

ABSTRACT

Purpose: The purpose of this study was to survey the membership of the American Academy of Pediatric Dentistry (AAPD) to determine if usage of the Hall Technique has increased since the start of the COVID-19 pandemic.

Methods: A 12 item questionnaire about the usage of Hall Technique and respondents' demographics was sent to the AAPD membership.

Results: The total number of respondents was 361 (4.5%). Of the respondents, 346 (96%) were pediatric dentists, while 15 (4%) were general dentists. Two hundred forty-nine (69%) of the respondents have practiced dentistry for over 15 years and 112 (31%) have practiced for under 15 years. There was found to be a 12% increase in usage of Hall Technique since the pandemic. One hundred sixty-eight (47%) stated that they did not use the Hall Technique prior to the COVID-19 pandemic. Two hundred eleven (59%) reported that they have utilized the Hall Technique. Thirty-eight (11%) of the respondents who stated they were already using the Hall Technique prior to the pandemic are now using the technique at a higher frequency due to the COVID-19 pandemic. Fifty (15%) respondents indicated an increased use of Hall Technique due to limited access of operating rooms since the pandemic.

Conclusion: Due to the challenges the pandemic has brought upon delivery of health care, including limited access to operating room, adjustments have been made to halt progression of dental caries for pediatric patients. The use of Hall Technique has increased in usage since the COVID-19 pandemic.

BACKGROUND

The Hall Technique is a minimally invasive treatment for young pediatric patients with dental caries, which have increased significantly over the past decades. At the beginning of the procedure, space is created between the teeth with separators that are left in place for five days. Then, a stainless-steel crown is sized and placed over the carious tooth without drilling, caries removal or local anesthesia.

Dr. Norma Hall developed the technique in Scotland in the 1990s, and it was introduced into literature around 2006. Recently, it has started to gain favor within the United States. The technique is not best for all scenarios, but it has been found to be a line of treatment in certain situations. With the emergence of COVID-19 causing a potential decrease in operating room access and attempts to minimize aerosols, the Hall Technique may be a more useful tool to treat childhood dental caries.

