Age And Reason for the First Dental Visit of Children in Chennai City- A Survey

Preetha Parthasarathy¹ and Mebin George Mathew²

¹Saveetha Dental College and Hospitals Saveetha Institute of Medical and Technical Sciences (SIMATS) Saveetha University, Chennai, India

²Senior lecturer, Department of Pediatric and Preventive Dentistry, Saveetha Dental Colleges and Hospitals, Saveetha Institute of Medical and Technical Science (SIMATS), Saveetha university, Chennai-600077, India

ABSTRACT

According to The American Academy of Paediatrics and the American Academy of Paediatric Dentistry, a child's first dental visit should be during the child's first year of life for prevention of dental disease and to decrease the invasive restorative interventions. Hence, this study aims to evaluate the age and reason for the first dental visit of a child. A total of 100 children were examined in a cross-sectional study for the age of the child and the reason for their first visit to a dental clinic. A questionnaire was applied to the parents. From the study, it is observed that most of the first dental visit of a child is due to pain-which is 67%. Regarding the age of the first visit, about 58% of the participants responded that they had a consultation done for their child at age of 2-4 years. Only 51% of parents consider primary teeth important for the eruption of secondary dentition. Thus, from the present study, it is evident that most of the child's first dental visit is due to pain from caries progression and the age at which they visit revolves around 2-5 years of age. Awareness of parents regarding dental check ups and treatment remains low.

KEY WORDS: AGE, CARIES, EARLY CHILDHOOD CARIES, FLUORIDE, PAIN.

INTRODUCTION

The age at which children receive their first dental care is of at most importance and the reason for the visit varies greatly and also might depend on many factors, like socio economic status, Locality, level of education, etc (Mathew et al., 2020; Mathew, Roopa and Soni, 2020; Mathew, Soni and Khan, 2020). The major academies of dentistry have stated the recommended age for a child's first dental visit. For years, the recommended age was

around one year of age but it has been altered recently to a more general timeframe: the period between 6 months of age and the eruption of the first tooth (Ravikumar and Gurunathan, 2016).

To children, the first experiences will always be reference to the following and, for this reason, the first dental experience should be driven as comfortably as possible to avoid any chances of psychological traumas, leading to difficulties during treatment ((Mathew, 2020a, 2020b)). Thus, the first dental visit should be part of a general health program, providing preventive information and orientation to the parents as early as possible to improve their lifelong oral health, also the choice of dentist's attire influences a child's view of the dentist (Ravikumar and Gurunathan, 2016).

Early childhood caries is the most common health status of a child (Braun et al., 2017) Early childhood caries (ECC) is the terminology that is used to describe any

ARTICLE INFORMATION

*Corresponding Author: mebingeorgem.sdc@saveetha.com
Received 27th July 2020 Accepted after revision 20th Sep 2020
Print ISSN: 0974-6455 Online ISSN: 2321-4007 CODEN: BBRCBA

Thomson Reuters ISI Web of Science Clarivate Analytics USA and Crossref Indexed Journal

NAAS Journal Score 2020 (4.31) SJIF: 2020 (7.728)
A Society of Science and Nature Publication,
Bhopal India 2020. All rights reserved.
Online Contents Available at: <http://www.bbrc.in/>
Doi: <http://dx.doi.org/10.21786/bbrc/13.8/158>

presence of decayed, missing or restored teeth in the primary dentition of children younger than six years old. It is considered one of the most prevalent diseases in childhood, affecting 50 to 90% of children globally (Mathew, 2020a). Early childhood caries are associated with pain and tooth loss as well as impaired growth, decreased weight and negative effects on speech (Khani-Varzegani et al., 2017).

