

Age and Gender Wise Prevalence of Oral Habits - A Retrospective Study

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Abstract

Oral habits are learned patterns of muscle contraction and have very complex nature. Persistent oral habits beyonds normal age of children have been considered as a significant factor that can lead to malocclusions. A total of 86000 case records between June 2019 to march 2020 were screened and evaluated in which 18656 children less than 18 years were taken into our study. Chi square test was done to estimate the relationship between oral habits with age and gender. The results showed that the overall prevalence of oral habits among children were 3.9%. The highest prevalence rate of oral habits was tongue thrusting (43.5%) followed by thumb sucking (39.1%) and lip biting (17.4%) respectively. Chi square test was done in between age and type of oral habits and the p value was $0.025 < 0.05$ was termed to be statistically significant. Within the limit of our study, oral habits were detected in less than quarter of the examined population. There was a significant difference for age wise prevalence of oral habits, with younger people indulging more oral habits than elders. Among the types of oral habits, tongue thrusting was the commonest oral habits indulged among the children.

Keywords: *Thumb sucking, tongue thrusting, lip biting, malocclusion, children.*

Introduction

Oral health plays an important role in the general well-being of an individual and there is a strong relationship between dental neglect and oral health ¹. Habits can be referred to as repetitive action that is being done unconsciously. Repetitive behavior is common in the infantile period and most of the children started and finished the habits spontaneously. Oral habits also are learned patterns from muscle contraction and it has very complex nature. They can be associated with hunger, sleep, anger, tooth eruption or fear. These types of oral habits might be non-nutritive sucking such as thumb sucking, finger sucking and tongue thrusting. These

habits eventually can cause damage to dento-alveolar structures ². The most common oral habit was thumb sucking. The prevalence for thumb sucking was high and it was between 13% to 100% in some societies but it decreased as age increased and these habits mostly should be stopped by the age of 4 years old ³. There is correlation between child nutrition, sucking habits and level of education among patients ⁴.

Thumb sucking can be categorised as two types which are active and passive thumb sucking. In active thumb sucking, presence of heavy force by muscles during sucking can cause position of permanent teeth and shape of mandible to be affected if it continues for a long period of time ⁵). In passive thumb sucking, no force was involved during sucking so no changes in skeletal or mandible. If this habit has stopped by the age of 5 years, dental changes would be converted automatically. These habits can lead to negative effects such as open bite, overjet and many more. Tongue thrusting normally occurred due to delayed transition between infantile and

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adult swallowing patterns. Usually, it will be started around the age of 2 years and by the age of 6 years, 50% of the transition would have been completed. Tongue thrusting may also lead to open bite, cross bite, overjet and class II malocclusions⁶. Our previous research published using endodontics files for obturation quality, have followed the same methodology^{7,8,9,10,11,12,13,14}. In children with habits, they are more prone for malocclusion due to increased overjet, which can result in dental trauma^{15,16,17,18}. Children in this group show more prevalence of habit and dental caries, therefore habits need to be diagnosed and corrected while fluoride can help in prevention of caries^{19,20,21}.

Review of the previous literature on oral habits among children showed a wide range of prevalences existing between populations, races, and countries and it is yet to be believed that this difference is due to the various factors such as gender, rank of the child in the family, methods of feeding, socioeconomic status and education²². In addition, it has been reported that the prevalence of oral habits are rising in recent times, probably due to the change in the family and social environment. The relative prevalence of oral habits among children in India had been reported to be as low as 3% in North India and 30% in South India^{23,24}. Owing to this factor, the current study aims to evaluate prevalence of oral habits based on age and gender.

Materials and Methods

A total of 86000 case records between June 2019 to march 2020 were screened and evaluated in which 18656 children less than 18 years were taken into our study. Children diagnosed with some oral habits and who met our inclusion criteria were taken for detailed examination (46). Complete case reports were taken into this study. Incomplete case records were eliminated. Sampling bias minimised by verifying absence or presence of oral habits in case report. All data was verified by a single trained examiner. A university set up was selected for this study which provided easy accessibility to data and provided a population with similar ethnicity sample population with similar ethnicity. Sample population included in this study were patients having oral habits.

