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GENDER INFLUENCE ON OCCLUSAL CHARACTERSTICS OF 4-6 YEAR- OLD CHILDREN OF CHENNAI, INDIA- A CROSS-SECTIONAL STUDY

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ABSTRACT

Aims and Objectives: This study aims to analyze the gender influence on occlusal Characterstics of 4-6 year-old children of Chennai, India- A cross-sectional study. **Materials and Methods:** A cross-sectional study was conducted among 300 children to assess the gender difference. The children were selected from the area of Ramapuram local schools namely Vivekananda and vidhyashram government school. The questionnaire consisting of a mother's background offered three choices of place-town, semi-urban and rural areas. Mother's influence regarding knowledge of health was determined by using questionnaires including at what age mother should start health education. In order to access the tooth brushing frequency, the children were grouped under two categories-daily brushing children and occasionally brushing children. The child sugar consumption and intake of fluoride tablets also formed a part of the questionnaire. The data were analyzed by using chi-square test. **Results:** Habit of tooth brushing was more regular in girls when compared to boys. The most important factors in this research were the mother's socioeconomic background including age, basic education, occupation and attitude towards health education influence the children tooth brushing frequency with oral cleanliness. 76.53% of irregular brushing children and 87.34% of regular brushing children agreed that the brushing of teeth is necessary whereas 23.47% of irregularly brushing children and 12.66% of regularly brushing children have disagreed. There was a statistically significant difference was found in the tooth brushing habits and oral hygiene among regularly and irregularly brushing children was 0.0001 and <0.0009. The fluoride consumption of regularly and irregularly brushing children was statistically significant (P <0.00012). **Conclusion:** Dental health educators should encourage mothers of young children to develop a positive attitude towards tooth brushing and teach them the correct technique. Thus the study done was an effective one that showed the rate difference and awareness status among the various mothers belonging to different areas.

KEYWORDS

Oral health habits, Children, Socioeconomic and Tooth brushing.

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INTRODUCTION

Occlusion in primary dentition plays an important role in determining the spaces in oral cavity such as Developmental Spaces and Primate Spaces. It also helps in determining occlusion in the succeeding permanent dentition. Depending upon the characteristic features of the dentition, proper

eruption and alignment of the deciduous dentition can be observed.

Depending on the deciduous dentition and its exfoliation, slides on permanent dentition can also be made easily. As the deciduous teeth being exfoliated eventually our community does not give importance to this aspect. However importance has been given for preservation up to exfoliation and other aspects of deciduous dentition in pedodontics. Presence of developmental spaces, primate spaces, flush terminal plane and canine in class I occlusion may result in the malocclusion of permanent dentition. Previous studies have highlighted that the status of primary dentition to such extent that some of the malocclusion traits present in primary dentition will be reflected or worsened in primary dentition. The aim of the study is to estimate overall prevalence rate of occlusal characteristics of primary dentition in 4 to 6 years of age, determine gender influence on various occlusal characteristics and comparison of results with other group of population.

MATERIAL AND METHODS

A total of 300 children, between age 4-6 years, who were residents at Chennai and attended different nursery, kindergarten and primary schools were examined. Among 300 children equal number of boys and girls were taken into consideration. A revised criteria for assessment and interpretation of the deciduous dentition[1] and primary dental arch characteristics given by[2]. Occlusal parameters were recorded using straight probe, graded stainless steel wire and dental floss, under natural daylight. Occlusal parameters measured for the study includes, The inclusion criteria comprised of children who are willing to participate and the consent form fulfilled by parents, children with physical and mental well-being are included in the study. The exclusion criteria comprised of children not willing to participate, children with systemic diseases and those who are medically immune-compromised are excluded. The data was obtained by using a questionnaire based on the mother's background, offered three choices of place-semi-urban, rural and town areas.

The mother's influence regarding knowledge of health was determined by questionnaires of at what age mother should start health education. In order to access the tooth brushing frequency, the children were grouped under two categories-daily brushing children and occasionally brushing children. The child sugar consumption and intake of fluoride tablets also formed a part of the questionnaire. The data were analyzed by using chi-square test.

RESULTS AND DISCUSSION

The cross-sectional study was conducted among school children of aged 3-4 years in the Ramapuram area on local schools namely Vivekananda and vidhyashram government school. The study was carried out in the year 2011. The ethical approval for this study was obtained from the Department of Public Health Dentistry, SRM dental college, Ramapuram. The study purpose was explained to the school authorities and their permission was obtained. The sample size was estimated to be 376 children by using a convenience sampling method.

The inclusion criteria comprised of children who are willing to participate and the consent form fulfilled by parents, children with physical and mental well-being are included in the study. The exclusion criteria comprised of children not willing to participate, children with systemic diseases and those who are medically immune-compromised are excluded. The data was obtained by using a questionnaire based on the mother's background, offered three choices of place-semi-urban, rural and town areas.