Though fluoridated toothpaste and the use of fluoride in various forms are effective in caries prevention, ECC is still prevalent among children in public in both developing and developed countries. Untreated decayed teeth can cause disturbed sleep, difficulties in eating and a child's overall growth and development (Duangthip et al., 2017). Early childhood caries can be associated with lot of risk factors which include high levels of bacterial colonisation, frequent intake of dietary sugar and carbohydrate, inappropriate bottle feeding, low saliva flow rates, developmental defects of tooth enamel, previous caries, lack of access to dental care, low community water fluoride levels, in-adequate tooth brushing or use of fluoride-containing toothpastes, lack of parental knowledge regarding oral health, and maternal risk factors (Kilinc, Uzuner and Karaman, 2016).

The International Federation of Dentistry (FDI) reported that ECC is one of the main reasons for school absence in several countries. It can progress rapidly, resulting in pain and infection and affecting a child's oral health related quality of life (Grzesiak-Gasek and Kaczmarek, 2016). The American dental association recommends that to avoid oral cavity diseases, individuals should floss and brush at least for once in a day and also to visit the dentist regularly (Narayanan, 2017) According to WHO, a dental health program should include dental education in conjunction with other activities related to prevention, restoration and emergency attention (Cadavid, Lince and Jaramillo, 2010). Although at present there is an increase in the knowledge of dental caries, regarding both its causes and prevention, the implementation of preventive measures regarding the same has not raised significantly. Therefore, in most cases, a child's first visit with the dentist takes place only if tooth decay has been noticed.

The primary goals for recommending early visits to a dentist is to prevent early childhood caries (ECC) and to detect and arrest the progression of any incipient carious lesion. Other goals such as educating parents about proper oral hygiene for infants and toddlers, the use of fluoride, oral habits, teething management, can also be done to maintain a proper oral hygiene of the child (Cui et al., 2016). Our department is passionate about child care, we have published numerous high quality articles in this domain over the past 3 years (Govindaraju, Jeevanandan and Subramanian, 2017a, 2017b; Panchal, Gurunathan and Shanmugaavel, 2017; Ravikumar, Jeevanandan and Subramanian, 2017; Jeevanandan and Govindaraju, 2018; Nair et al., 2018; Ravikumar et al., 2018, 2019; Ravindra et al., 2018,

2019; Subramanyam et al., 2018; Vishnu Prasad et al., 2018; Jeevanandan, Ganesh and Arthilakshmi, 2019; Ramadurai et al., 2019; Ramakrishnan, Dhanalakshmi and Subramanian, 2019; Veerale Panchal, Jeevanandan and Subramanian, 2019; Vignesh et al., 2019; V. Panchal, Jeevanandan and Subramanian, 2019; Samuel, Acharya and Rao, 2020). With this inspiration we planned to pursue research on age and reason for the first dental visit of children in Chennai city. Thus, the aim of this paper was to determine the reason and age of the patient during the first dental visit and also to determine the risk factors associated with it.

Table 1. Table showing the Questionnaire which was distributed to the respondents.

QUESTIONNAIRE

1. REASON FOR THE VISIT

- 1) Due to pain (Y/N)
- 2) For check up only (Y/N)
- 3) Orthodontic purpose (Y/N)
- 4) Dental trauma (Y/N)

HABITS AND ROUTINE

2. Oral hygiene habits-

- i) Brushes once a day
- ii) Brushes twice a day
3. Eating habits-
- 5) High carbohydrate contents
- 6) High calorie contents
- 7) Balanced diet

4. AGE OF THE PATIENT

- i) 6months-2years
- ii) 2-4years
- iii) 4-7years

5. How important is the primary tooth according to you?

- i) 25%
- ii) 50%
- iii) 75%
- iv) 100%

6. Are you aware of space maintainers in case of early shedding of teeth?

- i) Yes
- ii) No

7. Are you aware about myofunctional appliance

- i) Yes
- ii) No

MATERIAL AND METHODS

The study was initiated after obtaining ethical approval from the institutional ethical committee. A total of 100 children living in the urban area of Chennai, Tamilnadu, were examined in a cross-sectional study for the age of the child and the reason for their first visit to a dental clinic. A questionnaire was given to the parents or legal

guardians of the children to determine the variables related to oral hygiene, eating habits, level of motivation for first dental appointment and systemic medication. The questions listed was about the health, eating habits, oral hygiene of the child and awareness of parents regarding dental procedures and dental dental treatment.

