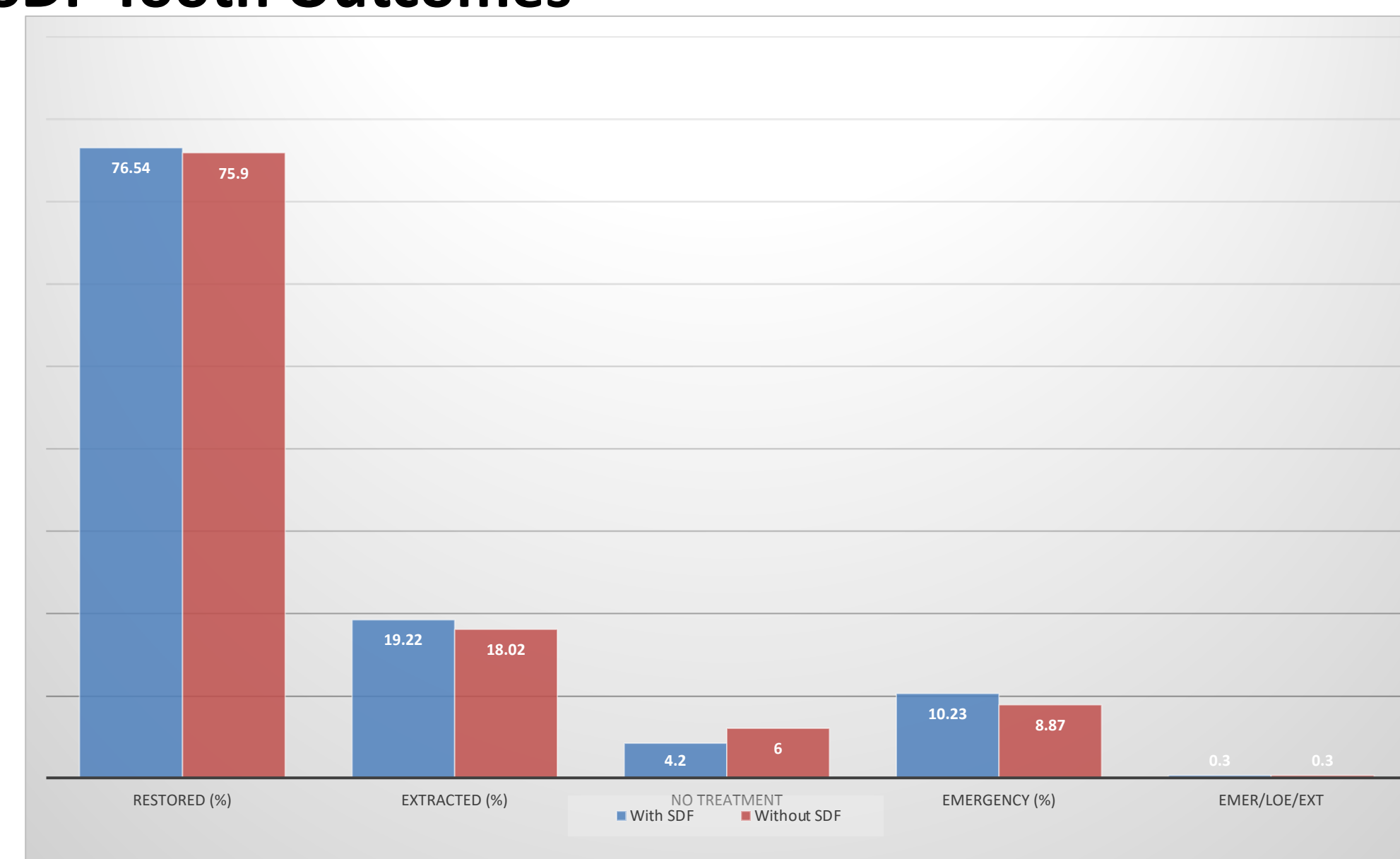
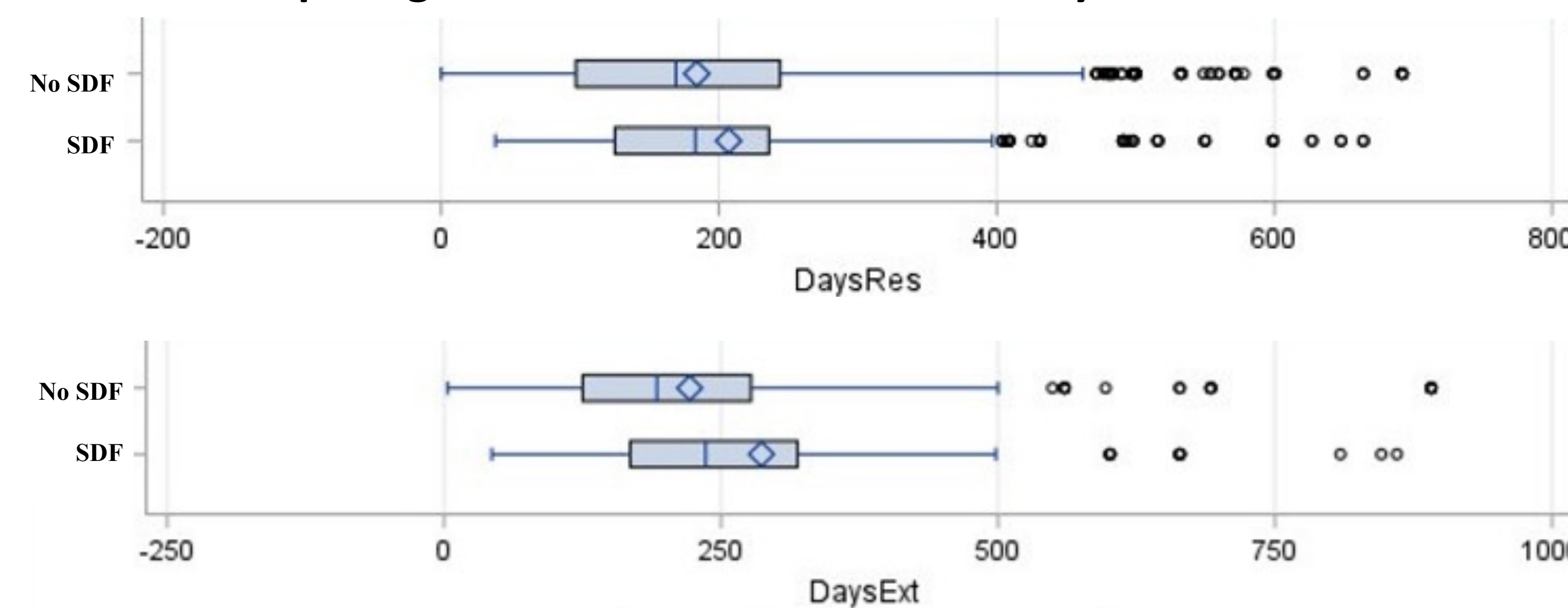


Figure 2. Box Plots comparing SDF treated teeth for mean days until restoration and extraction



Discussion

We hypothesized that waitlisted surgery patients with SDF-treated carious lesions would have a decreased incidence of dental extractions and emergencies compared to non-SDF-treated lesions. It was learned the caries arresting medicament

application did not lead to statistically significant differences in tooth outcomes regarding treatment options. The results do not support SDF application as a means to reduce the probability of restorative treatment or extraction outcomes. Additional research is warranted to determine the effectiveness of SDF applications in reducing dental emergencies.

Conclusions

Based on this study's results, the following conclusions can be made:

1. The probability that a tooth was restored or extracted was similar with or without SDF treatment.
2. The probability that a tooth was seen at an emergency appointment was similar with or without SDF treatment
3. The probability that a tooth was extracted at an emergency was similar with or without SDF Treatment.

References

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