

## INCIDENCE OF DIFFERENT DELETERIOUS ORAL HABITS IN SCHOOL GOING CHILDREN FROM DARBHANGA DISTRICT, BIHAR

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### Abstract

Oral habits ought to be of primary clinical concern to orthodontists as they may cause malocclusion and interfere with the treatment progress. Generally, habit control should be achieved earlier to correction of the malocclusion in an effort to eliminate any etiologic factors in development and maintenance of the malocclusion. It is well important for the clinician to understand that habit breaking treatment may need prolonged treatment time because habits may have been present for long periods of time and may be associated with underlying psychological problems. Hence based on above importance the present study was planned to evaluate incidence of different deleterious oral habits in school going children from Darbhanga District, Bihar.

The present study was planned in the Department of Dentistry, Darbhanga Medical College and Hospital Laheriasarai, Darbhanga Bihar. Total 50 school going children of the age 4 years to 10 years were enrolled in the present study. Samples were selected from school; simple randomized sampling technique was used. Children with orthodontic appliances, systemic disease were excluded from the study. A closed ended questionnaire was provided to children involved in survey to obtain details like age, sex, presence of habits, its duration and frequency. A detailed history was obtained from parents regarding the habit and its intensity.

The data generated from the present study concludes that all habits did not show statistically significant relationship, except tongue thrusting which showed statistically significant relationship and more prevalent in rural areas.

**Keywords:** Deleterious Oral Habits, School childrens, Bihar.

### Introduction

"It is conceptualized that all hindrances in the path of natural growth once eliminated will help natural growth by itself to become the treatment for the problem." Childhood is the mirror which reflects the propensities of adulthood. Similarly ideal primary dentition is the indicator of future ideal permanent dentition. The various functions of the deciduous dentition are to provide esthetics, speech, mastication as well as to maintain the occlusion and space for permanent dentition. An ideal occlusion is perfect interdigitation of the upper and lower teeth which is the result of a developmental process consisting of three main events: Jaw growth, Tooth formation, Eruption.[1-2]

It has been seen that the incidence of malocclusion in the children of today is increasing, with recent studies indicating its prevalence as high as 51.3% out of which 25.5% are due to deleterious oral habits in Indian population. A synergistic influence of the combination of high caries rate in deciduous dentition and co-existence of deleterious oral habits is commonly seen.[3]

The knowledge about the etiology of malocclusion is essential for the success of the interceptive orthodontic treatment, because early intervention requires the recognition and elimination of these causes. Different authors have attempted to categorize the etiological factors in order to make the diagnosis and therapeutic process easy. In all the classifications, oral habits are recognized as potential agents for the development of malocclusions.

"Earlier the treatment begins, the more the face will adapt to your standards, later the treatment begins, the more standards will have to adapt to your face." This means that early diagnosis of a developing malocclusion and its causes can help in initiating corrective measures early.

Thumb sucking is a behavior found in humans, chimpanzees, captive ring-tailed lemurs, and other primates. It usually involves placing the thumb into the mouth and rhythmically repeating sucking contact for a prolonged duration. It can also be accomplished with any organ within reach (such as other fingers and toes) and is considered to be soothing and therapeutic for the person.

As a child develops the habit, it will usually develop a "favorite" finger to suck on.

At birth, a baby will reflexively suck any object placed in its mouth; this is the sucking reflex responsible for breastfeeding. From the very first time they engage in nutritive feeding, infants learn that the habit can not only provide valuable nourishment, but also a great deal of pleasure, comfort, and warmth. Whether from a mother, bottle, or pacifier, this behavior, over time, begins to become associated with a very strong, self-soothing, and pleasurable oral sensation. As the child grows older, and is eventually weaned off the nutritional sucking, they can either develop alternative means for receiving those same feelings of physical and emotional fulfillment, or they can continue experiencing those pleasantly soothing experiences by beginning to suck their thumbs or fingers. This reflex disappears at about 4 months of age; thumb sucking is not purely an instinctive behavior and therefore can last much longer.[5] Moreover, ultrasound scans have revealed that thumb sucking can start before birth, as early as 15 weeks from conception; whether this behavior is voluntary or due to random movements of the fetus in the womb is not conclusively known.