Data analysis: The collected data was tabulated in Excel sheet and were imported into SPSS software version 23. Chi square test was done. The level of significance was set at 0.05.

Figure 1: Pie chart showing the reason for the first dental visit of children. It is observed that the majority of the patients have visited due to pain (gold) followed by check up (blue) and orthodontic purpose (green).

Figure 2: Pie chart showing oral hygiene habits of the patients. It is observed that the majority of the patients brush only once a day (blue).

RESULT AND DISCUSSION

From the study, it is evident that most of the first dental visit of a child is due to pain-which is 67%. There were only a few participants who stated other reasons such as for check up - 17% and for orthodontic correction of dentition-10% and for regular dental check up -6% (Figure 1). About 84% of the participants responded that their children brush once in a day (Figure 2). Regarding the dietary habits of the child, most children fall into the category of high calorie intake (53%) (Figure 3). Regarding the age of the first visit, about 58% of the participants responded that they had a consultation done for their child at age (range) of 2-4years (Figure 4). Only 51% of the parents consider primary teeth as hundred percent important for the eruption of secondary dentition

(Figure 5). Regarding the awareness on space maintainer (Figure 6) and myofunctional appliance (Figure 7) was little on the lower side. Association between age of first visit and reason of visit showed that patients at age group 2-4years had visited for trauma management (6%), for pain (45%) and for regular dental check up (7%) for which the P value was found to be statistically significant ($p=0.000$) (Figure 8).

Figure 3: Pie Chart showing the eating pattern of the patients. It is observed that the majority of the patients have a high calorie diet (green) followed by a high carbohydrate diet (gold) and healthy diet (blue).

Figure 4: Pie chart showing the age of first visit of the patient. It is observed that the majority of the patients have visited at 2-4 years (blue) followed by 4-7years (green) and 6months-2years (gold).

Figure 5: Pie chart showing awareness on the importance of primary teeth among parents. It is observed that only half of the total sample (blue) considers primary tooth to be 100% important.

Figure 6: Pie Chart showing awareness on space maintainer among parents. It is observed that the majority of the parents are unaware of it (blue).

Figure 7: Pie Chart showing awareness on myofunctional appliance among parents. It is observed that the majority of the parents are unaware of it (blue).

Figure 8: Bar graph showing association between age of first visit of the patients and reason of the visit. The X axis shows age of the visit and Y axis shows number of patients with different chief complaints. It is observed that patients at the age group 2-4 years had visited for pain (gold), trauma (purple) and check up (blue) and patients at age 4-7 years visited for orthodontic treatment also (green). This association was found to be statistically significant ($p=0.000$).

From the present study, it is observed that most of the first dental visit of a child is due to pain-which is 67%. Regarding the age of the first visit, about 58% of the participants responded that they had a consultation

done for their child at age of 2-4 years. Regarding the awareness of myofunctional appliance and space maintainer was little on the lower side. About 84% of the participants responded that their children brush once a day. Only 51% of parents consider primary teeth important for the eruption of secondary dentition.

In the study conducted by Heather Beil, et al, North Carolina Medicaid sample, children who had a dental visit by age 24 months had similar numbers of teeth affected with dental caries at the time they were examined in kindergarten as children who had a visit at age 24 to 36 months, but higher rates of disease than those who had a visit at age 37 to 60 months. However, children who had a visit with 2 or more treatments before 24 months had the same rate of disease as children who had visits with 2 or more treatments at older ages (Beil et al., 2012). In the study by Fatemeh Khani-Varzegani et al, only 15.2% of preschool children had decay free teeth, that is 17.2% boys and 13.1% girls. The study conducted by Lahore et al, showed a 33.3% prevalence of caries in 3 years children, 47.6 and 75% in 4 and 5-year-olds (Khani-Varzegani et al., 2017).

