

## **A Survey to Assess Pediatric Dentists' Acquaintance with Detection and Effective Treatments of Periodontal Diseases in Children As Well As Adolescents**

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### **ABSTRACT**

**Background:** Acquainting pediatric dentists with the risk factors as well as signs for periodontal infections in children in addition to adolescents' diseases is indispensable for an efficacious initial detection as well as therapy.

**Objectives:** This investigation was formed to establish pediatric dentists' acquaintance with detection in addition to effective therapies of periodontal infections in children as well as adolescents.

**Methods:** A 21-item questionnaire was mailed or e-mailed to the 100 associates of the Pediatric Dentists followed by its distribution at the annual meeting. Reactions were analysed utilising the chi-square statistical technique.

**Results:** The majority of paediatric dentists who responded operated in private practice (73%) and conveyed evaluating patients' periodontal status every 6 months (98 %) utilising radiographs along with visual assessments, with 21% together with a periodontal probe in their examination kit. Periodontitis was identified once every few months in non-private practises, whereas gingivitis was diagnosed daily. The majority of paediatric dentists were aware of the risk factors linked to the occurrence of periodontal infections. For the therapy of aggressive periodontitis, about half of the paediatric dentists utilised oral hygiene instructions (OHI), scaling as well as root planning, as well as prophylaxis, while only 24% utilised an antibiotic regimen. Increased referral rates were linked to increased information of parameters for diagnosing periodontal disease. The majority of dentists were certain in diagnosing and evaluating give treatment toed periodontitis, but less so in therapy planning. Correct therapy choices were linked to confidence in therapy planning/therapy.

**Conclusions:** Most paediatric dentists regularly evaluated periodontitis apart from being acquaint with its risk factors, but they were less acquainted with and certain in its therapy and the usage of critical diagnostic tools.

**Keywords:** Pediatric dentistry; Case History; Periodontal disease; Detection; Therapy; Periodontal probe; Survey

## **INTRODUCTION**

Gingivitis, aggressive periodontitis, chronic periodontitis, as well as necrotizing periodontitis are just some of the periodontal infections that can affect children [1-4]. Alveolar bone loss, periodontal connective tissue attachment loss to cementum, along with apical migration of the junction epithelium (JE) ahead the cementum- enamel junction (CEJ) are all signs of periodontitis [5]. For an efficacious initial detection along with therapy, paediatric dentists must be acquaint by the risk factors as well as signs for each of these diseases. Periodontal disease has been recognised in children since long time, although it has not received the same attention as dental caries [4-10] due to its budding nature, painless progression, as well as slow progression [3]. Nevertheless, the incidence of chronic periodontal disease is advanced than previously thought. There are currently only guidelines for diagnosing as well as giving treatment against periodontal infections, most markedly those issued by the American Academy of Periodontology (AAP) along with the British Society of Periodontology (BSP) [2,5]. As a result, the goal of this trial was to assess the standard practises along with techniques utilised by paediatric dentists when diagnosing as well as give treatment to periodontal infections in children as well as adolescents.

## **MATERIALS AND METHODS**

The survey asked participants to answer 21 questions about their demographics, as well as information about periodontal disease detection as well as prevention, knowledge of disease detection as well as risk factors, referral patterns, as well as confidence levels in various detection as well as therapy approaches. The chi-square method was utilised to analyse the data. The trial looked into possible links between participants' knowledge, detection, therapy, in addition to referral forms, as well as their confidence levels. 100 questionnaires were reverted, representing a response rate of 71%. 86 percent of the dentists polled work in private practise, while 14 percent work in a non-private setting. In a typical day, the mainstream of dentists (88%) see 21 or more patients, while only 3% give treatment to 6-10 patients, 3% give treatment to 11-15 patients, in addition to 6% give treatment to 16-20 patients. A characteristic work week for 76 percent of respondents is 31-40 hours, 0-10 hours for 2%, 11-20 hours for 3%, 21-30 hours for 10%, and over 40 hours for 9%.

