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PREVALENCE OF DIFFERENT PARAFUNCTIONAL HABITS IN SCHOOL GOING CHILDREN OF PUNE BETWEEN 5-13 YEARS OF AGE: A CROSS-SECTIONAL STUDY

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ABSTRACT:

Background: Oral habit beyond pre -school age is an important etiological factor in developing malocclusion. **Aim:** The aim was to study the prevalence of different parafunctional habits in the school going children of Pune region of Maharashtra.

Material and method: A total of 135 children were selected randomly from the out patient department (OPD) of pediatric and preventive department between the age range of 5-13 years. The questionnaire was given to the parents and consent was obtained. The children were examined in the OPD and the presence or absence of the thumb sucking, tongue thrusting and mouth breathing habit were recorded. Statistical analysis was done using chi square test and fisher's exact test.

Results: Out of total study population, 28.9 % showed the presence of atleast one of the oral habit. Boys (37.2%) showed higher prevalence of oral habits as compared to girls (20.6%). Depending upon the habit type distribution in study group, tongue thrusting was more prevalent followed by mouth breathing..

Conclusion: From the study it can be concluded that there is a need to intensify oral health education targeting both parents and school children to enable them to get benefit from interceptive orthodontic care.

Keywords: Mouth Breathing, Oral Habits, Thumb Sucking, Tongue Thrusting

INTRODUCTION:

The survival of newborn depends upon instinctive oral sucking. It also nourishes and builds the child's initial psychological and interpersonal function.[1] Oral habit of sufficient frequency, duration and intensity beyond pre-school age can be an important etiological factor in development of malocclusion leading to socially handicapped child.[2-4] The relative prevalence of oral habit in school going children in India has been reported to be as low as 3% in North India [5] and 30% in South India.[6] However, no data is available regarding prevalence of oral habit in school going children in Pune region(southern part) of Maharashtra. Hence the present study was conducted with an aim to find out prevalence of different oral habits in the school going children of Pune between age group of 6-13 years. The study will provide important documentation in deciding prevalence of oral habit, malocclusion and orthodontic treatment needed to help formulate strategies of early prevention and correction of malocclusion.

MATERIAL AND METHOD:

The study was conducted by the department of Pedodontics and Preventive Dentistry, Bharati Vidyapeeth Deemed university dental college and Hospital,Pune, Maharashtra. The study was approved by institutional research and ethical committee.

Method of sample collection:

A total of 135 subjects in the age group between 5-13 years were randomly selected by stratified sampling method from OPD in the department of Pedodontics and Preventive Dentistry .The complete sample was further sub-divided according to sex.Inclusion criteria were completed questionnaire by

parent's regarding the child's oral habit and children with valid consent forms signed by the parents.Exclusion criteria were refusal of the consent and current or previous use of orthodontic appliances.

Method:

The study was conducted in the department of pedodontics and preventive dentistry , BVDU,DCH ,Pune .A total sample of 135 was selected randomly from the OPD in the age group between 5-13 years by stratified sampling method. It included the information regarding child's personal data and history of any previous existing oral habits.

Oral examination:

It was carried out in the classroom under natural light and the findings were recorded in college case history recording performa under WHO Oral Assessment Guidelines.[7]

Tongue thrusting;

During command as well as conscious swallowing, the contraction of lips, tongue movements and facial muscles was observed to examine for presence or absence of abnormal tongue thrust.

Thumb sucking:

A history was taken from parents regarding presence or absence of thumb sucking. In extra-oral examination, digits were evaluated for redness, cleanliness, short finger nail and fibrous callus. In intra-oral examination, proclined upper anteriors, narrow arched palate and posterior crossbite were observed.[8,9]

Mouth breathing:

A history was elicited from parents regarding the frequent occurrence of allergic rhinitis and tonsillitis. Jwemen's Butterfly Test and Masseller's Water Holding Test was performed to determine presence of habit.[10]All the readings were statistically analyzed by using chi square and fisher's exact test to compare the prevalence of oral habits and malocclusion, the p-value of 0.005 was regarded as significant.

RESULTS:

Out of total study population of 135 subjects, mean age of study subjects was 10.73(4.12) years. Majority of study samples (53.3%) were males and around 46.7% subjects were females. 28.9 % showed one of the mentioned oral habit with 95% CL of 19.43 - 38.09 (Graph 1) According to the habit type distribution in study subjects, majority subjects showed tongue thrusting habit followed by mouth breathing with prevalence rate of 20.5%, thumb sucking showed 5.1 % prevalence while other minor oral habitsshowed least prevalence i.e. 20.5%(Table 1).

