



FACTORS AFFECTING THE COMPLIANCE OF DENTAL HOME PREVENTIVE MEASURES AMONG PEDIATRIC PATIENTS

Shankar Paulindraraj^{1*}, Trophimus Gnanabagyan Jayakaran², Nancy Solomon³, Charishma Sai Bommareddy⁴, Hemalatha Ram kumar⁵, Nimisha Cheruparambil⁶

Article History: Received: 12.12.2022

Revised: 29.01.2023

Accepted: 15.03.2023

Abstract:

Background compliance to home preventive measures are essential in maintaining good oral health in children

Aim The aim of the study was to evaluate and compare the compliance and self-reported factors for non-compliance to 'dental home' preventive measures among children aged 7-14 years

Methods Children aged 7-14 years visiting the pediatric and preventive dentistry department were divided into two groups, group I 7-10 years and group II 11-14 years. Instructions for the recommended preventive measures were given according to a structured form. At the recall appointment, children and their parents were interviewed regarding the present status of the child's compliance with the previous recommended preventive measures. In cases of non-compliance to one or more of the preventive measures, the reason for non-compliance was recorded as well.

Results Brushing twice a day was reported by 60% in Group I and 66.67% Group II, while about 40% in Group I and 33.33% in Group II reported brushing only once a day respectively, Most common Reason for non-compliance was cited as 'laziness'. Regarding flossing about 80% in group II didn't perform flossing citing technique difficulties.

Conclusion Children in both the groups showed similar compliance to home preventive measures and most common reason cited for non-compliance was forgetting, laziness and technique difficulty.

DOI: 10.31838/ecb/2023.12.s2.040

1. Introduction:

Dental caries affects children and adolescence all over the world¹ children with deep pits and fissure are more prone to acquire food debris and microorganism² hence ameticulous practice of several daily home preventive measures is essential in the maintenance of good dental health together with reducing individual risk for caries and periodontal diseases^{3,4}. These include avoiding frequent consumption of carbohydrates (sugary drinks and food) between meals, tooth brushing twice a day with fluoridated dentifrices, and flossing.⁴ For high caries-risk children, rinsing with fluoride mouthwash and/ or brushing with a high concentration of fluoride gel once a week are also recommended.⁵ These home preventive measures are defined as 'dental home' preventive measures. The American Academy of Pediatric Dentistry supports the concept of a "dental home" for all infants, children, adolescents, and persons with special health care needs.⁴ The aim of this study was to evaluate and compare the compliance and self-reported factors for non-compliance to 'dental home' preventive measures among children aged 7-14 years

2. Methodology:

A total of 60 Children aged 7-14 years, who attended recall appointments in Department of Pediatric and Preventive Dentistry participated in this study. The study was conducted after obtaining clearance from institutional ethical committee. Children were divided into two groups based on the age group I 7-10 years and group II 11-14 years with 30 children in each group. Only children, who attended recall visit after getting the instructions for the recommended 'dental home' preventive measures at the previous examination, were included. Patients with special medical needs were excluded from the study. Instructions for the recommended preventive measures were given according to a structured form. At the recall appointment, children and their parents were interviewed regarding the present status of the child's compliance with the previous recommended preventive measures. In cases of non-compliance to one or more of the preventive measures, the reason for non-compliance was recorded as well.

Interviews were completed before the clinical examinations. Patients' compliance was defined only when the patient complied with the recommended preventive measures at the time of the recall. A structured form was designed to collect demographic data, such as patient's age and gender, compliance with the recommended preventive measures as well as reason for non-compliance. This form was filled out by the

treating dentist and data from all forms were collected and analyzed.

Preventive Measures

Frequency of In-between meal snacks:

Patients were instructed not to eat more than six in-between meals a day. The patients and/or their parents were asked whether they usually ate more or less than six meals a day, not including drinking soft drinks.

Drinking between meals:

Drinking between meals Patients were instructed to drink only water or sugar-less non-carbonated drinks between meals, but allowed to drink sugary carbonated, non-carbonated or milk beverages during meals. Therefore, they were interviewed only about their drinking habits between meals. Patients were categorized into three groups: drinking only water or diet (carbonated or non-carbonated) beverages, drinking sugary non-carbonated beverages (alone or alternately with water) and drinking sugary carbonated beverages (alone or alternately with water).

Brushing twice a day:

Children who had the ability to perform correct tooth brushing (usually older than 7 years) were instructed to brush their own teeth. Otherwise parents were instructed to brush their child's teeth. Tooth brushing was recommended to be performed twice a day morning and evening. Children or their parents were asked whether they brush their teeth in the morning and in the evening. If yes, how many days a week did they accomplish their tooth brushing.