In the study by Ebtissam et al, Most of the children in the current study visited dental clinics for the first time between the ages of 3 and 5 years. (Murshid, 2016). In the study conducted by Leili Shafie et al showed that the majority of children (65.6%) had pain following pulpotomy and SSC placement irrespective of the pulpotomy agent used (Shafie, Barghi and Parirokh, 2017). Luzzi et al. reported that 56.4% of the children who received pulpotomy with formocresol and SSC reported pain following the treatment that is comparable with the results of the present study indicating 65.6% post-treatment pain following the same procedure (Luzzi et al., 2017). In the study conducted by Volpato et al, the search for caries/treatment also increased with age, responding for 0% at ages 0-6 and 7-12 and increasing until reached 48.3% of the reasons why parents of infants aged 31 to 36 months seek dental attendance (Volpato, Palti and de Oliveira Lima, 2013)

In the study, conducted by Dülgergil et al, ECC was identified among 38 children representing 27.7% of the sample. The most common type of ECC was pre-cavitated caries which affected 22 children (16.1%), followed by cavitated caries which affected 15 children (10.9%) (Dülgergil et al., 2013). In the study conducted by Alexandra Saldarriaga Cadavid et al, The results revealed severe early childhood caries at the d2d3 level in 332 (74.3%) children, and at the d5d6 level in 88 (19.7%) children. Only a quarter of the children were dental caries-free (Cadavid, Lince and Jaramillo, 2010). In the study conducted by Fan C et al, more than 70 % of the ECC children in this study had dental visit history. The results of the study suggest that most children visit a dentist only after caries were developed (Fan et al., 2016). In the present study, insufficient percentages of parents sought initial dental care for their children for preventive reasons, such as check-up. These results demonstrate a clear lack of dental knowledge and unawareness of

the significance of primary dentition among parents of the study participants. Thus, the awareness regarding a child's first dental visit and the importance of primary teeth must be enhanced among parents.

CONCLUSION

Thus, from the present study, it is evident that most of the child's first dental visit is due to pain from caries progression and the age at which they visit revolves around 2-5 years of age. Awareness and knowledge of parents regarding dental check ups and treatment remains low.