Depending upon habit type distribution gender wise , boys showed significantly higher prevalence of parafunctional habits than girls in respect to mouth breathing and other parafunctional habits (Table 2). Thumb sucking was equally distributed in both groups, hence no statistical significant difference ($p>0.05$) was observed. Tongue thrusting had higher habit type prevalence in boys as compared to girls but there exist no statistical significant difference between boys and girls. Overall, habit distribution was statistical significantly($p<0.05$) higher in boys as compared to girls.(Table 2). Mean agefor thumb sucking habit was seen in younger population and other predominate habits like mouth breathing, tongue thrusting were predominately seen in children age more than 9.5 years (Graph 2)

DISCUSSION:

Habits are acquired automatisms, represented by an altered pattern of muscle contraction with complex characteristics, which proceed unconsciously and on a regular basis .[10] The early sucking responses are necessary for the survival of the infant and play an important role in 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.[11] However there are very few reports in the literature describing a co-ordinated and thorough psychological investigation associated with oral habits that may enlighten the causative factors associated with oral habits. Hence, an attempt was made in the present study to find out the prevalence of oral habits in young children and adolescents and to co-relate them with different biological variations.

The findings of this short study showed that 39 children (28.9 %) had atleast one oral habit. Children in age group are in the phase of learning to control their emotions. Emotional disturbances such as lack of care and love, too much fear and anxiety, might be a predisposing factors for oral habits.[12] The result of our study are in accordance with the results of Deepesh Jaiswal et al (2017) who studied oral habit prevalence in the school going children of Jamshedpur and reported in The results of our study were in accordance with the results of Nanda et al (1972) who studied children in Lucknow and reported 17% prevalence of oral habits in children aged 5-12 years.[13] In contrast, Guaba et al (1998)found only 3% of children showing the presence of oral habits in the age group of 6 -15 years in Haryana.[5] When the total prevalence of oral habit in boys and girls was compared, the difference was found to be statistically significant with the prevalence being more in boys (37.2 %) as compared to girls (13.8 %). It was also observed that oral habits persisted for longer periods in boys than girls, especially mouth breathing, tongue thrusting .These findings were in accordance with findings of Massler M.[11] In contrast to above mentioned studies, Baalack I.D. and Frisk A.K.(1971) in a restrospective study done on Swedish children found 30.7% prevalence of oral habits with higher incidence in girls.[14] The habits were more prevalent in municipal schools (19.3%) as compared to the private schools (13.9%), the difference being statistically significant. This difference could be attributed to the difference in their lifestyle and socio-economic status. According to the Erik F. Larsson (1985), the prevalence of finger sucking habit was more in children of modern western society (Sweden) when compared to children staying in under-developed areas of Africa (Zimbabwe).[15] The prevalence according to different age groups showed a tendency of decrease in oral habits with advancing age.[14] The possible reason for the drop of habit with the advancing age can be attributed to the peer pressure influence.[16]

Prevalence of individual habits:

Tongue thrusting:

In this study, tongue thrusting was most common oral habit (53.9 %) which is in accordance with the findings of Kharbanda et al (2003).[17] Tongue thrusting was found to be most prevalent common habit in all the three age groups but its prevalence was highest in 9-10 years old children. This is because the presence of transient tongue thrust was taken into the consideration while recording the tongue thrust. It was the only habit persisting in age group 3which can be attributed to already settle malocclusion.

Thumb sucking:

Most of the children are engaged in non nutritive sucking (NNS) habit associated with hunger, shyness, sleeping, psychological development, fatigue and development of face and dorsal structure.[18] Thumb Sucking was third most common oral habit (5.1 %). The prevalence of Thumb Sucking in boys was 50 % and 50 % in girls.The prevalence was significantly higher in young children as compared to older children. These results were in accordance with Munshi A.K (1998).[6] Ruben E et al, Infante PF, Popovinch F demonstrated that thumb sucking was more common and persistent habit in girls than boys.[19-21] Benjamin et al (1967) found no prevalence of sucking habit in Eskimo children in Canadian arctic region and he explained it as thumb sucking is result of an opportunity to learn a habit and as child is constantly at his mother's back with a bottle of milk continuously in his hand.[22,23] There have been two major theories regarding the cause of thumb sucking habit: 1) psychoanalytical theory of psychosexual development and learning theory, suggesting that continuation of the habit is the manifestation of an underlying psychologic disturbance and is therefore a mechanism for stress management. 2) The second theory suggests that non nutritive sucking stems from an adaptive response and assumes no underlying psychologic cause but is an adaptive behavior.[24]