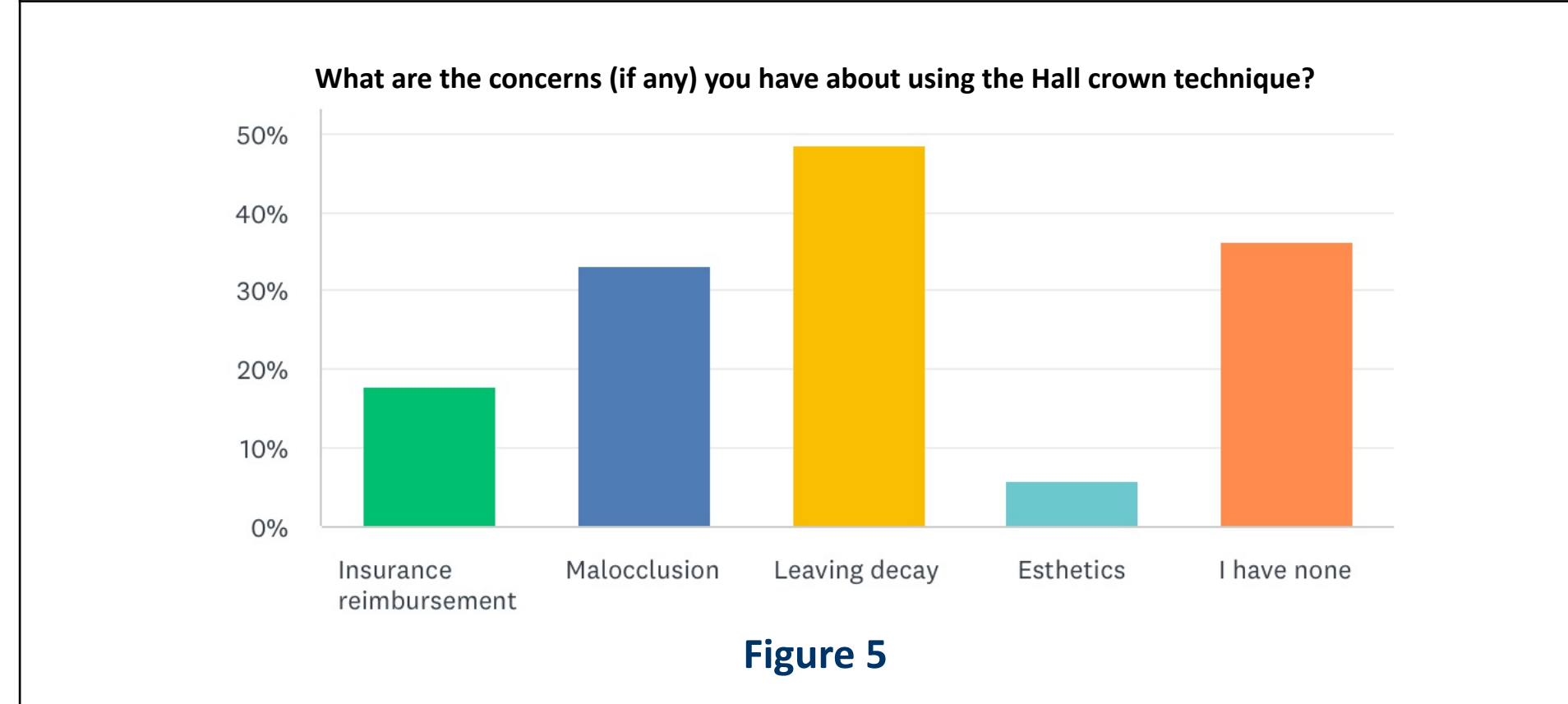
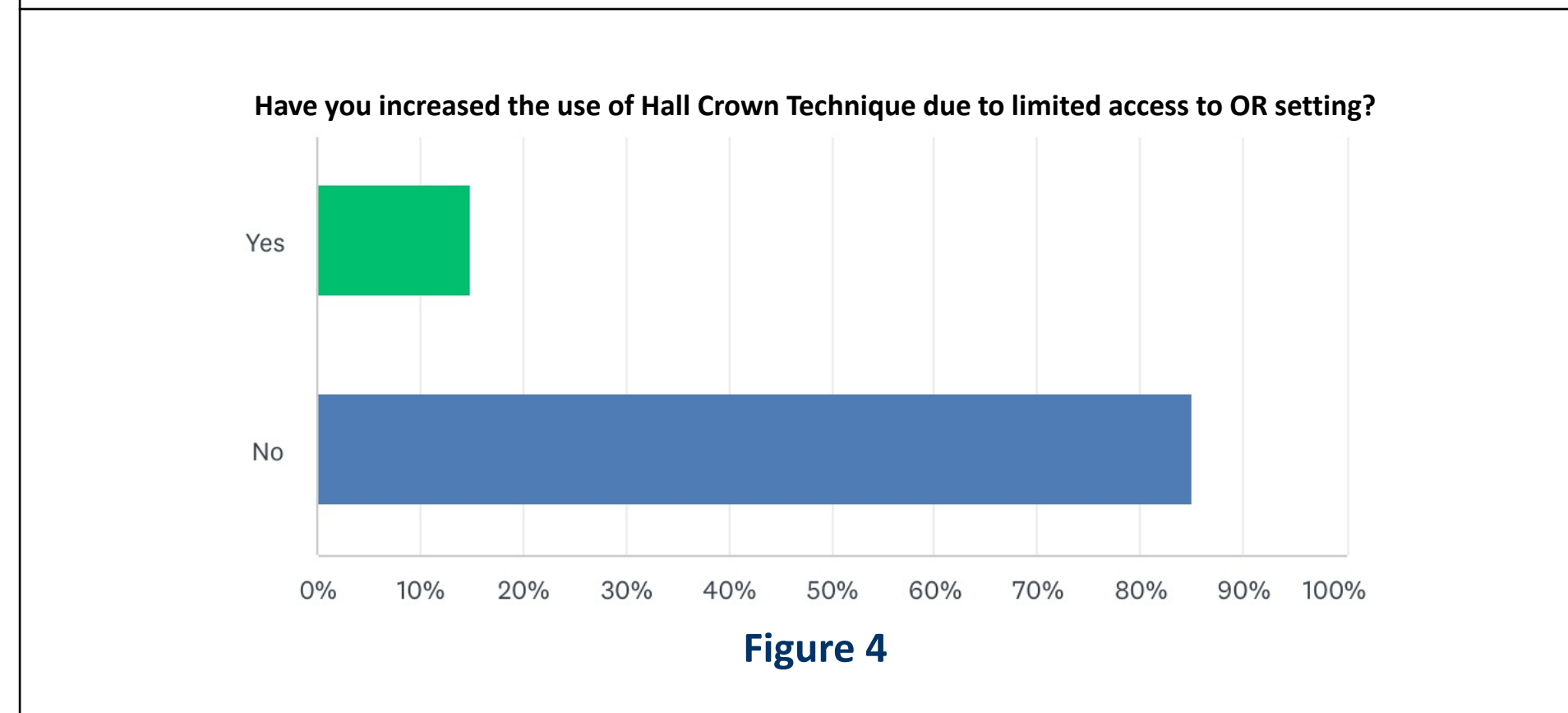