Use of fluoridated toothpaste:

Parents were instructed to adjust the fluoride-ion concentration in the toothpaste with the child's age according to the recommendation at that time. Children over the age of 7 years, parents were instructed to use adult toothpaste (1200–1450 ppm F-) for their children.

Use of daily fluoride mouth rinse:

Children over the age of 6 years, which were diagnosed as medium-to-high risk for caries development, were recommended to rinse their teeth daily with a fluoride mouth rinse. Compliance of these children to perform the daily rinses was evaluated.

Flossing:

Children over the age of 11 years, without orthodontic fixed appliances, were instructed to floss their teeth once a day. Their compliance was evaluated and recorded as days per week (zero to seven).

Data were analyzed by SPSS 24.0 (SPSS, Inc., Chicago, IL,USA) using odds ratio. Results were tabulated and compared for statistical significance

3. Result:

Table 1: Frequency of In between Meal snacks

	Compliance (Less than six times a day) n = 30 %	Non-compliance (More than six times a day) n = 30 %	Most common Reason for non-compliance	Odds ratio
GROUP I	26- 86.67%	4 - 13.33%	I don't know I have to	1.3
GROUP II	25 - 83.33%	5 -16.67%	Hungry	

Table 2: Drinking Between Meals

	Compliance(Water or sugarless beverage) n = 30 %	Non-compliance (Sugary non-carbonated drinks/Sugary carbonated beverages) n = 30 %	Most common Reason for non-compliance	Odds ratio
GROUP I	23 - 76.67%	7 - 23.33%	I forgot	1.408
GROUP II	21 -70%	9 - 30%	I forgot	

Table 3: Brushing Twice A Day

	Compliance (Twice a day) n=30 %	Non-compliance (Once a day) n=30 %	Most common Reason for non-compliance	Odds ratio
GROUP I	18 - 60%	12 - 40%	I forgot / Laziness	0.75
GROUP II	20 -66.67%	10 -33.33%	Laziness	

Table 4: Use of Daily Fluoride Mouth Rinse

	Compliance (Rinsed 2–7 days a week) n=30 %	Non-compliance (Did not rinse at all or once a week) n=30 %	Most common Reason for non-compliance	Odds ratio
GROUP I	10 - 33.33%	20 - 66.67%	I forgot	0.863
GROUP II	11 - 36.67%	19 - 63.33%	Bad taste	

Table 5: Flossing

	Compliance (Flossed 2–7 days a week) n=30 %	Non-compliance (Did not floss at all or once a week) n=30 %	Most common Reason for non-compliance
GROUP II	6 - 20%	24 - 80%	Technique difficulties

Frequency of In between Meal snacks (Table1): Eating less than six times a day was reported by 86.67% in group I and 83.33% in group II, while 13.33% in group I & 16.67% in group II reported eating more than six times a day (snacks between meals). The most common reason for non-compliance was “I don't know I have to and Hungry”.

Drinking Between Meals (Table 2): Drinking only water or diet beverages between meals was reported by 76.67% and 70% in Group I

& Group II, while 23.33% and 30% reported drinking sugary non-carbonated drinks/carbonated beverages in Group I & Group II respectively. Most common Reason for non-compliance reported was “I forgot” in both the groups.

Brushing twice a day (Table 3): Brushing twice a day was reported by 60% & 66.67% in Group I & Group II, while 40% & 33.33% reported brushing only once a day in Group I & Group II respectively. Most common Reason for non-compliance was cited as “laziness”

Use of Daily Fluoride Mouth Rinse (Table 4):

Only 33.33% & 36.67% in Group I & Group II Rinsed 2–7 days a week using fluoridated mouth rinse, while 66.67% & 63.33% reported using fluoridated mouth rinse less than twice a week in Group I & Group II respectively. Most common Reason for non-compliance was cited as “I forgot and Bad taste”

Flossing (Table 5):

Only 20% of children flossed their teeth 2-7 days a week, while 80% of children flossed once a week or did not floss at all. The most common reason for non-compliance was “Technique difficulties”

4. Discussion:

Compliance describes the extent of a patient’s behavioral adjustment and willingness to comply with medical treatment, maintaining a correct diet, or changing his life style according to the recommendation of any health care provider.⁶

The basis for maintaining and improving oral health is long-term compliance to several preventive measures also when there is improvement in dental health to assure positive balanced equilibrium in the oral cavity. Unfortunately, in various fields of medicine including dentistry, achieving long-term compliance to these measures is a difficult challenge⁷⁻¹⁰

