

Retrospective analysis of efficacy of extractions of primary second molars in early childhood caries reducing future caries burden

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Introduction

Early Childhood Caries (ECC) is highly prevalent, especially in:

- Low-income populations
- Socially disadvantaged groups
- Minority populations

Defined as:

- ≥ 1 decayed, missing, or filled primary tooth surface in children < 6 years

Consequences:

- Pain, infection, loss of function
- Increased future caries risk
- Reduced quality of life and school performance

Aim and Hypothesis

• **Research Question:** In pediatric patients aged 3-10 years, does extraction of primary second molars due to caries prior to interproximal caries development on adjacent permanent first molars, in comparison to direct composite restoration or stainless-steel crown placement, lead to greater reduction of interproximal caries in adjacent site progression over the following one year?

• **Hypothesis:** Extraction will result in **lower caries progression** compared to restoration or SSC, over a one year follow up period

Inclusion and Exclusion criteria

Inclusion Criteria:

- TUSDM patient charts (01/01/2010–08/31/2024) with:
- Treatment of ≥ 1 primary second molar:
 - Extraction (D7140), restoration (D2392 and D2393), or SSC (D2930)
- Treatment performed **before radiographic interproximal caries** on adjacent tooth
- At least **one follow-up within one year** with bitewing radiographs

Exclusion Criteria:

- No qualifying treatment within the study period
- No follow up visit within one year with bitewing radiographs
- Evidence of caries on 1st permanent molar adjacent to treatment site
- No 1st permanent molars present adjacent to treatment site at time of treatment

Results

- Retrospective chart review (TUSDM)
- Study period: **01/01/2010 – 08/31/2024**
- Final sample: **57 patients**
 - Male: 27
 - Female: 30

Statistical Analysis:

- **Fisher's Exact Test**

- Patients requiring further treatment: 4/57
- Distribution of failures:
 - 3 adjacent to extraction sites
 - 1 adjacent to SSC site
- Statistical outcome:
 - No significant association between treatment type and further treatment
 - **p = 0.61**

Figure 1.