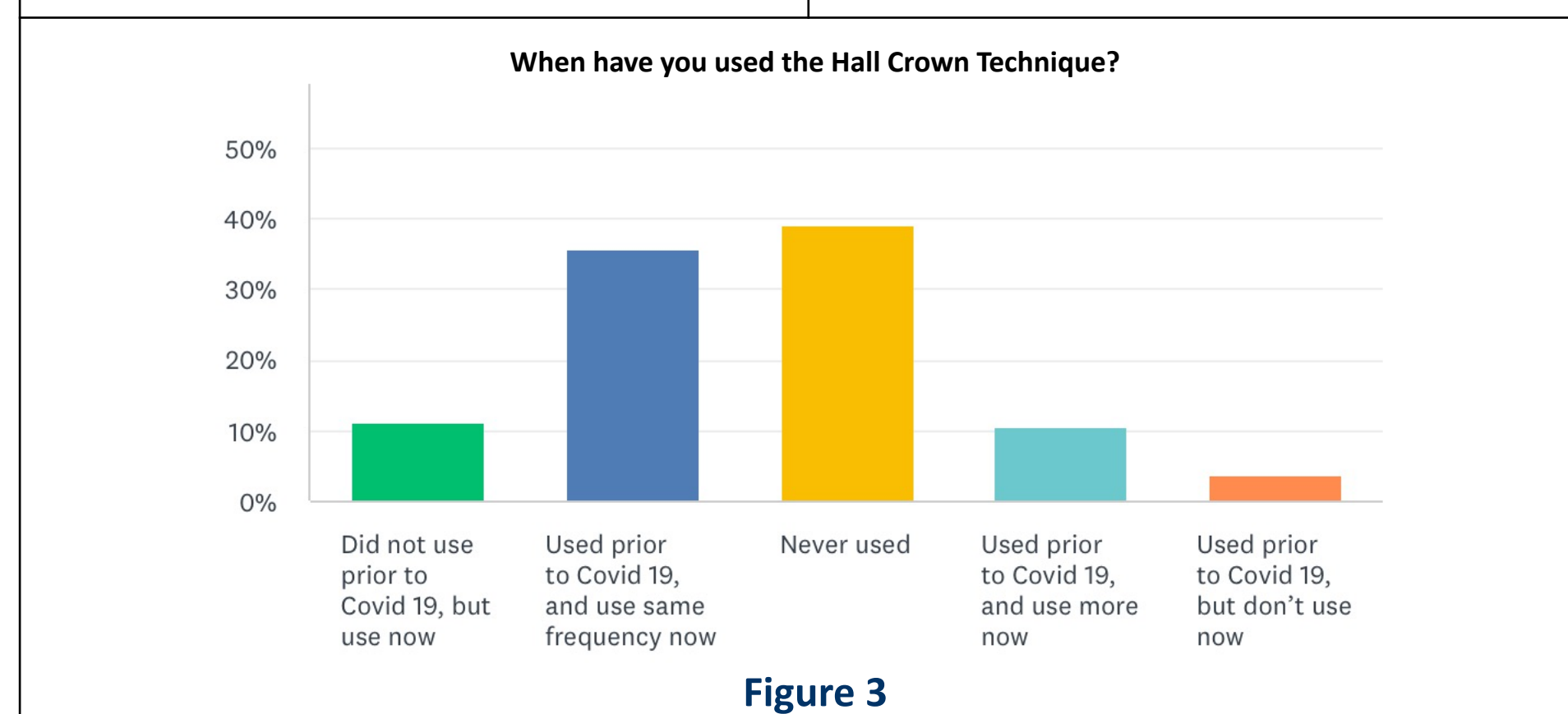
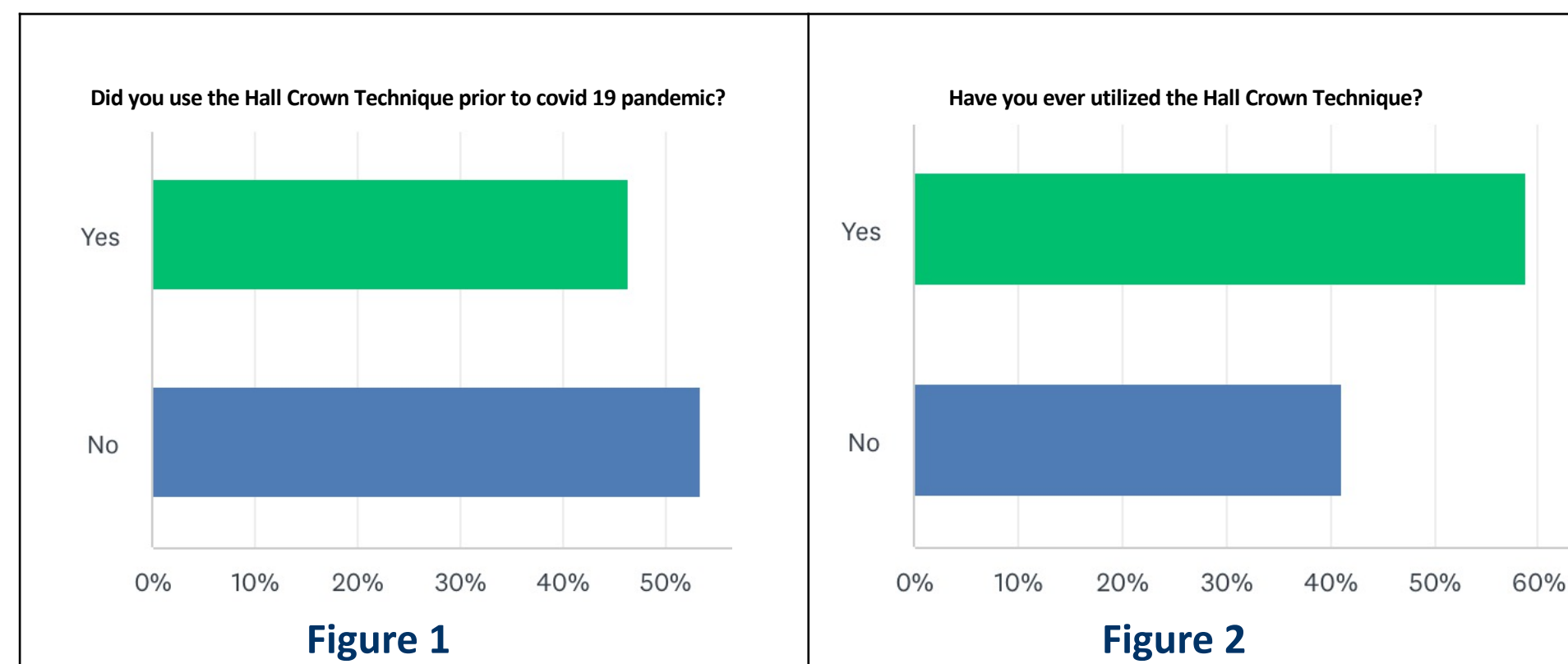
MATERIALS and METHODS