REFERENCES

- Beil, H. et al. (2012) 'Effect of early preventive dental visits on subsequent dental treatment and expenditures', Medical care. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3419323/>.
- Braun, P. A. et al. (2017) 'Effectiveness on Early Childhood Caries of an Oral Health Promotion Program for Medical Providers', American journal of public health. American Public Health Association, 107(S1), pp. S97-S103.
- Cadavid, A. S., Lince, C. M. A. and Jaramillo, M. C. (2010) 'Dental caries in the primary dentition of a Colombian population according to the ICDAS criteria', Brazilian oral research. Sociedade Brasileira de Pesquisa Odontológica, 24(2), pp. 211-216.
- Cui, L. L. et al. (2016) 'Breastfeeding and early childhood caries in children: an update meta-analysis of observational studies', Asia Pacific Journal of. airtilibrary.com. Available at: <https://www.airtilibrary.com/Publication/alDetailedMesh?docid=09647058-201303-PP201303130005-PP201303130005-1-20-00364>.
- Duangthip, D. et al. (2017) 'Managing Early Childhood Caries with Atraumatic Restorative Treatment and Topical Silver and Fluoride Agents', International Journal of Environmental Research and Public Health, p. 1204. doi: 10.3390/ijerph14101204.
- Dülgergil, Ç. et al. (2013) 'Early childhood caries update: A review of causes, diagnoses, and treatments', Journal of Natural Science, Biology and Medicine, p. 29. doi: 10.4103/0976-9668.107257.
- Fan, C. et al. (2016) 'Risk factors of early childhood caries among children in Beijing: a case-control study', BMC Oral Health. doi: 10.1186/s12903-016-0289-6.
- Govindaraju, L., Jeevanandan, G. and Subramanian, E. M. G. (2017a) 'Comparison of quality of obturation and instrumentation time using hand files and two rotary file systems in primary molars: A single-blinded randomized controlled trial', European journal of dentistry, 11(3), pp. 376-379.
- Govindaraju, L., Jeevanandan, G. and Subramanian, E. M. G. (2017b) 'Knowledge and practice of rotary instrumentation in primary teeth among indian dentists: A questionnaire survey', Journal of International Oral Health, 9(2), p. 45.
- Grzesiak-Gasek, I. and Kaczmarek, U. (2016) 'Retrospective Evaluation of the Relationship Between the First Dental Visit and the Dental Condition of Six- and Seven-Year-Old Children', Advances in Clinical and Experimental Medicine, pp. 767-773. doi: 10.17219/acem/62212.
- Jeevanandan, G., Ganesh, S. and Arthilakshmi (2019) 'Kedo file system for root canal preparation in primary teeth', Indian journal of dental research: official publication of Indian Society for Dental Research, 30(4), pp. 622-624.
- Jeevanandan, G. and Govindaraju, L. (2018) 'Clinical comparison of Kedo-S paediatric rotary files vs manual instrumentation for root canal preparation in primary molars: a double blinded randomised clinical trial', European archives of paediatric dentistry: official journal of the European Academy of Paediatric Dentistry, 19(4), pp. 273-278.
- Khani-Varzegani, F. et al. (2017) 'Early occurrence of childhood dental caries among low literate families', BMC Research Notes. doi: 10.1186/s13104-017-2698-2.
- Kilinc, G., Uzuner, N. and Karaman, O. (2016) 'Effect of dental care programme and fluoridation in the prevention of dental caries in asthmatic children', JPMA. The Journal of the Pakistan Medical Association, 66(1378). Available at: <https://www.jpma.org.pk/PdfDownload/7958.pdf>.
- Luzzi, V. et al. (2017) 'Evaluation of the orthodontic treatment need in a paediatric sample from Southern Italy and its importance among paediatricians for improving oral health in ...', Journal of Clinical. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5601117/>.
- Mathew, M. G. et al. (2020) 'Evaluation of adhesion of Streptococcus mutans, plaque accumulation on zirconia and stainless steel crowns, and surrounding gingival inflammation in primary ...', Clinical oral investigations. Springer. Available at: <https://link.springer.com/article/10.1007/s00784-020-03204-9>.
- Mathew, M. G. (2020a) 'Management of a pediatric patient with ataxia telangiectasia: Report of a rare case in which diagnostic radiographs are contraindicated', Journal of Family Medicine and Primary Care. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7113957/>.
- Mathew, M. G. (2020b) 'Management of siblings with Glanzmann's thrombasthenia: A case report', Journal of Family Medicine and Primary Care. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7266179/>.
- Mathew, M. G., Roopa, K. B. and Soni, A. J. (2020) 'Evaluation of clinical success, parental and child satisfaction of stainless steel crowns and zirconia crowns in primary molars', Journal of Family. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7266179/>.

gov/pmc/articles/PMC7266243/.

Mathew, M. G., Soni, A. J. and Khan, M. M. (2020) 'A novel approach to regenerate bone loss in an adolescent using concentrated growth factors: One-year follow-up', *Journal of Family*. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7014901/>.

Murshid, E. Z. (2016) 'Children's ages and reasons for receiving their first dental visit in a Saudi community', *The Saudi dental journal*. Elsevier, 28(3), pp. 142–147.

Nair, M. et al. (2018) 'Comparative evaluation of post-operative pain after pulpectomy with k-files, kedos files and mtwo files in deciduous molars -a randomized clinical trial', *Brazilian Dental Science*, 21(4), p. 411.

Narayanan, N. (2017) 'Knowledge and Awareness regarding primary teeth and their importance among parents in chennai city', *Research journal of pharmaceutical, biological and chemical sciences*. *Journal of Pharmaceutical Sciences and Research*, 9(2), p. 212.

Panchal, V., Gurunathan, D. and Shanmugaavel, A. K. (2017) 'Smartphone application as an aid in determination of caries risk and prevention: A pilot study', *European journal of dentistry*, 11(4), pp. 469–474.