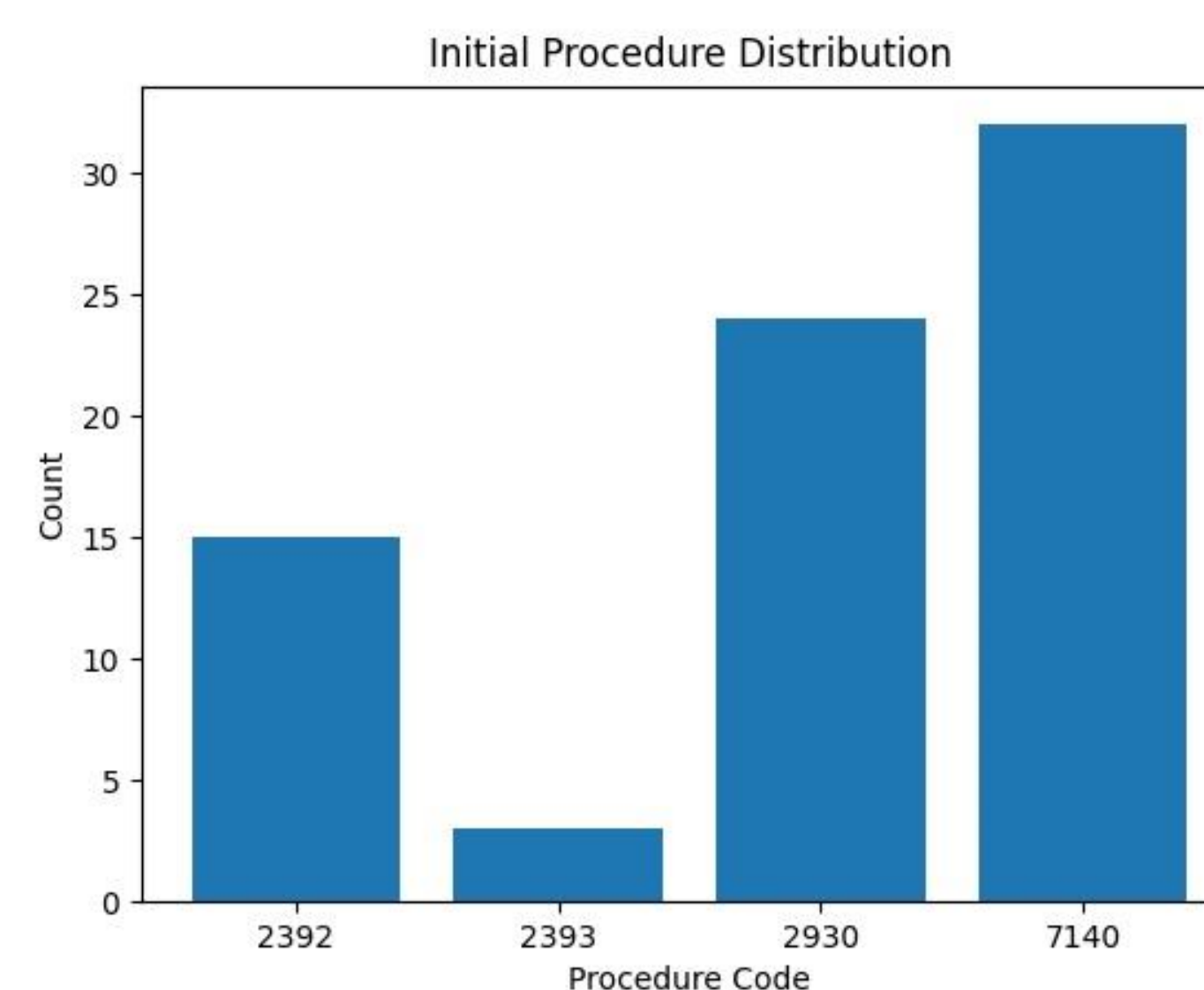
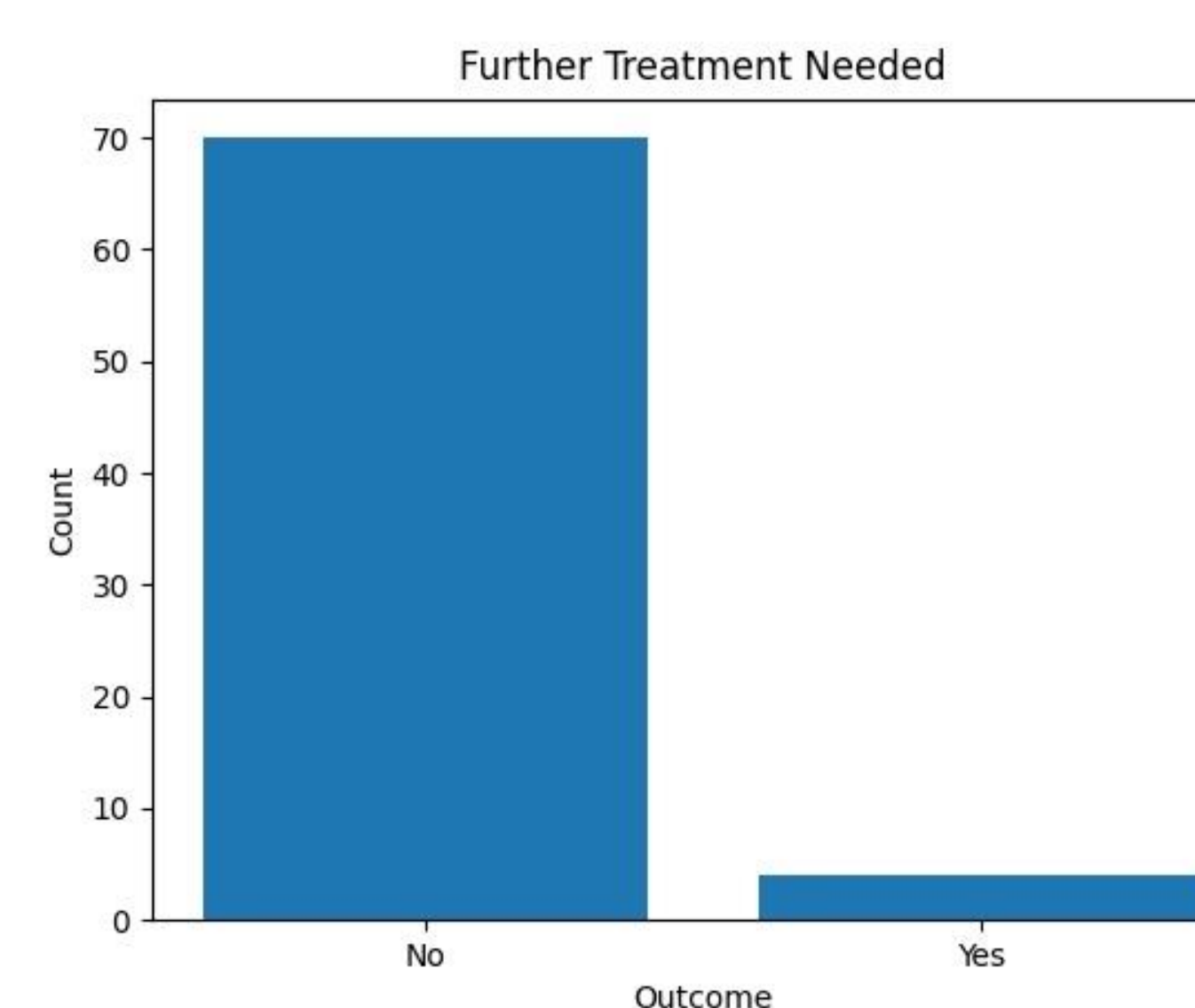


Figure 2.



Conclusion

- Treatment modality (extraction vs restoration vs SSC):
- **Not a significant predictor** of outcomes
- Clinical implication:
 - Achieving disease control is more important than material or technique
- Possible explanation:
 - Adjacent caries may have been present but not radiographically detectable

- No significant difference between treatment modalities
- Key takeaway:
 - **Successful treatment** → **improved oral health**, regardless of technique
 - Supports flexible, patient-centered pediatric dental care

- Further directions:
 - Larger sample size
 - Longer follow-up period
 - Further evaluation of adjacent tooth outcomes

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