Thumb sucking generally stops by the age of 4 years. Some older children will retain the habit, which can cause severe dental problems. While most dentists would recommend breaking the habit as early as possible, it has been noted that as long as the habit is broken before the onset of permanent teeth, at around 5 years old, the damage is reversible. Thumb sucking is sometimes retained into adulthood and may be due to simply habit continuation. Using anatomical and neurophysiological data a study has found that sucking the thumb is said to stimulate receptors within the brain which cause the release of tension, mentally and physically which shows a scientific standpoint regarding the psychological basis of thumb sucking. [6]

Most children stop sucking on thumbs, pacifiers or other objects on their own between 2 and 4 years of age. No harm is done to their teeth or jaws until permanent teeth start to erupt. The only time it might cause concern is if it goes on beyond 6 to 8 years of age. At this time, it may affect the shape of the oral cavity or dentition.[7] During thumbsucking the tongue sits in a lowered position and so no longer balances the forces from the buccal group of musculature. This results in narrowing of the upper arch and a posterior crossbite. Thumbsucking can also cause the maxillary central incisors to tip labially and the mandibular incisors to tip lingually, resulting in an increased overjet and anterior open bite malocclusion, as the thumb rests on them during the course of sucking. In addition to proclination of the maxillary incisors, mandibular incisors retrusion will also happen. Transverse maxillary deficiency gives rise to posterior crossbite, ultimately leading to a

Class II malocclusion.[8] Children may experience difficulty in swallowing and speech patterns due to the adverse changes. Beside the damaging physical aspects of thumb sucking, there are also additional risks, which unfortunately, are present at all ages. These include increased risk of infection from communicable diseases, due to the simple fact that non-sterile thumbs are covered with infectious agents, as well as many social implications. Some children experience social difficulties, as often children are taunted by their peers for engaging in what they can consider to be an "immature" habit. This taunting often results in the child being rejected by the group or being subjected to ridicule by their peers, which can cause understandable psychological stress.[9]

Methods to stop sucking habits are divided into 2 categories: Preventive Therapy and Appliance Therapy. Examples to prevent their children from sucking their thumbs include the use of bitterants or piquant substances on their child's hands—although this is not a procedure encouraged by the American Dental Association[9] or the Association of Pediatric Dentists. Some suggests positive reinforcements or calendar rewards to be given to encourage the child to stop sucking their thumb.

A Cochrane review was conducted to review the effectiveness of a variety of clinical interventions for stopping thumb-sucking. The study showed that orthodontic appliances and psychological interventions (positive and negative reinforcement) were successful at preventing thumb sucking in both the short and long term, compared to no treatment. [10]

Clinical studies have shown that appliances such as T Guards can be 90% effective in breaking the thumb or finger sucking habit, rather than use of bitterants or piquants, which are not endorsed by the ADA as they cause discomfort or pain. Guards break the habit simply by removing the suction responsible for generating the feelings of comfort and nurture. [11] Other appliances are available, such as fabric thumb guards, each having their own benefits and features depending on the child's age, will-power and motivation. Fixed intraoral appliances have been known to create problems during eating as children when removing their appliances may have a risk of breaking them. Children with mental illness may have reduced compliance.

Some studies mention the use of extra-oral habit reminder appliance to treat thumb sucking. An alarm is triggered when the child tries to suck the thumb to stop the child from this habit. [12] However, more studies are required to prove the effectiveness of external devices on thumb sucking.

Childhood habit behaviors appear in numerous different forms. Many people engage in some degree of habit-like

behaviour in their lifetime. For example, habits can range from seemingly benign behaviors, such as nail biting or foot tapping, to more noticeable physically damaging behaviors, such as teeth grinding (bruxism) and hair pulling.

Habit disorders, are now subsumed under the diagnostic term stereotypic movement disorder, consist of repetitive, seemingly driven, and non-functional motor behaviors that interfere with normal activities or that result in bodily injury. Fortunately, many childhood habits are benign, are considered a normal part of development, and do not meet the criteria for a disorder; such habits typically remit without treatment.

Stereotypes are repetitive, purposeless actions that are most commonly seen in childhood. They do not have a clear definition, because of the wide range of possible stereotyped behaviors and the overlap with other movement or behavioral disorders. Nevertheless, it is helpful to classify stereotypes into general categories so as to distinguish between the different movements.

Oral habits ought to be of primary clinical concern to orthodontists as they may cause malocclusion and interfere with the treatment progress. Generally, habit control should be achieved earlier to correction of the malocclusion in an effort to eliminate any etiologic factors in development and maintenance of the malocclusion. It is well important for the clinician to understand that habit breaking treatment may need prolonged treatment time because habits may have been present for long periods of time and may be associated with underlying psychological problems. Hence based on above findings the present study was planned for Incidence of Different deleterious oral habits in school going children from Darbhanga District, Bihar.

