ORIGINAL RESEARCH PAPER

Volume-7 | Issue-4 | April-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ORAL HABITS IN 3 TO 12 YEARS OLD CHILDREN: A BURDEN ON DEVELOPING DENTITION

Dental Science

Rashi Dubey — Post Graduate Student Department of Pedodontics and Preventive Dentistry, Rungta College of Dental Sciences and Research, Bhilai, Chhattisgarh, India

Nilotpol Kashyap — Professor and HOD, Department of Pedodontics and Preventive Dentistry, Rungta College of Dental Sciences and Research, Bhilai, Chhattisgarh, India

Alok Avinash — Reader, Department of Pedodontics and Preventive Dentistry, Rungta College of Dental Sciences and Research, Bhilai, Chhattisgarh, India

Brij Kumar* — Senior Lecturer, Department of Pedodontics and Preventive Dentistry, Rungta College of Dental Sciences and Research, Bhilai, Chhattisgarh, India *Corresponding Author

ABSTRACT

Introduction : A habit is a repetitive action that is being done automatically. Repetitive behaviors are common in infantile period and most of them starts and finishes spontaneously. Those habits which continue beyond a certain period of time are deemed deleterious oral habits and they are responsible for causing malocclusion in permanent dentition. The present study evaluates the prevalence of oral habits in 3- 12 years of children attending government and private schools at Dung and Bhilai city of Chhattisgarh.

Materials and Methods: Epidemiological study was carried out among 909 children from various government and private schools children in Chhattisgarh. A thorough history was obtained on a specially designed proforma and presence or absence of oral habits like thumb/finger sucking, tongue thrusting, mouth breathing, lip biting, nail biting and bruxism were recorded.

Results: The results shows that out of 909 children 497(54.7%) had oral habits. (48.2 %) Mouth breathing was the most common occurrence followed by Thumb sucking habit (18.9%) and tongue thrust (12.7%). All the habits were more frequent among 3 to 6 years of age. Anterior open bite was found to be (27.0 %) and high significant value with nail biting (16.3%) was found .Therefore presence of mouth breathing, thumb sucking and tongue thrusting habit were directly associated with development of malocclusion in the permanent dentition.

Conclusions: There was a high prevalence of malocclusion associated with oral habits harmful to deciduous dentition.

KEYWORDS

Oral Habits, Thumb Sucking, Mouth Breathing, Tongue Thrusting; Nail Biting, Malocclusion, Over Jet, Overbite, Cross Bite

Introduction:

In the newborn, gum pad stage of development there is open bite, and the tongue is relatively large and is positioned forward during normal suckling [1,2]. Sucking is a reflex that develops in intrauterine life, starting in the fetal period. The presence of this reflex in the neonate is a sign of normalcy and its gradual disappearance later on, toward four months of age, is also a sign of developmental normalcy.[3]

Thus, suction goes from being an innate reflex to being an acquired reflex or voluntary behavior around the fourth month following birth. A habit is a repetitive action that is being done automatically. Repetitive behaviors is common in infantile period and most of them starts and finishes spontaneously. Hand sucking is naturally developed in 89% of infants in the second month and in 100% of them in the first year of age.[4]

Oral habits could be divided into 2 main groups[3]:-

Acquired Oral Habits: Include those behaviors which are learned and could be stopped easily and when the child grows up, he or she can give up that behavior and start another one **Finn (1998).**

Compulsive Oral Habits: Consist of those behaviors which are fixed in children and when emotional pressures are intolerable for the child; he or she can feel safety with these habits. Preventing the child from these habits make him or her anxious and worried.

Materials and Methods

This study was conducted among school going children aged 3 to 12 years in Durg region Chhattisgarh India. Before conducting this survey, the official permission was obtained from the ethical committee. A total of eight government and private schools were contacted and 909 students from all these schools were selected with simple random sampling technique. So overall sample size of 909 children was finalized for the study. A closed-ended questionnaire was developed to gather information like age, gender and presence of deleterious oral habits. These questions were asked by the parents to investigate the habits like bruxism, mouth-breathing, nail biting, thumb sucking and bottle feeding.

A conformity clinical evaluation was also done using mirror and water holding tests. For mirror test, a two-sided mirror was placed below the child's nostrils and formation of vapors was observed. If it occured on upper part of the mirror it indicated nasal breathing whereas on the lower part indicated mouth breathing. For water test, child is asked to have a small amount of water in his mouth with lips in contact without swallowing for 3 minutes. Those who were unable to maintain the lips in contact position were considered as mouth breathers. Prevalence rates of different oral habits studied were calculated using SPSS version 15.0.