## **RESULTS**

According to the findings, 21% of paediatric dentists have a periodontal probe in their dental exam kit. They detect periodontal infections in children as well as adolescents aged 0 to 21 years old (>88 percent) utilising radiographic images and visual assessments. Every six months, 91% of paediatric dentists assess their patients' periodontal health and disease status. In 0-12 year olds, a periodontal probe is utilised 51% of the time for detection, in addition to 67 percent of the time in 13-21 year olds. The usage of a probe was found to be negatively associated with the reported incidence of periodontal disease in children aged 0 to 12 years old ( $p=0.0004$ ). The usage of a probe, on the other hand, was linked to a higher reported incidence of periodontal disease detection amongst 13-21 year olds ( $p=0.0044$ ).

Approximately 72 percent of dentists said they diagnose gingivitis one or more times a day. Furthermore, 22% said they diagnose a case a few times per week. Periodontitis, on the other hand, is less commonly diagnosed. Periodontitis was diagnosed in the 13-21 year old patients only once every few months. The normal distance between the CEJ and the bone crest is between 1-2 mm, according to 96 percent of surveyed paediatric dentists. The majority of paediatric dentists correctly identified the first molars (96 %) and incisors as the most vulnerable teeth to aggressive periodontitis (75 %). Nevertheless, 14 percent in addition to 21% of respondents, respectively, inaccurately identified canines along with second molars. For the therapy of aggressive periodontitis, paediatric dentists said they utilised prophylaxis (46 %), scaling as well as root planning (47 %), in addition to oral hygiene instructions (51 percent), besides 20 % said they utilised antibiotics. 90 % of the participants, on the other hand, said they had referred patients having aggressive periodontitis previously. In the previous six months, 46% of dentists said they had referred more than one case to a periodontist. According to the findings, most paediatric dentists are generally certain in accomplishing periodontal detection (74%) in addition to estimating to give treatment to ed cases (59%) but less certain in accomplishing non-surgical (52%), surgical (1%) therapies as well as therapy planning (30 %). Non-private practitioners were more certain than private practitioners in doing periodontal diagnoses ( $p=0.001$ ). Pediatric dentists who were more certain in therapy planning ( $p=0.0051$ ) and non-surgical periodontal therapy ( $p=0.0105$ ) also directed the accurate blend of periodontitis therapies. Subordinate levels of confidence in therapy planning ( $p=0.0006$ ) along with nonsurgical periodontal therapy ( $p=0.0001$ ) were linked to a stronger yearning to be present in a continuing education (CE) module on periodontal infections in children. 75 % of those who wanted to participate a CE module said "yes," 4 percent said "no," and the remaining 22 % were unsure.

**Table 1: NUMBER OF PATIENTS SEEN IN 1 DAY**

<b>NUMBER OF PATIENTS</b>	<b>PERCENTAGE</b>
<b>0-5</b>	<b>88%</b>
<b>6-10</b>	<b>3%</b>
<b>11-15</b>	<b>3%</b>
<b>16-20</b>	<b>6%</b>
<b>21+</b>	<b>0</b>

## **DISCUSSION**

The American Academy of Periodontology (AAP) mandated that all patients undergo a periodontal evaluation as part of their routine exam in 2003 [2]. In addition, our findings show that patients aged 13-21 are more likely to be identified with gingivitis and periodontitis than those aged 0-12. Puberty has been linked to an increase in inflammation and gingivitis [8-16]. As a result, the higher frequency of periodontitis detection in older children conveyed by paediatric dentists in the current trial could be explained. Radiographic analysis, visual assessments, as well as pocket depth measurements utilising a periodontal probe are among the methods utilised to ascertain the severity of periodontal disease [5].

The American Academy of Periodontology (AAP) has endorsed the Periodontal Screening and Recording (PSR) system, which offers initial disease detection, including comprehensive

