



Introduction

Caries in anterior primary teeth can be difficult to esthetically treat. The most durable treatment option, stainless steel crowns, is far from esthetic, and many parents and providers do not opt for stainless steel crowns in the anterior for this reason. More commonly, providers have opted for resin strip crowns or class III restorations to restore anterior teeth. However, resins have a higher percentage of failure due to them being more technique sensitive, less wear resistant and their success being more home-care dependent. Pediatric patients who require treatment on primary anterior teeth are often treated under sedation due to age and cooperation, and retreating these patients can have its difficulties. Restorations optimized for success will decrease the likelihood of the pediatric patient having to undergo sedation again for retreatment of the same tooth.

There are limited studies on the longevity of composite restorations in primary teeth, including but not limited to strip crowns and class III restorations placed. If the success of resin restorations is dependent on the surface area the composite is bonded to, then strip crowns should perform better than class III restorations on primary anterior teeth and should be the restoration of choice.

Study Objectives

The purpose of this study is to determine the most successful esthetic treatment option and method for placing composites in primary anterior teeth under a general anesthesia setting. The success rates of class III composites and strip crowns will be compared to help guide how to improve treatment planning for esthetically restoring anterior primary decay.

Methods

Subjects

Patients/charts were selected based on our patient log of pediatric patients at St. Barnabas Hospital who had undergone full mouth rehabilitation in the operating room with anterior teeth composite restorations completed. All patients chosen had a diagnosis of early childhood caries or severe early childhood caries.

This study analyzed patients who underwent full mouth rehabilitation in the operating room July 2018 to July 2022 and returned for subsequent follow ups in a 24 month period.



Data Collection

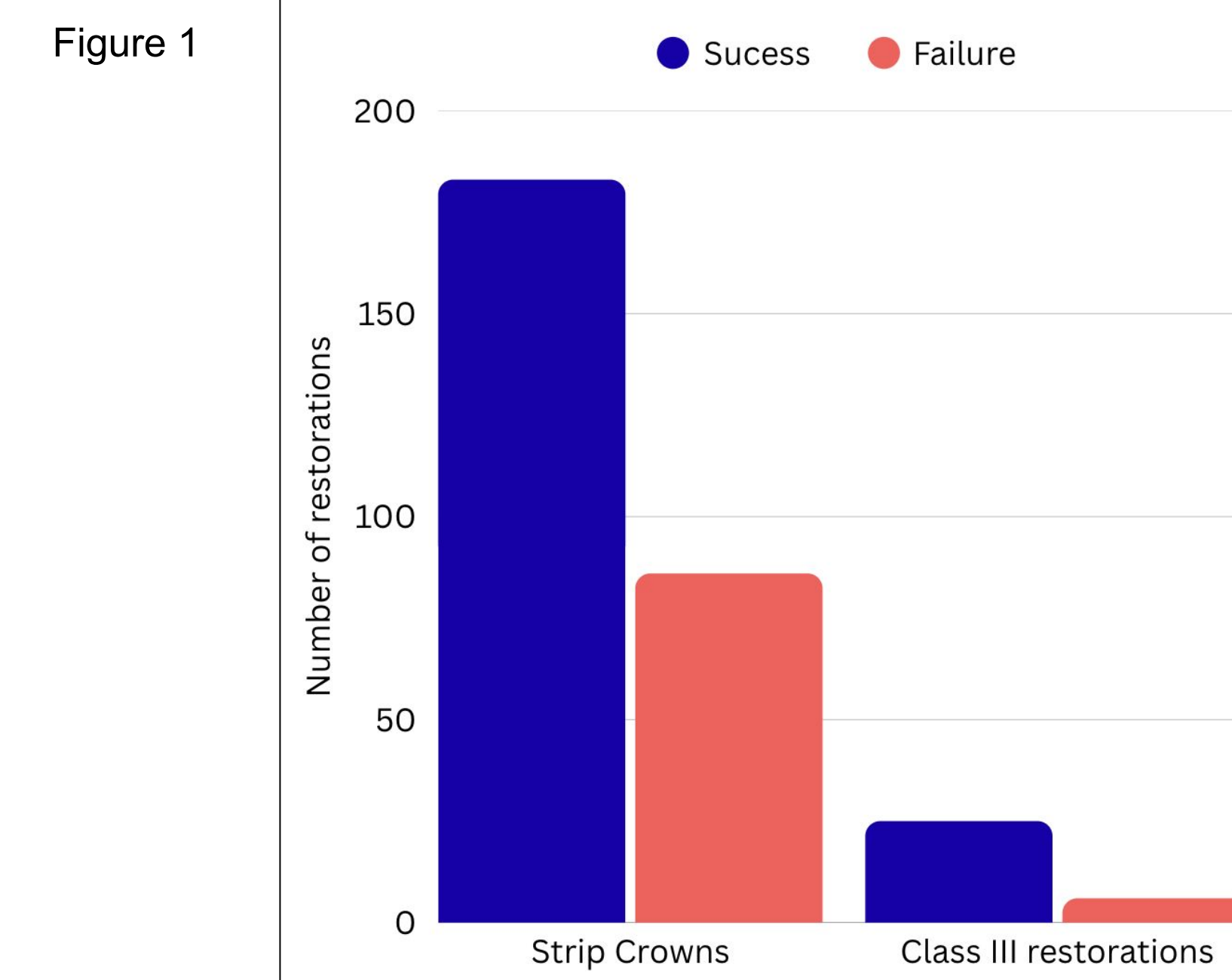
Data collection was achieved by reviewing records of pediatric patients who had undergone full mouth rehabilitation from July 2018 to July 2022 in the operating room in which strip crowns on anterior teeth and/or class III composites on incisors/canines were completed. Patients were followed up to 24 months post-operatively. Both radiographs and clinical notes were evaluated to determine if any class III or strip crowns had failed. Failure was defined as teeth that needed re-treatment or extraction due to recurrent caries, fracture, or periapical pathology.