Approval for this study was obtained from the institutional ethical committee (IEC) with approval number of SDC/SIHEC/2020/DIAS DATA/0619-

0320. Case records were retrieved from dental hospital management systems in which records of all patients from initial to last were chronologically added. Data was verified. Data regarding age, gender, presence or absence of oral habits were retrieved and tabulated in Microsoft Excel. All data was then transferred to excel tabulation and SPSS importing were done. In SPSS software, independent variables such as gender and age were confirmed. Dependent variables were whether patients had oral habits or not. Calculations were done in Excel Sheets. Tables and bar charts were obtained. Chi square test was done in between age and type of oral habits and the p value was $0.025 < 0.05$ was termed to be statistically significant.

Results and Discussions

A total of 1168 completed case records which met inclusion criteria were analysed. A total of 46 patients, 26 male (56.5%) and 20 females (43.5%) showed one or the other kind of oral habits. Overall prevalence is 3.9% which is in contrast if compared to the current population, Albanese schools children and Brazilian school children with 2617 subjects²⁵ showed much greater prevalence of oral habits (87.4%). This finding is similar to study from²⁶ which reported a low prevalence of oral habits in Nigerian children with a percentage value of 9.9%. There were several other studies done within Indian subcontinent that quote a lower prevalence of oral habits in different population groups can be either due to the difference in the calibration of technicality of the population being examined or geographic location where population is based or the variation in sample size of the examined population.

In this study, we have observed that there was statistically significant between age and type of oral habits (p value was $0.025 < 0.05$). Based on the relationship between age and type oral habits, it could be seen that most of the younger group of children age 7-10 years old experienced tongue thrusting more than other types of oral habits with a percentage of 28.26%. Thumb sucking and lip biting was less frequently experienced by the younger children. Elder group of children aged 11-17 years frequently having thumb sucking habits (21.74%) and tongue thrusting as the second most frequent type of oral habits [Bar chart 1]. Gender wise distribution of oral habits was depicted in [Bar chart 2]. For females,

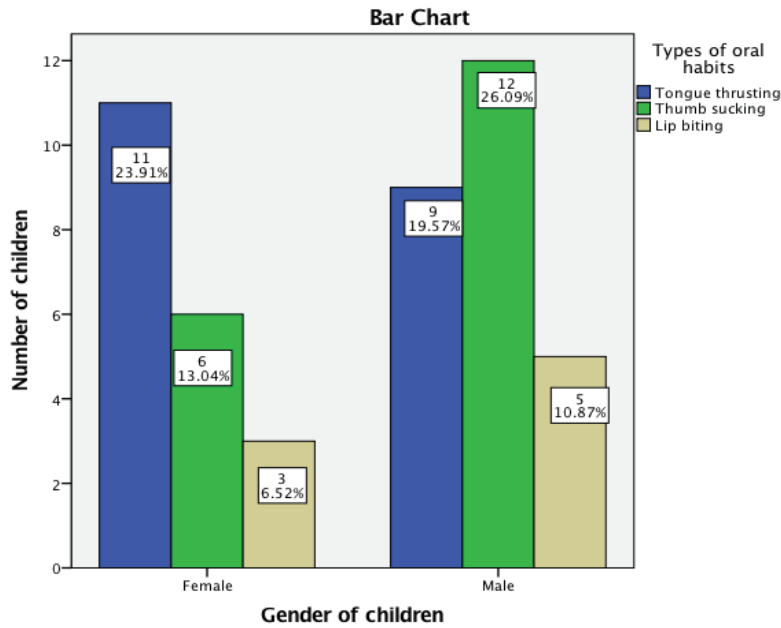
tongue thrusting was the commonest type of oral habits with a percentage value of 23.91% followed by thumb sucking (13.04%) and lip biting (6.52%) respectively. For male populations, it can be observed that thumb sucking (26.0%) was the commonest type of oral habits developed among them followed by tongue thrusting (19.57%) as the second highest and lip biting (10.87%) as the third highest.