In present study the Compliance to “Frequency of Meals” and “Drinking between Meals” in GROUP I was higher than GROUP II, But the Compliance to “Brushing twice a day” and “Use of daily fluoride mouth rinse” was higher in GROUP II than in GROUP I, The most common reason for Non-compliance cited was “I forgot”, “laziness”, “I don’t know that I have to” and “Bad taste”. Similarly, Viswanath D and Sabu N 2014 found that the compliance to brushing twice a day was less among children¹²

Compliance to “Flossing” was poor only 20% and most common reason for Non-compliance was “Technique difficulties”.

The present study results were similar to the study done by Ashkenazi M, Cohen R and Levin L (2007) they analyzed that among regularly attending pediatric patients, compliance was low with certain preventive measures, such as flossing daily, fluoride rinsing, and using a highly concentrated fluoride gel.⁷

Malka Ashkenazi, Mervat Bidoosi and Liran Levin (2011) concluded that the most common factor for non-compliance to ‘dental home preventive measures’ was ‘I forgot’. Not flossing was commonly justified by performance difficulty while non-compliance to Elmex gel or to mouth rinses was attributed mainly to ‘bad taste’.

Additional common reasons were ‘it was finished’, ‘my parents did not purchase’, ‘I did not find it at home’, ‘I did not know I need to’.¹¹

5. Conclusion:

Children in Both the groups showed similar responses to home preventive measures and high amount of non-compliance was seen in the usage of fluoridated mouth wash and flossing, Reasons for non-compliance included mainly forgetting and inconvenience. Referring to the specific factors for non-compliance or Conducting awareness programme in schools, educating both parents and children on the need of preventive measures might improve compliance with dental preventive measures

6. References:

- Jayakaran TG, Rekha CV, Annamalai S, Baghkomeh PN. Salivary peptide human neutrophil defensin 1–3 and its relationship with early childhood caries. *Dent Res J* 2020;17:459-64.
- Mathew G, Trophimus J, Ramkumar H, Dakshinamoorthy S, Paulindraraj S, Solomon N. Evaluation of Embrace WetBond and Helioclear-F sealant retention with and without a Self-etch adhesive: A 12 month follow-up. *J ClinExp Dent*. 2021;13(12):e1189-5. <https://doi.org/10.4317/jced.58707>
- Shankar K, Ramkumar H, Dhakshinamoorthy S, Paulindraraj S, Jayakaran TG, Bommareddy CS. Comparison of Modified Triple Antibiotic Paste in Two Concentrations for Lesion Sterilization and Tissue Repair in Primary Molars: An In Vivo Interventional Randomized Clinical Trial. *Int J ClinPediatr Dent* 2021; 14 (3):388-392. DOI: 10.5005/jp-journals-10005-1951
- American Academy of Pediatric Dentistry, Pediatric Dentistry, Reference Manual 2009–2010, 31(6):10.
- CDC. Recommendations for using fluoride to prevent and control dental caries in the United States. *MMWR Recomm Rep*. 2001;50(RR14):1–42.
- Zaura E, ten Cate JM. Dental plaque as a biofilm: a pilot study of the effects of nutrients on plaque pH and dentin demineralization. *Caries Res*. 2004;38(Suppl 1):9–15.
- Ashkenazi M, Cohen R, Levin L. Self-reported compliance with preventive measures among

- regularly attending pediatric patients. *J Dent Educ.* 2007;71(2):287–95.
- Haynes RB. Introduction. In: Haynes RB, Taylor DW, Sackett DL, editors. *Compliance in health care.* Baltimore: Johns Hopkins University Press; 1979. p. 1–7.
- Zadik Y, Levin L. Does a free-of-charge distribution of boil-and-bite mouthguards to young adult amateur sportsmen affect oral and facial trauma? *Dent Traumatol.* 2009;25(1):69–72.
- Zadik Y, Zusman SP, Galor S, Dinte AF. Dental attendance and self-assessment of dental status by Israeli military personnel according to gender, education, and smoking status, 1998–2006. *Mil Med.* 2009;174(2):197–200.
- Malka Ashkenazi, Mervat Bidoosi, Liran Levin; Factors associated with reduced compliance of children to dental preventive measures. *Odontology*, June 2011.
- Viswanath D, Sabu N. Prevalence of dental caries, the effect of sugar intake and tooth brushing practices in children aged 5-11 years in Bangalore North. *SRM J Res Dent Sci* 2014;5:155-62