Statistical Analysis

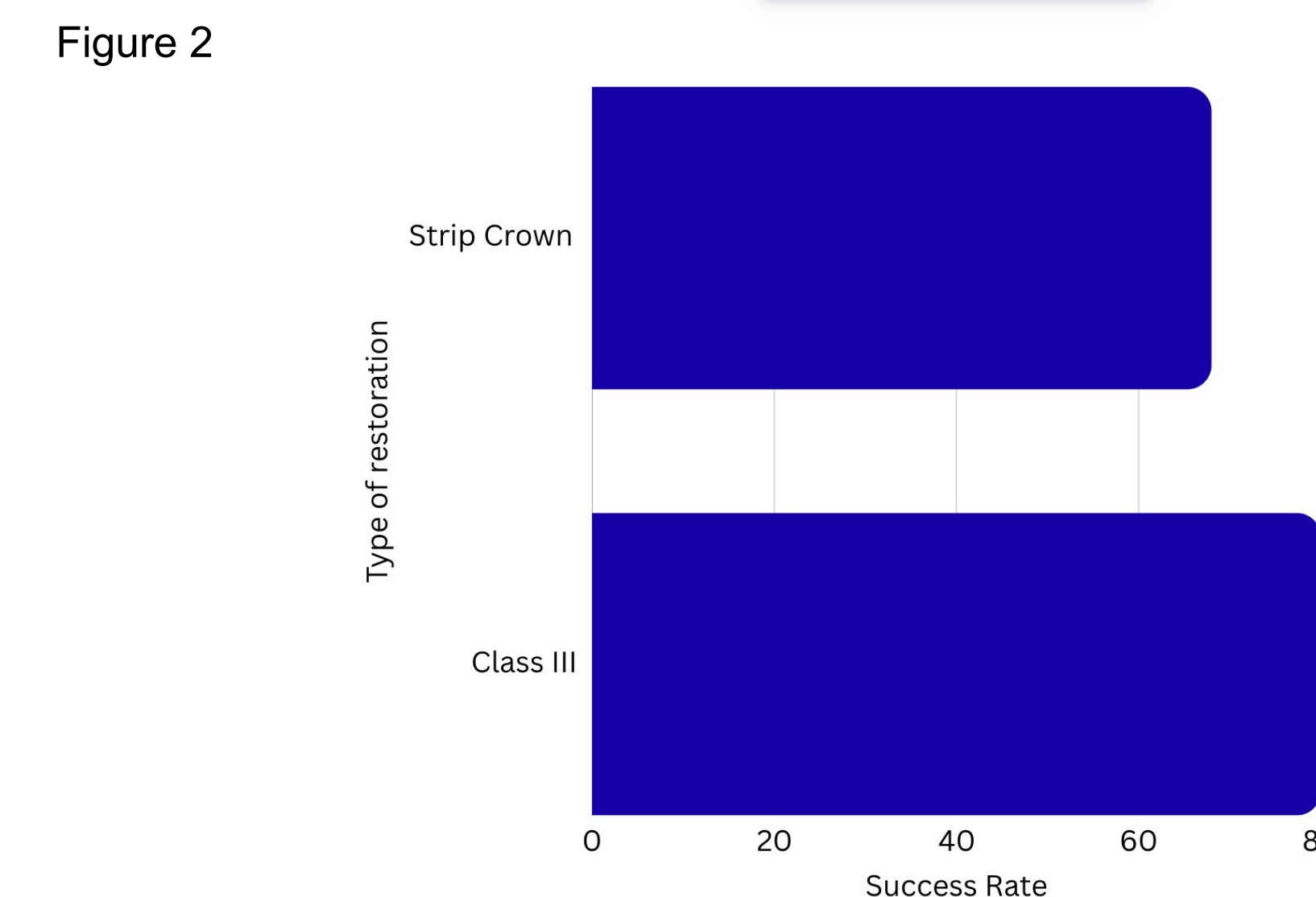
The data was then compared using a chi-squared test to determine if the difference in success rates was statistically significant.