Distribution of type of occlusion based on Angle classification among gender was shown in [Bar chart 3]. There is no difference in terms of prevalent in class II division I among male and female populations. In terms of class I, it can be revealed that male populations are higher than female populations with a percentage value of 47.83% and 34.78% respectively. Based on frequency tables 1, it can be seen that younger children which are below 10 years of age showed higher prevalent towards oral habits compared to elder populations. [Figure 1] shows that male populations with a percentage of 56.5% were commonly developing oral habits compared to female populations (43.0%). Based on [Figure 2], tongue thrusting habits (43.5%) were the commonest types of oral habits followed by thumb sucking with a percentage value of 39.1% and lip biting (17.4%) respectively.

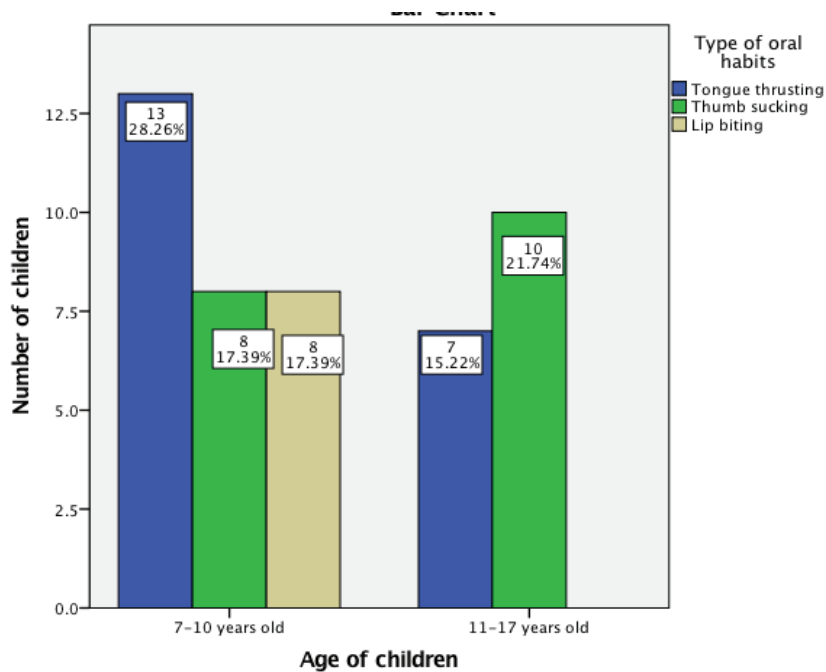
The level of education or knowledge among patients plays an important role in controlling deleterious oral habits among children. Other than this factor, socio economic condition of the population also contributed to this habit. The fact that oral habits are the causation of lack of social and emotional security can be correlated to the low socioeconomic group of parents. The degree of modernisation and ability of the child to cope with such society without mental tension can be the significant factor in determining presence or absence of the habits

as oral habits also can act as stress relievers. Based on the present study, the highest prevalence rate was registered for tongue thrusting (43.5%) followed by thumb sucking (39.1%) and lip biting (17.4%). This sample is similar to study from Vishnoi et al²⁷ who reported that tongue thrusting habits have the highest prevalence. Contrastingly, lower prevalence of tongue thrusting was noted in different population groups²⁸.