Results

The present study evaluates the prevalence of oral habits in 3- 12 years of children attending government and private schools at Dung and Bhilai city of Chhattisgarh. Total 909 children were recruited and evaluated. Out of 909 participants which were included into the study351 (38.6 %) were males and 558 (61.4 %) were females with mean age of 7.19 ± 1.50 years and 7.99 ± 1.38 years respectively. Mean age of the study population was found to be 7.68 ± 1.48 years. When asked about person responsible for taking the child to dental clinic. Majority of parents i.e. 357 (39.3 %) reported that person responsible for taking the child to dental clinic for treatment was someone other than mother and father while 275 (30.3 %) parents reported that it was the responsibility of the father to take the child to dental clinic for treatment. 30.5% parents reported that it is the duty of mother to take the child for dental treatment.

In the present study slightly more than half of participants were from Government School i.e. 469(51.6 %) while the remaining 440 (48.4%) participants were from private schools.

When asked about siblings, majority i.e. 674 (74.1%) reported that "Yes" the child had siblings while 235 i.e. 25.9 % parents reported that child does not have any siblings.

Majority of parents i.e. 439 (48.3 %) reported that rank of child is second while 308 (33.9 %) reported the rank to be First. Followed by percentage of parents reporting rank as Third, Fourth and fifth to be 7.6%, 6.8% and 3.4% respectively.

When asked about current status of bottle feeding by the child, Majority i.e. 651 (71.6 %) reported the discontinued bottle feeding habit. While only 258 (28.4 %) admitted of continued use of bottle for feeding in current time.

On interviewing the parents regarding any oral habit present at that time, revealed that 497 participants i.e. 54.7 % were not having any kind of oral habit at present, while 411 (45.2%) reported of having some kind of oral habit at present, while only parent of one participant reported of more than one type of habit to be present.

When asked about past status of oral habit, slightly more than half i.e. 497 (54.7 %) of the parents admitted that "Yes" their child practiced some oral habits in past while parents of 412 participants i.e. 45.3 % denied of having any oral habit being practiced in past.

In the current study adverse oral habits were found to be present in all of the participants i.e. 909 participants, thus making prevalence of 100 %**.** Majority of the participants were having the habit of mouth breathing i.e. 438 (48.2 %) followed by thumb sucking 172 (18.9%), nail biting 148 (16.3%), tongue thrusting 115 (12.7 %) and bruxism 34 (3.7 %). The habit of Lip biting and Cheek biting was a rare occurrence with 1 (0.1 %) and 1 (0.1%) respectively while none of the participants exhibited habit of Self-injurious habit. **(Graph 1)**

Malocclusion was evident in 546 participants i.e. 60.1%. While no malocclusion was evident in 363 (39.9%) participants. While considering individual variety of malocclusion in 909 participants. Majority of participants had Angle's class I malocclusion i.e. 325 (35.8%) followed by Anterior open bite to be present in 245 participants i.e. 27%. While other malocclusion which were found to be prevalent were Spacing, Crowding, Deep bite, Angle's class II malocclusion, Anterior / posterior cross bite and Overbite with prevalence of 21%, 6.1%, 5% ,3.2%, 1.2% and 0.8 % respectively. **(Graph 2)**

When habits association was analyzed with the type of malocclusion it was found to be statistically significant with (p=0.001) and the chi-square value being (x^2=48).

Discussion

Oral habits since long have been the topic of interest to the dentist in general and pediatric dentist. The controversies related to oral habits range from the simple genetic or non-genetic origin to underlying psychological cause. Even the normal posture of the child can be affected by mouth breathing habit, where the child postures the head forward to breathe**.** Normal physiological equilibrium (Buccinators Mechanism) between the tongue and the oral musculature is altered leading to the unaesthetic appearance (mask-like appearance) of the face as well[6].

The objective of the present study constituted the assessment of prevalence of oral habits by means of the questionnaire and to record the presence or absence of oral habit. A total out of 909 participants; 351 (38.6%) were males and 558 (61.25%) females showed one or the other kind of oral habit. Compared to the current population, primary school children and the middle school children showed greater prevalence of oral habits. Contrastingly, a very low prevalence of oral habits was reported in middle school children, there are several other studies done within the Indian subcontinent that quote a lower prevalence of oral habits[7]**.**

The prevalence of deleterious oral habits in the sample of children at the stage of primary dentition has turned out to be quite high; at least one of the habits has been taken under consideration. Nonnutritive sucking habits (pacifier and digit sucking) turned out to be the most frequent habits in the children. Our study considered the presence of the pacifier-sucking habit since birth, which would account for the high prevalence of these habits, as is also noted by other authors[8].