Results

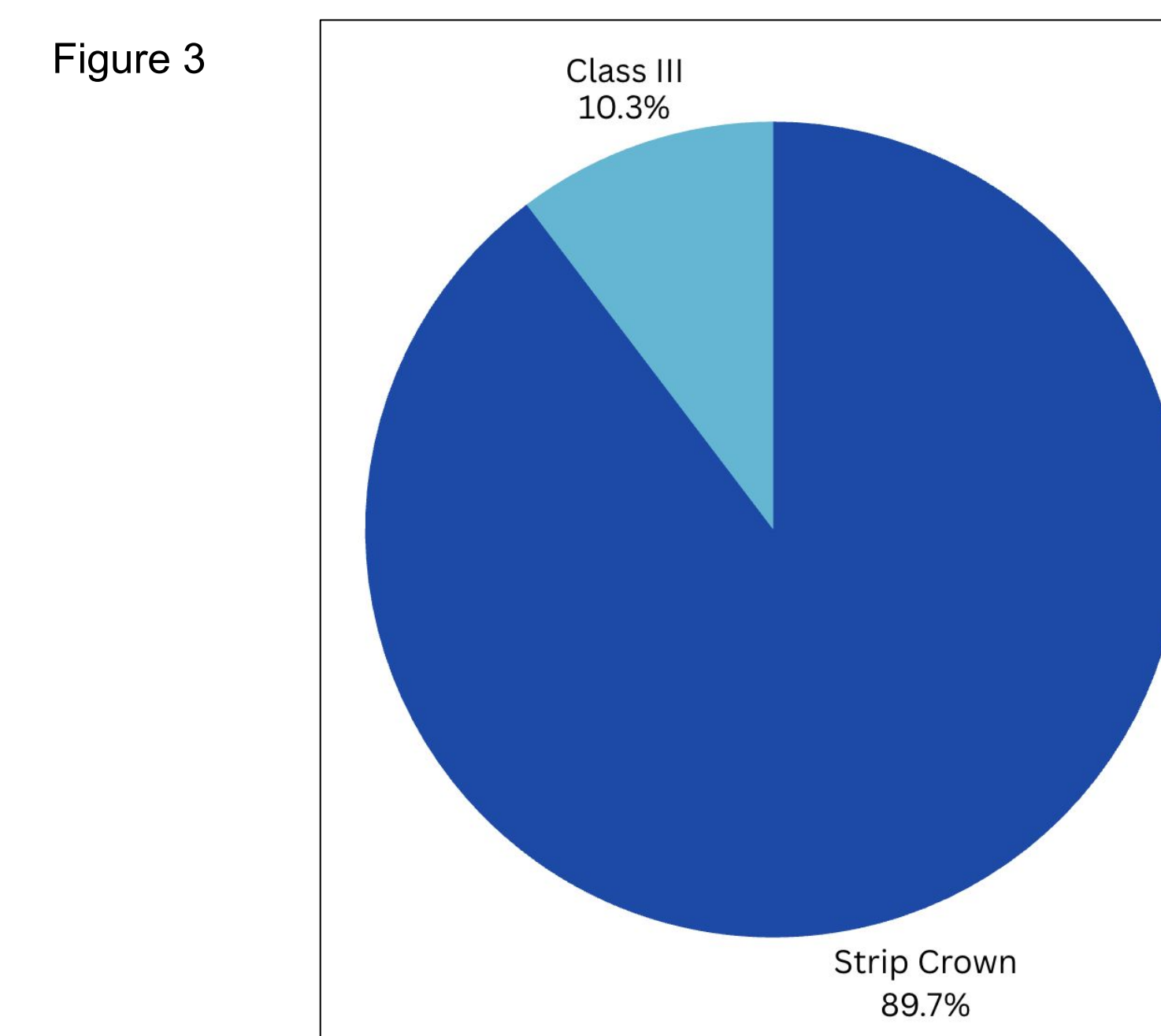
Success and failures of anterior restorations



Comparing Success Rates of Strip Crowns and Class III Restorations in Anterior Primary Teeth



Comparing the frequency of Strip Crowns and Class III restorations completed



Discussion

Of the 300 anterior restorations placed in the operating room over a span of 4 years, 269 strip crowns and 31 class III restorations were analyzed. For anterior interproximal decay, the restoration of choice is generally strip crowns due to increased bonded surface area of the restoration. The success rate of the strip crowns were found to be 68% while the success rate of class III restorations were found to be 80%.

This data was then analyzed using a chi-squared test. The p-value that was determined was 0.1492, meaning this difference was not statistically significant at $p < 0.05$. Thus, there is insufficient evidence that there is a difference between the two groups. This is due to the small sample size from the amount of class III restorations analyzed. Reasons that failures occurred could be due to patient compliance, diet, and hygiene instead of an operator/restoration issue.

Conclusion

Both class III composites and full strip crowns should be considered when treatment planning anterior restorations on primary teeth. With newer dental materials, class III restorations can also be successful. Parents/caregivers should be advised that the success of resin restorations is highly dependent on home care.

Study Limitations

This study had a limited number class III restorations analyzed. Another key limitation was due to a lack of adherence to scheduled follow up appointments due to the Covid-19 pandemic.

References

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