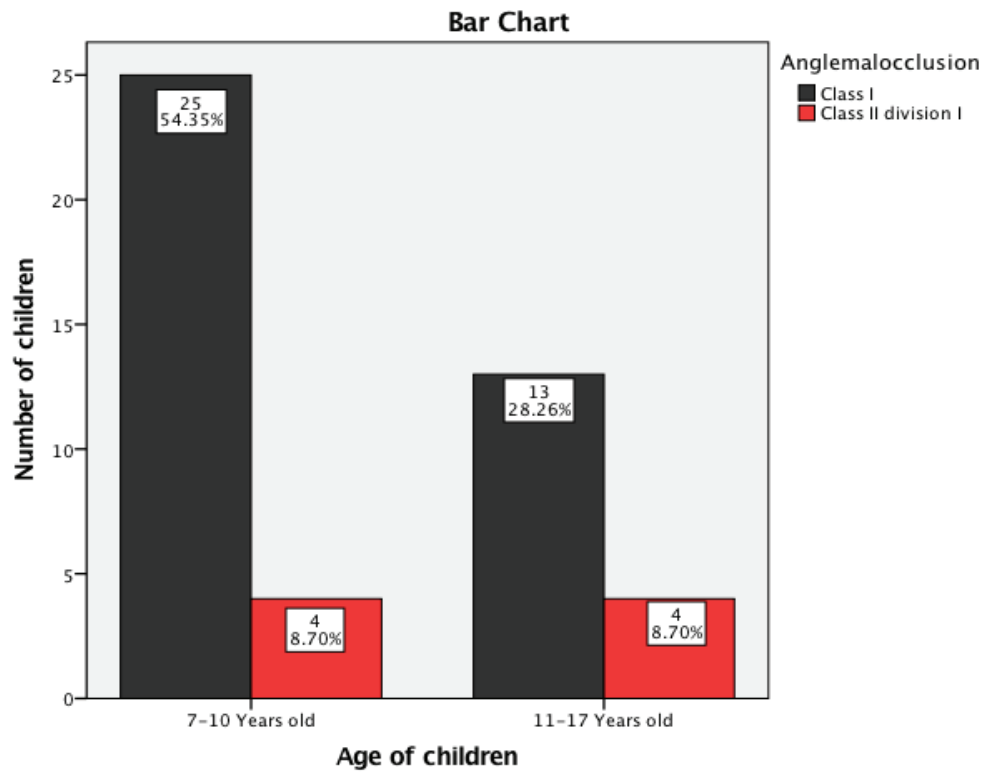
The tongue thrusting habits is known to cause functional imbalance in the oral cavity therefore possibly causing development of malocclusion²⁹. The prevalence of thumb sucking in current study is 39.1%. Thumb sucking and lip biting were reported less frequently compared to the tongue thrusting and the results of current study are in agreement with this finding²⁶. Even though prevalence is low but there are still warrants the need for further monitoring as thumb sucking is known to cause anterior open bite, posterior crossbite tendency in developing malocclusion. On considering the gender wise distribution of oral habits, statistically nonsignificant differences were found between male and females populations²⁷. Few studies in contrast with our findings where they found greater prevalence of oral habits in females rather than male populations³⁰. There was a statistically significant difference in the age wise prevalence of oral habits such as tongue thrusting, thumb sucking and lip biting. These habits were more prevalent in younger children. However this finding was in contrast with study from²⁷ which stated that these habits are more prevalent in the older age group children than younger one. The limitations of this study is that the sample size is small. Therefore, it does not provide results for the entire population. Since it was a retrospective study, there was also possible manual error during data collection.



Bar chart 1 represents association between gender of children and types of oral habits where blue colour denotes tongue thrusting, green colour denotes thumb sucking and light brown denotes lip biting. X axis represents the gender of the children and Y axis represents the number of children. Chi square test was done and the association between gender and oral habits were found to be not significant. P value was 0.377(>0.05). It can be concluded that males experience oral habits more than females although not a significant association.



Bar chart 2 represents association between age of children and types of oral habits where blue colour denotes tongue thrusting, green colour denotes thumb sucking and light brown denotes lip biting. X axis represents the age of the children and Y axis represents the number of children. Chi square test was done and the association was found to be statistically significant. P value was 0.025<0.05. It was observed that children aged 7-10 years old had a higher prevalence for oral habits than children aged 11-17 years old.



Bar chart 3 represents the association between age of children and Angle malocclusion where black colour denotes class I and red colour denotes class II division I. X axis represents the age of the children and Y axis represents the number of children. Chi square test was done and the association was found to be statistically not significant. P value was 0.682(>0.05). Most of the children aged 7-10 years had class I compared to class II division I although not a significant association.