Panchal, V., Jeevanandan, G. and Subramanian, E. (2019) 'Comparison of instrumentation time and obturation quality between hand K-file, H-files, and rotary Kedo-S in root canal treatment of primary teeth: A randomized controlled trial', *Journal of the Indian Society of Pedodontics and Preventive Dentistry*, 37(1), pp. 75–79.

Panchal, V., Jeevanandan, G. and Subramanian, E. M. G. (2019) 'Comparison of post-operative pain after root canal instrumentation with hand K-files, H-files and rotary Kedo-S files in primary teeth: a randomised clinical trial', *European archives of paediatric dentistry: official journal of the European Academy of Paediatric Dentistry*, 20(5), pp. 467–472.

Ramadurai, N. et al. (2019) 'Effectiveness of 2% Articaine as an anesthetic agent in children: randomized controlled trial', *Clinical oral investigations*, 23(9), pp. 3543–3550.

Ramakrishnan, M., Dhanalakshmi, R. and Subramanian, E. M. G. (2019) 'Survival rate of different fixed posterior space maintainers used in Paediatric Dentistry - A systematic review', *The Saudi dental journal*, 31(2), pp. 165–172.

Ravikumar, D. et al. (2018) 'DNA profiling of *Streptococcus mutans* in children with and without black tooth stains: A polymerase chain reaction analysis', *Dental research journal*, 15(5), p. 334.

Ravikumar, D. et al. (2019) 'Evaluation of McNamara's analysis in South Indian (Tamil Nadu) children between

8–12 years of age using lateral cephalograms', *Journal of oral biology and craniofacial research*, 9(2), pp. 193–197.

Ravikumar, D. and Gurunathan, D. (2016) 'Age and environment determined children's preference towards dentist attire-A cross-sectional study', *Journal of clinical and*. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5121796/>.

Ravikumar, D., Jeevanandan, G. and Subramanian, E. M. G. (2017) 'Evaluation of knowledge among general dentists in treatment of traumatic injuries in primary teeth: A cross-sectional questionnaire study', *European journal of dentistry*, 11(2), pp. 232–237.

Ravindra, V. et al. (2018) 'A comparative evaluation between dermatoglyphic patterns and different terminal planes in primary dentition', *Journal of clinical and experimental dentistry*, 10(12), pp. e1149–e1154.

Ravindra, V. et al. (2019) 'A comparative evaluation between cheilosopic patterns and the permanent molar relationships to predict the future malocclusions', *Journal of clinical and experimental dentistry*, 11(6), pp. e553–e557.

Samuel, S. R., Acharya, S. and Rao, J. C. (2020) 'School Interventions-based Prevention of Early-Childhood Caries among 3–5-year-old children from very low socioeconomic status: Two-year randomized trial', *Journal of public health dentistry*, 80(1), pp. 51–60.

Shafie, L., Barghi, H. and Parirokh, M. (2017) 'Postoperative pain following pulpotomy of primary molars with two biomaterials: a randomized split mouth clinical trial', *Iranian endodontic journal*. ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5282371/>.

Subramanyam, D. et al. (2018) 'Comparative evaluation of salivary malondialdehyde levels as a marker of lipid peroxidation in early childhood caries', *European journal of dentistry*, 12(1), pp. 67–70.

Vignesh, R. et al. (2019) 'Management of Complicated Crown-Root Fracture by Extra-Oral Fragment Reattachment and Intentional Reimplantation with 2 Years Review', *Contemporary clinical dentistry*, 10(2), pp. 397–401.

Vishnu Prasad, S. et al. (2018) 'Report on oral health status and treatment needs of 5–15 years old children with sensory deficits in Chennai, India', *Special care in dentistry: official publication of the American Association of Hospital Dentists, the Academy of Dentistry for the Handicapped, and the American Society for Geriatric Dentistry*, 38(1), pp. 58–59.

Volpato, L. E. R., Palti, D. G. and de Oliveira Lima, J. E. (2013) 'When and why parents seek dental care for children under 36 months', of international oral ncbi.nlm.nih.gov. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780375/>.