#### Methodology:

The present study was carried out in the Department of Dentistry, Darbhanga Medical College and Hospital Laheriasarai, Darbhanga Bihar. Total 50 school going children of the age 4 years to 10 years were enrolled in the present study. Samples were selected from school; simple randomized sampling technique was used. Children with orthodontic appliances, systemic disease were excluded from the study. A closed ended questionnaire was provided to children involved in survey to obtain details like age, sex, presence of habits, duration and frequency. A detailed history was obtained from parents regarding the habit and its intensity.

The aim and the objective of the present study were conveyed to them. The informed consent was taken from the patients parents. Approval of the institutional ethical committee was taken prior to conduct of this study.

Following was the inclusion and exclusion criteria for the present study.

**Inclusion Criteria:** School going children of the age 4 years to 10 years. Completed form by parent concerning the child's oral habit. Children with valid consent forms signed by the parents

**Exclusion Criteria:** Children with orthodontic appliances, systemic disease. Refusal of the consent by parents. Children with general disorders such as neuromuscular and cardiac disorders. Current or previous use of orthodontic appliances.

The findings obtained were compiled on the excel sheet and subjected to demographic statistical analysis.

#### Results and Observations:

**Age:** The patient's age ranged from 4 to 14 years, majority of the patients reported in the 6-8 age group.

**Sex:** Majority of the students were males with a ratio of 1.7:1.0

**Location:** The patients reported were mainly from the rural area rather than from the urban area.

**Table 1:** Demographic Details

Parameters	No. of Cases
<b>Age:</b>	
4 – 6 years	11
6 – 8 years	14
8 – 10 years	12
10 – 12 years	10
12 – 14 years	3
Total	50
<b>Sex:</b>	
Males	32
Females	18
Total	50
<b>Locality:</b>	
Urban	15
Rural	35
Total	50

**Habits :** It was found that the patients had different deleterious oral habits ranging in frequency from thumb sucking to Mouth breathing to tongue thrusting to nail biting to lip biting. It was also found that the children from the rural area had statistically significant habit of tongue thrusting.

**Table 2:** Habits

Parameters	Observed in No. Cases
Thumb sucking	32
Mouth Breathing	19
Tongue thrusting	26
Nail biting	23
Lip biting	19

Number of Habits: Although majority of patients had a single habit, where as other patients indulged in two or three or few patients also had multiple habits.

**Table 3:** No. of Habits

No. of Habits	No. of Cases
Single Habit	31
Two Habits	24
Three Habits	11
Multiple Habits	6

### Discussion:

Habits are acquired automatisms, represented by an altered pattern of muscle contraction with complex characteristics, which proceed unconsciously and on a regular basis. [13] Sucking responses in the early ages are necessary for the survival of the infant and they play an important key role in the early exploration of the child's environment. Psychologists include the development of habits as a part of the normal sequence of maturation in children and recognize that these activities have the potential to become a problem or bad habit, under the circumstances of physical, mental stress, and socio-economic stress. [14]

The earlier literature was explicit with such findings in different population groups. [15-16] Compared to the current population, Albanese school children and the Brazilian school children (2617 subjects). [17] showed much greater prevalence of oral habits (78.9% in males and 82.1% in females; 87.4%, respectively). [18] Contrastingly, a very low prevalence of oral habits was reported in Nigerian children (9.9%), opposite to this finding in the Nigerian children belonging to Lagos the prevalence rate of oral habit was 34.1%. [19] There are several other studies done within the Indian subcontinent that quote a lower prevalence of oral habits. [20-21] This difference in the prevalence of the oral habits in different population group can be either attributed to the difference in the calibration or the ethnicity of the population being examined or the geographic location where the population is based or the variation in the sample size of the examined population.

Singh a Basra et al in their study also reported bruxism and mouth breathing to be the most common oral habit. [22] where as Kharbanda et al reported tongue thrusting and mouth breathing as the most prevalent habits in their studies. [23]

Oral habits are associated with skeletal and dental abnormalities. Its effects vary from person to person and depend upon the frequency, duration and intensity of habit. Guaba K et al reported 3% in rural children of Ambala in North India, which was very low. [24]

A study was conducted to know the effects of sucking habits on the primary dentition as part of Avon longitudinal study of pregnancy and childhood. Questionnaire data on non-nutritive sucking habits were collected on the children and dental examination were performed on the same children at 31 months, 24 months, and 36 months of age. They reported, at 15 months of age there was a statistically significant association with spacing in the upper labial segment teeth ( $p < 0.035$ ), but no association at 31 months. At 24 months of age, there was a statistically significant association between the alignment of the upper segment and a digit sucking habit ( $p < 0.36$ ) and at 36 months of age a statistically significant association was seen between digit sucking and the alignment of the upper labial segment ( $p = 0.022$ ), but not at 61 months ( $p = 0.363$ ). They concluded that the majority of children had non-nutritional sucking habits up till 24 months and both digit and dummy sucking were associated with observed anomalies in the developing dentition. [25]