According to **Hussyeen Al *et al* (2009)**[9], "The same findings has been reported in which they found significant difference between genders. Additionally, they give opinion that "oral habits are based on etiology, frequency, rating of child among siblings in the family and presence of primary and permanent dentition. Many sign and symptoms were assessed during oral examination of the children.

Santos *et al* (2010)[10]**,** "Reported that oral habits were more frequent among younger age group (2-3 years) among Spanish and Brazilian children with statistically significant different. In contrast oral habits more frequent among older age group (4-5 years) with significant differences between age groups.

Onyeaso *et al* (2004)[11], "In their study on thumb sucking habit were found most frequent (11.5%) and dominant in elder age group and these finding can be explained by psychoanalytic theory" as children grow older, they tend to abandon self-erotic habits"**.** A significant difference was recorded between thumb and pacific sucking habits, mouth breathing habit and age group.

In the present subjects were selected in the age group ranged from i.e. 3-12 years, which was further divided into 4 groups taking the index age into consideration. The index ages are i.e. 3- 6, 6-9, 9-12. These were divided into three groups i.e. 3-6 years in group 1, 6-9 years in group 2, 9-12 years in group 3.The primary school and enters in high school, therefore in many countries this is the last age at which a reliable samples may be obtained.

After 9 to 12 years of age when there is development of permanent dentition the occurrence of malocclusion has been seen at this stage, in the index age of 12 years permanent teeth have been exposed to the oral cavity for 3-9 years therefore this age is more meaningful than 12 years to assess occurrence of oral habits .

Children's in the present study were randomly selected from private and government primary and middle school. This is so because children's in schools are relatively easily assessable, compared to any other population groups.

In present study 909 school going children aged between 3-12 years in government and private schools were examined. Among these i.e. 469 (51.6%) were in government schools children's and i.e. 440 (48.4%) children's were studying in private schools.

The present study identified a prevalence of oral habits among 909 primary and middle school children in the age group 3-12 years in Durg district. It revealed high prevalence of oral habits among surveyed population. This result corroborates with the earlier studies done in different regions of our country.

This present study shows the prevalence of oral habits related to the rank of the child among siblings in which i.e 308(33.9%) were rank first in family, 439(48.3%) were rank second in family, 69(7.6%) were third in family, 62(6.8%) were fourth in family, 31(3.4%) were fifth in the family.

Moreover **Onyesao *et al*** [11] reported very low prevalence of oral habits (9.9%) among Nigerian children. This wide range of the prevalence's of oral habits may be partially accounted to the fact that different oral habits were surveyed at different age group, different study methodologies had been used (interviews vs. questioners) as well as the cultural and Environmental factors which may play significant role in the occurrence of oral habits.

In this study, the prevalence of oral habits which was associated with "presence of deleterious oral habit does the child exhibits" in which 438(48.2%) mouth breathing was found to be the most deleterious habit, followed by thumb sucking habit 172(18.9%) tongue thrusting 115(12.7%), bruxism 34(3.7%), nail biting148(16.3%),lip biting 1(.1%),check biting 1(.1%) which is statistically significant. As compare to study done by **Jain A *et al*** [12] has found mouth breathing habit most prevalent and deleterious oral habit. In contrast studies done by **Shahraki *et al***[13].who found thumb sucking habit as most common and deleterious habit and suggested that Children who rest their thumbs passively in their mouths are less likely to experience difficulty than those who vigorously suck their thumbs.

Contrastingly, in present study lower prevalence of tongue thrusting (12.7%) was noted in different population groups. This was compared with the studies done by **Krishnappa *et al***[14].

Tongue thrusting was the most prevalent deleterious oral habits observed in their study, The tongue thrusting habit is known to cause the functional imbalance in the oral cavity, thus possibly causing the development of malocclusion. This again is debatable as the frequency of the tongue thrust habit is the main factor for the causation of malocclusion than the habit itself.

Its rate increases in adolescence, while it declines later. This problem is not gender dependent in children less than 10 years of age, but its incidence in boys is more than girls among adolescents. This problem

is a reaction in response to psychological disorders and some children will shift their habits from thumb sucking to nail biting.