estimation of entire sites of periodontal disease risk, streamlines record keeping, inducing time-effective screenings, encouragements in patient education, besides it is also a motivational means. It also doesn't require any expensive equipment and improves patient comfort. The PSR method relies heavily on probing depth measurements [8]. In this trial, more than 88 % of paediatric dentists said they usage radiographs along with visual assessment to diagnose their patients. Despite the fact that the majority of dentists inspected here said they utilised a periodontal probe for the detection of periodontal disease in their patients, only 21% said they have one in their examination kit. Interestingly, the usage of a probe was associated negatively with identifying periodontal infection in younger children/adolescents (ages 0-12), possibly for the reason that these children are less likely to be altered by the disease. Nevertheless, with the intention of avert advanced chronic disease far ahead in life, it is still necessary to accurately scrutinize children for periodontal disease. The usage of a probe, for example, was positively correlated with the detection of periodontal disease in older adolescents/young adults amid the age group of 13-21. As a result, utilising a periodontal probe to determine and/or confirm periodontal detection is beneficial for the reason that it permits for precise measurements of pocket depth, bleeding, along with attachment levels [8]. Under usage of suitable periodontal detection tools all through examinations may result in a lower rate of initial detection of periodontal disease in the younger population, contributing to a higher incidence of periodontal disease in the adult population. In practice, according to a current report, the adult incidence of periodontitis in the United States is an frightening 47% [9], so prevention at an initial stage is critical. Therapy of periodontitis in primary teeth has been shown to be very efficacious [7], apart from that it can also alter the periodontal status of the permanent dentition [10-15], so it is critical to detect as well as give treatment to periodontitis in earlier stages. Therapy of periodontitis in primary teeth, for example, resulted in alveolar bone regeneration along with permanent teeth having a healthy periodontium [16].

Collectively, these trials show that give treatment this disease initial in life in the primary dentition may be advantageous ahead in life. In fact, our findings show that roughly half of the dentists surveyed give therapy toed their aggressive periodontitis patients utilising prophylaxis, scaling as well as root planning, as well as OHI. Surprisingly, about a quarter of respondents said they prescribed an antibiotic regime as part of their therapy plan for this disease. When equated to mechanical therapy unaided, evidence has constantly exhibited that aggressive periodontitis patients profit from a systemic antibiotic regime in conjunction with scaling as well as root planning [7,17-21]. Most dentists, on the other hand, said they referred their patients to a specialist for therapy of this condition. The risk factors for periodontal infections have been thoroughly researched. Lifestyle choices, common diseases like diabetes, low calcium along with vitamin D levels, genetic factors, ethnicity, as well as educational level are all risk factors [22]. Family history is important, especially when it comes to initial detection in children whose parents have a antiquity of periodontal disease. Pediatric dentists should also be cognizant of which teeth are particularly vulnerable to each type of periodontitis. First molars and incisors, for example, are more susceptible to disease in LAgP, whereas the entire dentition is correspondingly vulnerable to generalised chronic as well as aggressive forms [16-22]. The teeth that are commonly affected by localised aggressive periodontitis were correctly identified by respondents in the current trial. In terms

of confidence, many dentists felt certain in identifying diagnoses in addition to evaluating previously give treatment toed cases. As a result of referring patients, many paediatric dentists were less certain in therapy planning and accomplishing non-surgical or surgical periodontal therapy. Those who were most certain in therapy planning as well as non-surgical periodontal therapy, on the other hand, appropriately identified as the most effecacious therapy regimen for patients with periodontal disease; those who were less certain in therapy planning as well as non-surgical therapy were more inclined in participating in a CE module on periodontal disease in children as well as adolescents.

As a result, paediatric dentists should receive more training and awareness in the proper detection as well as therapy of periodontal disease in children as well as adolescents.

## CONCLUSION

Although paediatric dentists have a good understanding of periodontal disease risk factors as well as detection in children as well as adolescents, only a small percentage of them have a periodontal probe in their examination kit. Furthermore, while paediatric dentists have high confidence in diagnosing periodontal disease, they are much less assured to give treatment. Pediatric dentists need to be better educated and aware of how to diagnose and give treatment to periodontal disease in children as well as adolescents.

## REFERENCES

1. Califano JV, Research, Science and Therapy Committee American Academy of Periodontology (2003) Position paper: periodontal infections of children as well as adolescents. *J Periodontol* 74: 1696-704.
2. Greenwell H; Committee on Research, Science and Therapy. American Academy of Periodontology (2001) Position paper: Guidelines for periodontal therapy. *J Periodontol* 72: 1624-8.
3. Coventry J, Griffiths G, Scully C, Tonetti M (2000) ABC of oral health: periodontal disease. *BMJ*. 321: 36-39.
4. Armitage GC (1999) Development of a classification system for periodontal infections and conditions. *Ann Periodontol* 4:1-6.
5. Clerehugh V, Kindelan S (2012) Guidelines for periodontal screening and Management of children as well as adolescents under 18 years of age.
6. Oh TJ, Eber R, Wang HL (2002) Periodontal infections in the child and adolescent. *J Clin Periodontol* 29: 400-410.
7. Merchant SN, Vovk A, Kalash D, Hovencamp N, Aukhil I, et al. (2014) Localized aggressive periodontitis therapy response in primary and permanent dentitions. *J Periodontol* 85: 1722-1729.
8. Piazzini LF (1994) Periodontal screening & recording (PSR) application in children and adolescent. *J Clin Pediatr Dent* 18:165-171.
9. Eke PI, Dye BA, Wei L, Slade GD, Thornton-Evans GO, et al. (2013) Self-reported measures for surveillance of periodontitis. *J Dent Res* 92: 1041-1047.
10. Albandar JM, Tinoco EM (2002) Global epidemiology of periodontal infections in children and young persons. *Periodontol* 2000 29: 153- 176.