The survey was reviewed and approved by the Institutional Review Board at University of Texas Health Science Center San Antonio. The survey was developed using SurveyMonkey. There were twelve questions in the survey that addressed practitioner demographics, usage of Hall Technique prior to COVID-19 pandemic and now, and concerns of using the Hall Technique. AAPD (American Academy of Pediatric Dentistry) approved use of LISTSERV to distribute emails to its membership. Two rounds of emails were sent during August 2021-November 2021. Identity was protected and recipients were informed that survey participation was voluntary. A hyperlink to access the survey on SurveyMonkey was provided by email for easy access.

RESULTS

The total number of respondents was 362 (4.5%). Ninety-six percent of respondents were pediatric dentists, with 4% general dentists. Sixty-nine percent of respondents had practiced for over 15 years, while 31% had practiced under 15 years. Regional distribution of respondents (South, Midwest, Northeast, Southwest, Rocky Mountain, West Coast) was non-significant. Sixty-seven percent of respondents reported they acquired their knowledge of Hall Technique from continuing education, 21% from pediatric residency, 10% from private practice, and 2% from dental school. Forty-seven percent of respondents had used the Hall Technique prior to COVID-19 pandemic, while 53% had not (see Figure 1). During the pandemic, Hall Technique usage increased to 59%, while 41% stated that have not used the technique (see Figure 2), which is a 12% increase in usage since the start of the COVID-19 pandemic. This increase was also confirmed as 11% stated that they did not use the Hall Technique before the pandemic but use it now. Ten and a half percent of respondents also stated they used Hall Technique prior to the pandemic but have been using the technique at a higher frequency since the COVID-19 pandemic (see Figure 3).