"Malocclusion of the anterior teeth, teeth root resorption intestinal parasitic infections change of oral carriage of Entero bacteriaceae bacterial infection and alveolar destruction **Tanaka *et al* (2008)**[15]. Moreover, about one forth of patients with temporo mandibular joint pain and dysfunction have been shown to suffer from nail biting habit**.**

In this current study the frequency of oral habits in which out of 909 children's 663(72.9%) performs oral habits for <30 Minutes and 246(27.1%) were performed oral habits > 30 minute in 24 hr in whole day.

In the present study reveals that the child stopped the habit or continued with it; in which 361(39.7%) of children's has continued and 548(60.3%) were children's has stopped practicing oral habits.

The prevalence of oral habits in which children answers for question "Does the child have any kind of malocclusion" which explains that 546(60.1%) has development of malocclusion due to presence of oral habit, and 363(39.9%) of children's has no malocclusion.

In this present study while investigating "type of malocclusion present in the child "which reveals that out of 909 children's 245(27.0%) had diagnosed with anterior open bite 11(1.2%) had anterior/posterior cross bite, 7(0.8%) had over bite ,45(.5%) had deep bite, while 325(35.8%) had angles class I malocclusion, 29(3.2%) had class II malocclusion, angles class III was found in 0% ,crowding in 559(6.1%),spacing in 191(2.1%) therefore malocclusion been found in only those children's who have any kind of oral habits. This was similar to studies done by **Grippaudo C *et al*** [16]**.**

In a similar study done by **Giugliano D *et al*** [17]**,** significant relationships existed between deleterious oral habits and malocclusions. They evaluated the relationship between arch width and certain oral habits in 3 to 6 year-old children and found that a dummy habit leads to a reduction in maxillary arch width and mouth breathing causes a reduction in the size of both arches.

Despite the relatively constant prevalence of different types of malocclusion between age 3 and seven years, different changes were observed at individual levels. This was not only because of the spontaneous correction of these conditions but due to extreme prevalence, of the malocclusion condition.

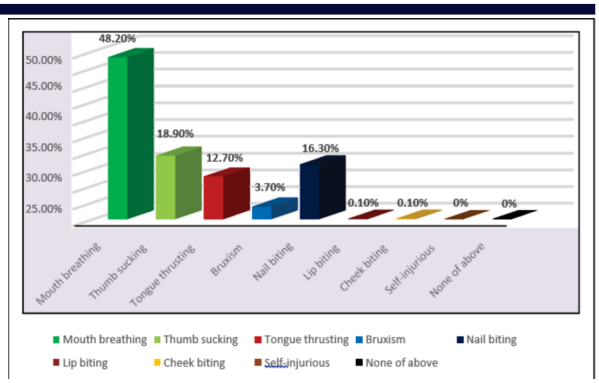
Analysis of prevalence of deleterious oral habits with malocclusion revealed that 28.8% of the children with oral habits had malocclusion. This is consistent with the findings of **Shetty and Munshi(1998)**[18]and **Sinn J. Minor**[19] who reported 28.95% and 23% of malocclusion were caused by habits in their respective studies.

Results of the regression models revealed that mouth breathing and thumb sucking habits had a significant impact on malocclusion, significantly affecting the presence of crowding and irregularities in anterior segments, and increased maxillary over jet. Also, tongue thrusters significantly developed a reverse over jet, spacing in incisal segments, and anterior open bite.

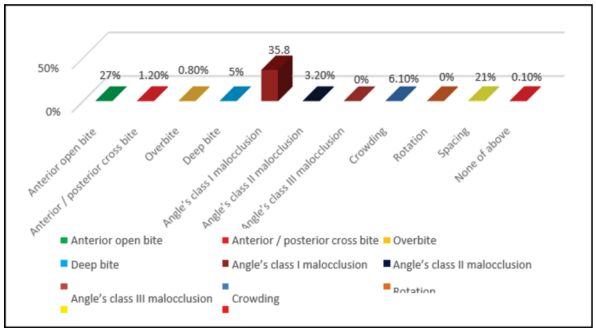
Also **Shetty and Munshi**[18] found that when tongue thrusting, mouth breathing, and thumb sucking were taken into consideration, about 28.95% had malocclusion with a higher prevalence in relation to anterior maxillary protrusion.

Popovich and Thompson (1974)[20] found that in the age range of 3-12 years, with increase of age the percentage of Class II malocclusion increased from 21.5 to 41.9% in children with sucking habit.