11. Cappelli DP, Ebersole JL, Kornman KS (1994) Initial-onset periodontitis in Hispanic-American adolescents associated with *A. actinomycetemcomitans*. *Community Dent Oral Epidemiol* 22: 116-21.
12. Sheiham A (1969) The incidence and severity of periodontal disease in Surrey schoolchildren. *Dent Pract Dent Rec* 19: 232-238.
13. Susin C, Haas AN, Albandar JM (2014) Epidemiology and demographics of aggressive periodontitis. *Periodontol* 2000 65: 27- 45.
14. Loe H, Brown LJ (1991) Initial onset periodontitis in the United States of America. *Journal of Periodontology* 62: 608-616.
15. Sjödin B, Matsson L, Unell L, Egelberg J (1993) Marginal bone loss in the primary dentition of patients with juvenile periodontitis. *J Clin Periodontol* 20: 32-36.
16. Bimstein E, Ram D, Irshied J, Naor R, Sela MN (2002) Periodontal infections, caries, and microbial composition of the subgingival plaque in children: a longitudinal trial. *ASDC J Dent Child* 69: 133-137.
17. Haffajee AD, Socransky SS, Gunsolley JC (2003) Systemic anti- infective periodontal therapy. A systematic review. *Ann Periodontol* 8: 115-81.
18. Walker C, Karpinia K (2002) Rationale for usage of antibiotics in periodontics. *J Periodontol* 73: 1188-96.
19. Beliveau D, Magnusson I, Bidwell JA, Zapert EF, Aukhil I, et al. (2012) Benefits of initial systemic antibiotics in localized aggressive periodontitis: a retrospective trial. *J Clin Periodontol* 39: 1075-1081.
20. Guerrero A, Griffiths GS, Nibali L, Suvan J, Moles DR, et al. (2005) Adjunctive benefits of systemic amoxicillin and metronidazole in non-surgical therapy of generalized aggressive periodontitis: a randomized placebo-controlled clinical trial. *J Clin Periodontol* 32: 1096-107.
21. American Academy of Periodontology--Research Si, and Therapy Committee, Dentistry AAoP (2005) Therapy of plaque-induced gingivitis, chronic periodontitis, and other clinical conditions. *Pediatr Dent* 27: 202-211.
22. Genco RJ, Borgnakke WS (2013) Risk factors for periodontal disease. *Periodontol* 2000. 62: 59-94.
23. Kumar, S. (2022). Strategic management of carbon footprint using carbon collectible non-fungible tokens (NFTS) on blockchain. *Academy of Strategic Management Journal*, 21(S3), 1-10
24. Kumar, S. (2021). Review of geothermal energy as an alternate energy source for Bitcoin mining. *Journal of Economics and Economic Education Research*, 23(1), 1-12
25. Roy, V., Shukla, P. K., Gupta, A. K., Goel, V., Shukla, P. K., & Shukla, S. (2021). Taxonomy on EEG Artifacts Removal Methods, Issues, and Healthcare Applications. *Journal of Organizational and End User Computing (JOEUC)*, 33(1), 19-46. <http://doi.org/10.4018/JOEUC.2021010102>
26. Shukla Prashant Kumar, Sandhu Jasminder Kaur, Ahirwar Anamika, Ghai Deepika, Maheshwary Priti, Shukla Piyush Kumar (2021). Multiobjective Genetic Algorithm and Convolutional Neural Network Based COVID-19 Identification in Chest X-Ray Images, *Mathematical Problems in Engineering*, vol. 2021, Article ID 7804540, 9 pages. <https://doi.org/10.1155/2021/7804540>