Mouth breathing:

Mouth breathing can be related to a variety of causes, including enlarged adenoids, tonsils and nasal concha, obstructive nasal septum displacement, allergic rhinitis, nasal or facial deformities and, more rarely, by foreign bodies.[25]The prevalence of mouth breathing in the present study was all in boys groups. No cases of mouth breathing detected in girls. Munshi et al showed 4.6% prevalence of oral habits in the

children of Mangalore.[6] Kharbanda et al. reported the prevalence of mouth breathing to be 6.6% in school going children of Delhi with a higher prevalence in boys.[17]

Other habits: (lip biting, lip sucking, palm biting):The prevalence of other habits was 20.5%, predominately seen in boys (75%) as compared to females (25%). However values were statistically significant. Ruben E et al. reported a prevalence of 6.9% lip biting[19], where as Munshi et al. 6 % prevalence of lip biting with higher incidence in girls.[6]

CONCLUSION:

In more developed parts of the world where the specialties of orthodontics and pedodontics have been established, adequate basic information is available on the prevalence of malocclusion. In developing nations, such information still lacks. Thus, there is a need to intensify oral health education in our environment, targeted at both parents and school children to enable them to get benefit from the interceptive orthodontic care which has numerous advantages.

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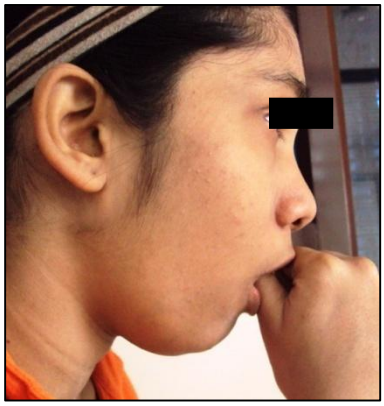


Figure1.a.Thumb Sucking

Figure1.b. Associated anterior open bite

Figure2.a.TongueThrustring

Figure1.b. Associated anterior open bite

Table 1: Habit type distribution in study subjects

	Frequency (n)	Percentage (%)

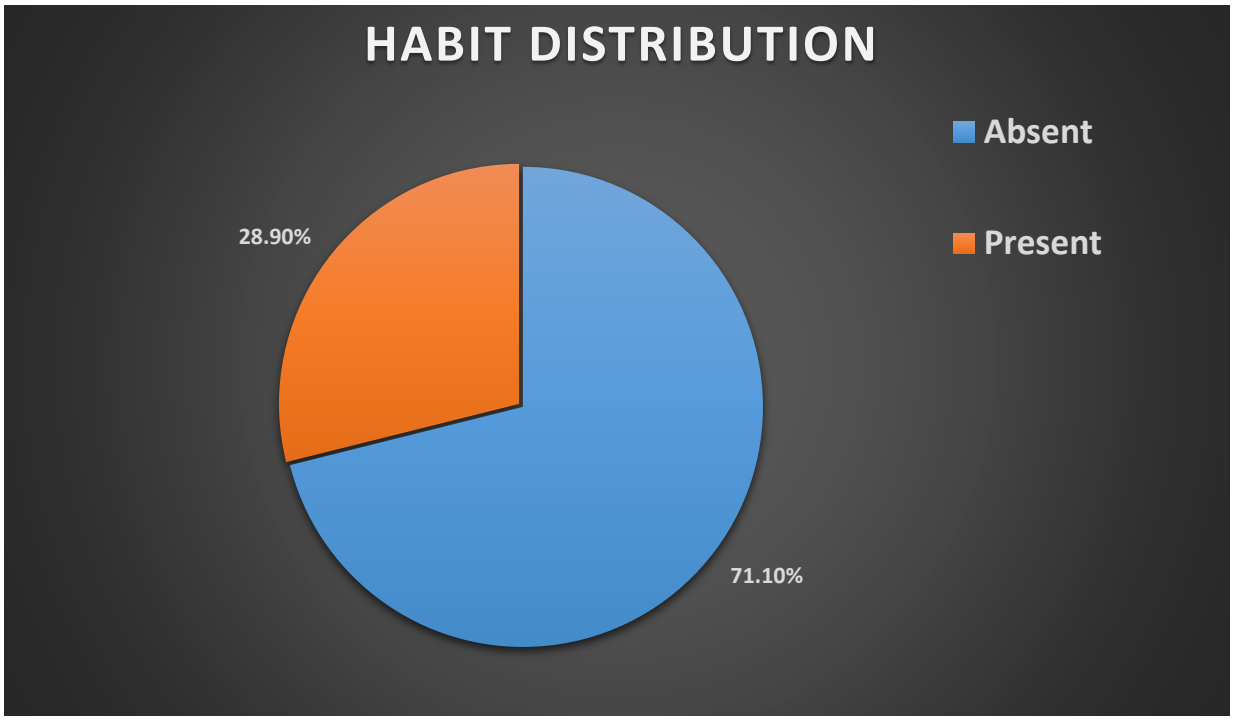
Thumb sucking	2	5.1%
Mouth Breathing	8	20.5%
Tongue Thrusting	21	53.9%
Other	8	20.5%
Total	39	100%