Singh *et al* (2008)[21] reported a statistically significant relationship between thumb sucking and Class II malocclusion, open bite, and extreme over jet. The relations of angle's class II and III were examined separately. The significance of the association between oral habits and Malocclusion as a causative factor should be interpreted cautiously as this study did not take into consideration the effect of genetic factors and environmental factors other than abnormal habits, such as, trauma, birth Injuries, abnormal shedding, and eruption patterns. Future studies can be planned taking into consideration all these factors.



Graph 1: Type of habits the children exhibits



Graph 2: Type of malocclusion present in the children

References :-

1). Jyoti S et al. Introduction Nutritive and Non-Nutritive Sucking Habits – Effect on the Developing Oro-Facial Complex; a Review: ASDC J Dent Child. 2000; 4(3):321-327.
2). Varas et al. Prevalence of childhood oral habits and their influence in primary dentition: Rev Pediatric Aten Primaria.2012;13(20):1139-7632.
3). Moimaz et al. Harmful oral suction habits in children: association with breastfeeding and family social profile, Rev odonto science. 2010; 25(4):355-360.
4). Shouq A. A. et al. "Meta-Analysis of Prevalence of Bad Oral Habits and Relationship with Prevalence of Malocclusion". EC Dental Science.2017; 11(4):111-117.
5). Larissa B. B et al. Association between breastfeeding and deleterious oral habits with Development of malocclusions in pediatric dental patients: International Journal of Experimental Dental Science, July-December 2012; 1(2):61-66.
6) Larissa B et al. Association between Breastfeeding and Deleterious Oral Habits with Development of Malocclusions in Pediatric Dental Patients: International Journal of Experimental Dental Science, July-December 2012;1(2):61-66.
7) Bhayya DP, Shyagali TR. Prevalence of oral Habits in 11–13 year-old School Children in Gulbarga city India. Virtual J Orthod 2009; 8(3):1-4.
8) Amitha M Hegde, Arun M Xavier. Childhood Habits: Ignorance is not Blis-A Prevalence Study. International Journal of Clinical Pediatric Dentistry, January-April 2009;2(1):26-29.
9) Al-Hussyeen AJA. Prevalence of nonnutritive sucking habits among saudi children and its effect on primary dention. Pakistan Oral & Dental Journal 2009;29(4):333-339.
10) Santos SA, Ana Larissa F. Nonnutritive sucking habits among preschool-aged children. Jornal de Pediatria. 2010;85(4):88-95.
11) Onyeaso CO. Oral habits among 7-10 year-old school children in Ibadan, Nigeria. East African medical journal. Jan 2004; 81(1):16-21.
12) Jain A, Bhaskar DJ, Gupta D, Yadav P, Dalai DR, Jhingala V. Mouth Breathing: A Menace to Developing Dentition: Journal of Contemporary Dentistry, September-December 2014;4(3):145-151.
13) N. Shahraki, S. Yassaei and M. Goldani Moghadam. Department Abnormal oral Habits,Journal of Dentistry and Oral Hygiene.2012;4(2):12-15.
14) Srinath Krishnappa, M.S.Rani, Roopa Gowda Mapping of deleterious oral habits among 10–16 year old children in Karnataka: A cross-sectional study, Journal of Indian Association of Public Health Dentistry. October-December 2015; Vol. 13(4): 399-409.
15.) Tanaka OM, Vitral RW, Tanaka GY, Guerrero AP Nail biting or onychophagia: A special habit. Am. J. Orthod. Dentofacial Orthop.2008;134(2):305-308.
16) C Grippaudo, paolantonio, G. Antonini. Association between oral habits, mouth breathing and malocclusion. Eur J Pediatric Dent.2013; 1(4):231-36.
17) Davide Giugliano, Fabriziad' puzzo, Abdolreza Jamilian and Letizia Perillo. Relationship between Malocclusion and Oral Habits, Current Research in Dentistry 2014;5(2):17-21.
18) Shetty SR, Munshi AK. Oral habits in children: A prevalence study. J Indian Soc Pedod Prev Dent 1998;1(6):61 66.
19). Sinn JM. Tooth movement in children, 2nd ed. St. Louis c.v Mosby and Co. 1977;5(6):243 71.
20) Popovich F, Thompson GW. Analysis of factors associated with persisting maxillary Diastema, J Dent Res.1974;5(3):272-80.
21) Singh SP, Utreja A, Chawla HS. Distribution of malocclusion types among thumb suckers seeking orthodontic treatment. J Indian Soc Pedod Prev Dent 2008; 26:114 17.