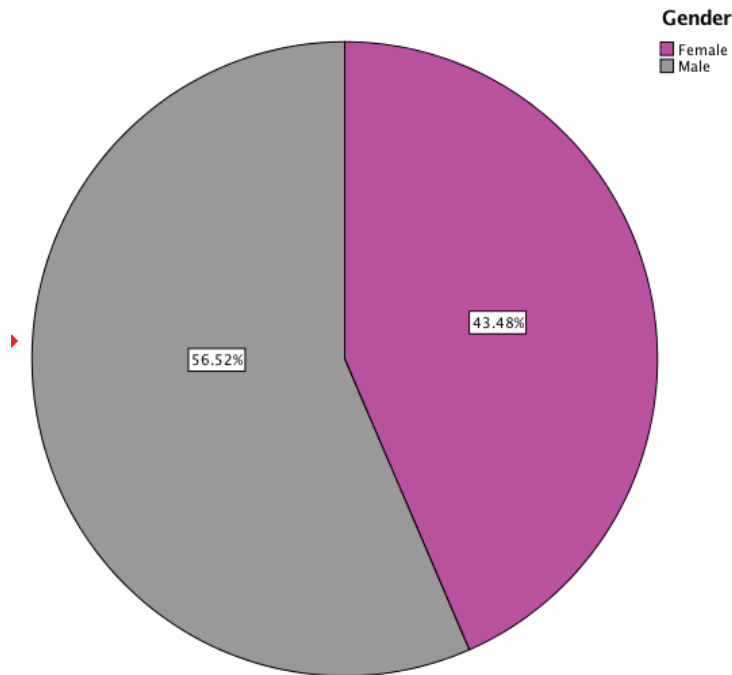


Figure 1: The pie chart shows the distribution of oral habits among different genders of population where light purple denotes female and grey colour denotes male. It can be observed that 56.52% of male populations and 43.48% female populations had oral habits. It was noted that males had a higher prevalence rate for oral habits compared to females.

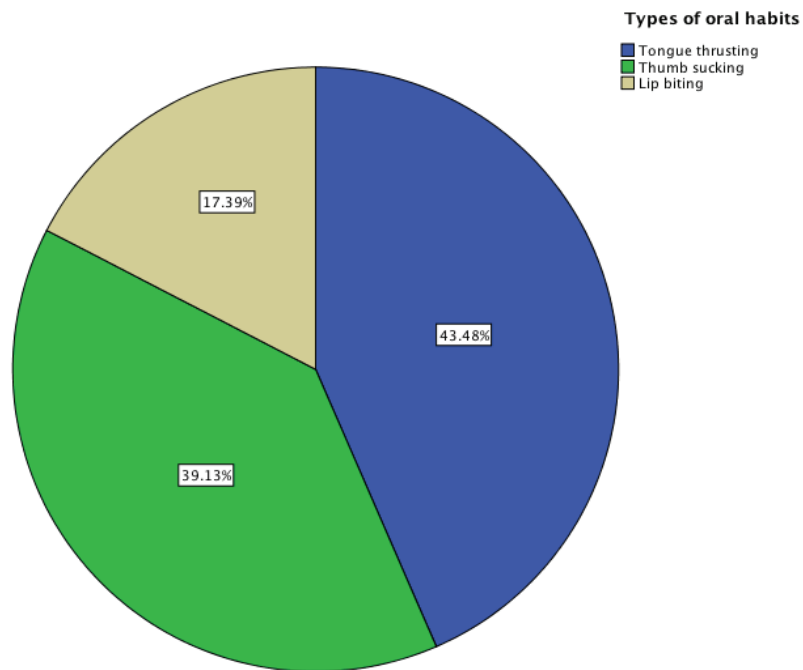


Figure 2: The pie chart shows the distribution of type of oral habits among the sample size population where blue colour denotes tongue thrusting, green colour denotes thumb sucking and light brown denotes lip biting. It can be seen that 43.48% of them had tongue thrusting, 39.13% had thumb sucking and 17.39% had lip biting. It is noted that tongue thrusting was the commonest type of oral habits indulged among the

children compared to thumb sucking and lip biting.**Conclusion**

Within the limit of our study, oral habits were detected in less than quarter of the examined population. There was a significant difference for age wise prevalence of oral habits, with younger people indulging more oral habits than elders. Among the types of oral habits, tongue thrusting was the commonest oral habits indulged among the children. These findings warrant the need for educating children and parents about the negative effects from these habits.

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