A cross sectional observational study was conducted to know the prevalence of feeding, artificial sucking habits and malocclusion in 3 year old girls in different regions of the world. The following countries were involved in the present study: 1. Mexico, 2. Brazil, 3. Japan, 4. Norway, 5. Sweden, 6. Turkey, 7. United States (Iowa city). during the interview and examination the following variables were evaluated and registered 1. breast feeding and bottle feeding. 2. Duration and frequency. 3. Sucking habits. 4. Anterior and posterior cross bites. 5. Other malocclusion/normal occlusion. The prevalence of breast feeding, digit sucking, and pacifier sucking were ranging between 78% and 98%, 2% and 55%, 0% and 82% respectively. The prevalence of normal occlusion in different cities ranged from 38%-98%. [26]

An in vivo study was conducted to know the effects of chronic mouth breathing on dentofacial growth and occlusal characteristics. 73 children were evaluated ranging from 3-6 years of age. After otorhinolaryngological breathing diagnosis, 44 mouth breathing children and 29 nasal-breathing children were compared according to facial and occlusal characteristics. After cephalometric measurements it was observed that intermolar distance was statistically smaller in mouth breathing patients when compared to that of nasal breathers, which indicates a larger narrowing of the maxillary arch in the second deciduous molar area. [27]

An in-vitro study was conducted to assess the tooth and arch dimensions, occlusal relationship and the presence of spacing or crowding in primary dentition of Jordanian Children. A randomized clinical evaluation of 1048 preschool children was done. It was noted that bilateral mesial step molar relationship was found in 47.7% of

children followed by bilateral flush terminal molar relationship in 37% and bilateral distal step in 3.7%. Asymmetric right/left molar relationship was found in 11.6% of children examined. Class 1 canine relationship was found in 57% of children, followed by class 2 canine in 29% and class 3 canines in 3.7%. They concluded that males had larger tooth/arch dimension than that of females in the primary dentition stage. [28]

A study was conducted to estimate the prevalence of malocclusion in 4-6 year old Brazilian children and its relationship with oral habits, from two public primary schools. The sample was composed of 112 children with mean age of 61- 6.67 months. The results demonstrated that prevalence of malocclusion in the primary dentition was 75.8% (n=85). The oral habits was related by 34.8% (n=39) open bite was most prevalent malocclusion (31%), followed by posterior cross bite (10.8%), deep bite (10.8%), and anterior cross bite (7.2%). The habits were considered to be the etiological factors for the establishment of open bite and posterior cross bite. [29]

A longitudinal comparative study was conducted to know the effects of nutritive and non nutritive sucking behaviors on the dental arches in the primary dentition. Sucking behavior data were collected on 372 children followed longitudinally from birth. Study models were obtained from the children at 4 to 5 years of age and assessed for posterior cross bite, anterior open bite, and over jet. Results showed that children with pacifier habits of 36 to 48 months duration had significantly greater mandibular arch widths; there was a statistically significant increase in the prevalence of posterior cross bite with pacifier habits longer than 24 months. They concluded that malocclusions were different for pacifier and digit behaviors. Both behaviors were associated with increased prevalence of anterior open bite and reduced over bite. Pacifiers were associated with increased prevalence of posterior cross bite, while digit habits were associated with greater over jet, greater maxillary arch depths and smaller maxillary arch widths. [30] **In our study we found that 31% of the patients had habits.**

The education and the awareness of the parents matters a lot in controlling such deleterious oral habits in children. Apart from this, the socioeconomic condition of the population does play a major role in the prevalence of such habits. The facts that the oral habits are the causation of lack of the social and emotional security can be linked to the low socioeconomic group parents, the working class parents, and the large family groups. The degree of modernization and the ability of the child to cope with such a society without the mental tension is the major factor in determining the presence or absence of habit, as the oral habits act as mental stress releasers. The

mentioned reason might cause the variations in the noted prevalence for the different oral habits.

The study was limited to schools which represent only the school going children of rural and urban areas; it could be expanded to include non-school going children in its continuation. The present findings are based on a convenience sample and may not represent the general population of children. Sex may influence the factors analysed here because young women more frequently report more severe oral impacts than men, although this difference reported previously was not statistically significant. Selection bias is likely to have occurred.

Cross-sectional studies have limitations inherent in the design, as such studies are carried out either at a single point in time or over a short period, so the associations identified cannot be considered a causal relationship.

#### Conclusion:

The data generated from the present study concludes that all habits are not showing statistically significant relationship except tongue thrusting which is showing statistically significant relationship with more prevalent in rural areas.

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