RESULTS (cont.)



RESULTS (cont.)

Fifteen percent of respondents stated they increased use of Hall Technique due to limited access to operating rooms (see Figure 4). Fifty-five percent of the respondents who use the Hall Technique stated they mostly use the technique on four- to six-year-old patients, while 40% stated they use it mostly on the one- to three-year age group. Age limiting behavior (37.5%) was the main reason for Hall Technique use versus other options provided, such as lack of operating room access, parental preference to avoid sedation and/or general anesthesia, patient gag reflex, and medically compromised patients. Of those respondents who use the Hall Technique, 34.5% stated they place SDF (silver diamine fluoride) prior to cementation of stainless-steel crowns using the Hall Technique. Sixty percent of respondents had at least one concern about using the Hall Technique, while 40% stated no concerns. The highest reported concerns of using the Hall Technique were leaving decay at 166 responses. Malocclusion, lack of insurance reimbursement, and esthetics were other concerns reported (see Figure 5).

CONCLUSIONS

It was found that Hall Technique is used most often on four- to six-year-old patients. Main reason for use was due to age limiting behavior.

Sixty-six percent of respondents stated they do not place SDF prior to cementing with Hall Technique.

Practitioners' two main concerns for Hall Technique use are leaving decay and potential malocclusion.

Due to the challenges the pandemic has caused health care delivery, including limited access to operating rooms, adjustments have been made to halt progression of dental caries for pediatric patients.

The use of the Hall Technique has increased in usage since the COVID-19 pandemic.

REFERENCES

- Altoukhi D. H., & El-Housseiny A. A. (2020). Hall Technique for carious primary molars: A review of the literature. *Dent J (Basel)*. 8(1), 11. <https://doi.org/10.3390/dj8010011>
- Ayedun O. S., Oredugba F. A., & Sote E. O. (2020). Comparison of the treatment assessments of the conventional stainless-steel crown restorations and the Hall technique. *West Afr J Med*. 37(3), 253–59. PMID: 32476119.
- Casamassimo P. S., Townsend J. A., & Litch C. S. (2020). Pediatric dentistry during and after COVID-19. *Pediatr Dent*. 42(2), 87–90. PMID: 32276673.
- Elamin F., Abdelazeem N., Salah I., Mirghani Y., & Wong F. (2019). A randomized clinical trial comparing Hall vs conventional technique in placing preformed metal crowns from Sudan. *PLoS One*. 14(6). <https://doi.org/10.1371/journal.pone.0217740>
- Innes N. P., Evans D. J., Bonifacio C. C., Geneser M., Hesse D., Heimer M., Kanellis M., Machiulskiene V., Narbutaitė J., Olegário I. C., Owais A., Araujo M. P., Raggio D. P., Splieth C., van Amerongen E., Weber-Gasparoni K., & Santamaria R. M. (2017). The Hall technique 10 years on: Questions and answers. *Br Dent J*. 222(6), 478–83. <https://doi.org/10.1038/sj.bdj.2017.273>
- Innes N. P., Evans D. J., & Stirrups D. R. (2011). Sealing caries in primary molars: Randomized control trial, 5-year results. *J Dent Res*. 90(12), 1405–10. <https://doi.org/10.1177/0022034511422064>
- Ludwig K. H., Fontana M., Vinson L. A., Platt J. A., & Dean J. A. (2014). The success of stainless steel crowns placed with the Hall technique: a retrospective study. *J Am Dent Assoc*. 145(12), 1248–53. <https://doi.org/10.14219/jada.2014.89>
- Rosenblatt A. (2008). The Hall technique is an effective treatment option for carious primary molar teeth. *Evid Based Dent*. 9(2), 44–5. <https://doi.org/10.1038/sj.ebd.6400579>
- Van der Zee V., & Van Amerongen W. E. (2010). Short communication: Influence of preformed metal crowns (Hall technique) on the occlusal vertical dimension in the primary dentition. *Eur Arch Paediatr Dent*. 11(5), 225–7. <https://doi.org/10.1007/BF03262751>