Table 2: Habit type distribution gender wise

(n=39)	Boys n (%)	Girls n (%)	p value (Chi square test)
Thumb sucking	1 (50%)	1 (50%)	p<0.05
Mouth Breathing	8 (100%)	0 (0%)	p<0.001**
Tongue Thrusting	11 (52.4%)	10 (47.6 %)	p<0.05

Others	6 (75%)	2 (25%)	p<0.001**
Total	26/72 (37.2%)	13/63 (20.6 %)	p =0.009*

p>0.05 – no statistical difference *p<0.05 – significant **p<0.001 – highly significant



Graph 1: Habit Distribution of study samples

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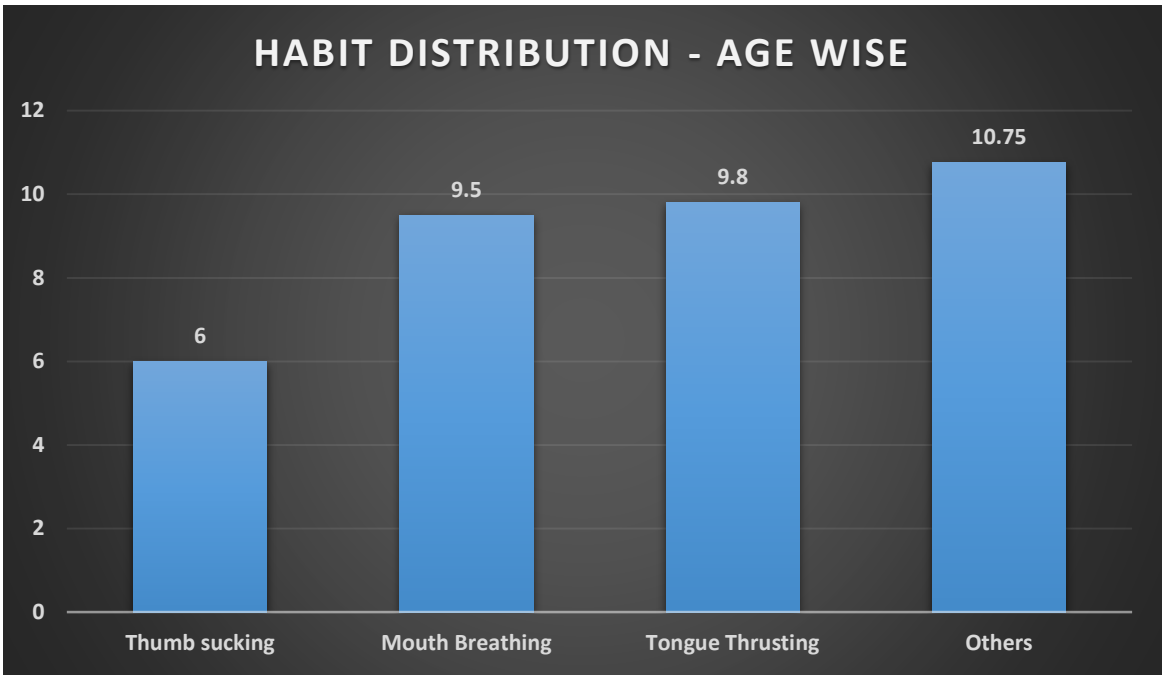

Graph 2: Habit type distribution in mean age