Assessment of Laser Adoption in Pediatric Dentistry: A Survey of Practices and Procedures

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INTRODUCTION & BACKGROUND

Expanded use of lasers from frenectomies to cavity preparations, caries detection, and pulp therapy highlight their versatility and growing importance in pediatrics (Galui, 2019).

Laser-assisted procedures may also enhance diagnostic accuracy, precision, and patient comfort. Other advantages may include reduced bleeding, faster healing, and minimal scarring.

Despite these advantages, adoption of dental laser technology in the pediatric practice may be limited by its high cost, bulkiness, and other factors.

STUDY OBJECTIVE

To evaluate the prevalence of laser usage among pediatric dentists, identify the types of procedures performed with lasers, and assess the perceived impact on appointment duration and patient behavior.

METHODS

An 8 item survey (Fig. 1) was distributed to an email list of members of the American Academy of Pediatric Dentistry (AAPD). The survey assessed laser utilization, procedures performed with lasers, and perceived outcomes related to appointment efficiency and patient behavior. 1 reminder was sent.

Figure 1: Survey Items

1. How many years have you been practicing pediatric dentistry ?
   a. I am a Resident
   b. 0-9
   c. 10-19
   d. 20+
2. What type of setting are you practicing in? (Check all that apply)
   a. Academic Residency
   b. Hospital Based Residency
   c. Dental Support/Service Organization (DSO)
   d. Private Practice
   e. Faculty member at Dental School
   f. Faculty member at hospital
   g. None of the Above
3. Do you use Lasers in your practice/ residency? (Check all that apply)
   a. Yes, in Private Practice
   b. Yes, in Academic setting (Hospital)
   c. Yes, in Academic setting (University)
   d. Yes, in DSO
   e. No
4. Has the cost of laser technology deterred you from incorporating it into your practice?
   a. Yes
   b. No
   c. N/a
5. Which of the following do you use lasers for?
   a. Treatment of Soft Tissue
   b. Treatment of Hard Tissue
   c. Both
6. Has using lasers cut down your appointment times?
   a. Yes
   b. No
7. Has using lasers helped improve your patients' Frankl Scores?
   a. Yes
   b. No
8. Additional Comments:

RESULTS

8532 email invites were sent, with 784 being undeliverable/opted out/incomplete. Thus, a total of 264 surveys were received for a response rate of 3.0%.

Overall, 118 (45%) used lasers, 146 (55%) did not. 63 (24%) used for soft tissue, 4 (2%) for hard and 51 (19%) for both (Fig. 2). 79 (30%) said that lasers did not shorten appointments; 65 (25%) lasers did not improve Frankl scores.

For those in private practice, (n=164), 93 used lasers. There was no association between years in practice and laser use (X^2 = 2.78; p=.249) (Fig. 3). 18 of those who used lasers said that cost was a deterrent. Other comments included: maintenance costs, lack of training, steep learning curve, post-laser numbness.

Figure 2. Use Of Lasers

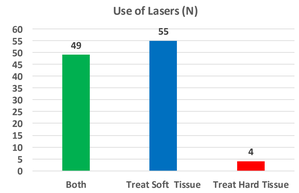
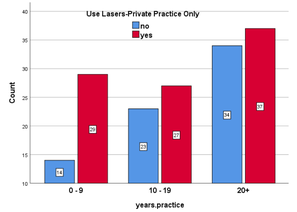


Figure 3. Usage by Years in Practice



DISCUSSION & CONCLUSION

Laser use in pediatric dentistry remains relatively limited.

These results indicate that lasers are most commonly used in private practice, primarily for soft tissue procedures.

The majority of practicing pediatric dentists/residents reported no reduction in appointment time or improvement in Frankl scores.

Additionally, many practitioners had concerns regarding the cost and maintenance of laser equipment, lack of available training or steep learning curve.

Due to the low response rate, these findings should be interpreted with caution. Further large-scale studies are warranted to more definitively assess the clinical and behavioral benefits of laser use in pediatric dentistry.

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