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Among 3-6yrs old irregular tooth brushing children, 47% of girls habitually brush teeth when compared to boys. Of rural children, 40% were regular tooth

brushers, on the other hand, this value was 60% and 90% in semi-urban and town respectively.

The chi-square analysis of tooth brushing and oral cleaning habits based on irregular percentage was saying yes was 73.53% whereas people saying no was 23.47% on the other hand daily brushing people saying yes were 87.34% and people saying no were 12.66%. The statistically significant difference was 0.0001.

Almost 60% of children aged 3yrs had meals with sugar. Those children who used most sugar have more irregular brushing habits than others. Sugared milk was consumed by half the population of children. Gender doesn't correlate with the milk consumed at night. The rural children had higher sugar content in food and consuming high sugared milk. Consumption of sweets was more common in girls and rural children than urban and semi-urban children.

The addition of sugar less than 2 times irregularly was 22.76% whereas more than 3 times 77.24%. On the other hand, a daily consuming population less than 2 times was 20.22% and more than 3 times was 79.78%. The overall chi-square was estimated to be <0.0001.

The analysis was also done on the consumption of sweets. The irregularly based ones were 39.86% daily and 60.14% weakly. As such the daily ones were 31.71% every day and 68.29% weakly. Hence the chi-square analysis was 0.0007.

DENTAL HEALTH PROMOTING HABITS

Fluoride tablet usage was not found among the surveyed population. Toothpaste was most significantly used among children in urban areas than semi-urban and rural children [urban-75%, semi urban-30%, rural-10%]. The mother starts health education at 3 years of age which was statistically significant with tooth brushing. This age was preferred because irregular brushing was more common and proper care should be taken at this stage.

Discussion

Albertson *et al*, in the year 2010 has discussed the habits of brushing and the use of dentrifices among the population of Swedish adults and concluded that they have poor knowledge and awareness regarding the habits of using dentrifices and brushing their teeth[2-4].

Amin *et al*, in the year 2008 have discussed the awareness and knowledge of oral hygiene, dietary habits and their association with dental caries among Saudia Arabia male children of that only 24.5% of children brushed their teeth twice a day and 44.6% of children used Miswak to clean their teeth. The socioeconomic factor plays a crucial role in maintaining good hygiene. This study concludes that children from low socioeconomic backgrounds had poor oral hygiene and has a higher incidence of caries occurrence[5-7].

Grytten *et al*, in the year 1988 discussed the dental health habits among Norwegian preschool children and concluded that the majority of children aged 36 months were caries-free and had good oral hygiene habits regarding tooth brushing and use of fluorides[8,4,9].

The results of the present study shows that the majority of the children had a flush terminal plane followed bymesial and distal step. However this may affect 40% of the population with higher prevalence of mesial and distal step molar relationship which may lead to malocclusion in future. Similar results were recorded by study of Indian children with the percentage of 35% and 27% respectively which is higher than those reported by the other studies, Determination of primate spacing of 4 to 5 years old children often in kindergarten, Age changes in the occlusal pattern of deciduous dentition, Evaluation of occlusion, trauma and dental anomalies in African-American children of metropolitan head start programs[10,11]. This increase in prevalence is based on the unilateral consideration of the posterior teeth and also with advancing age group. Prevalence of flush terminal plane is higher in females than males, mesial step higher in males than in females and incidence of distal step is higher in females than males.

Table No.1: Distribution of study Sample

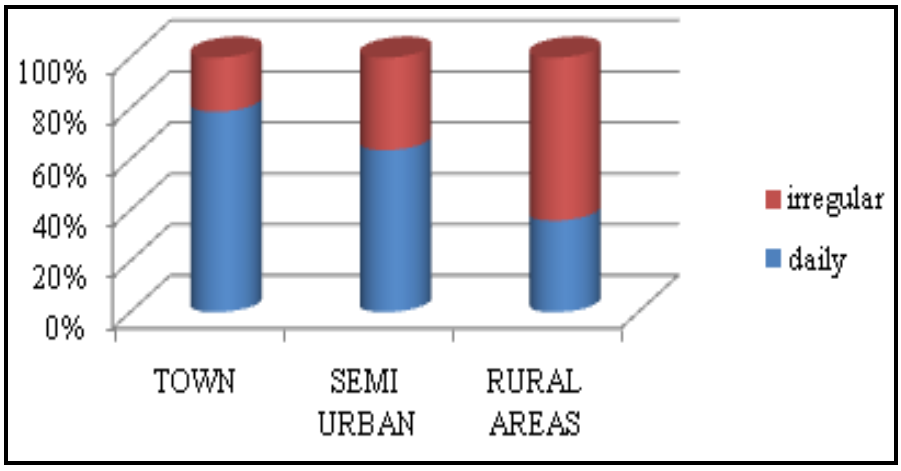
Mean age (yrs)	Gender		Total
	Males	Females	
4.8 years	150 (50%)	150 (50%)	300

Table No.2: Tooth Brushing

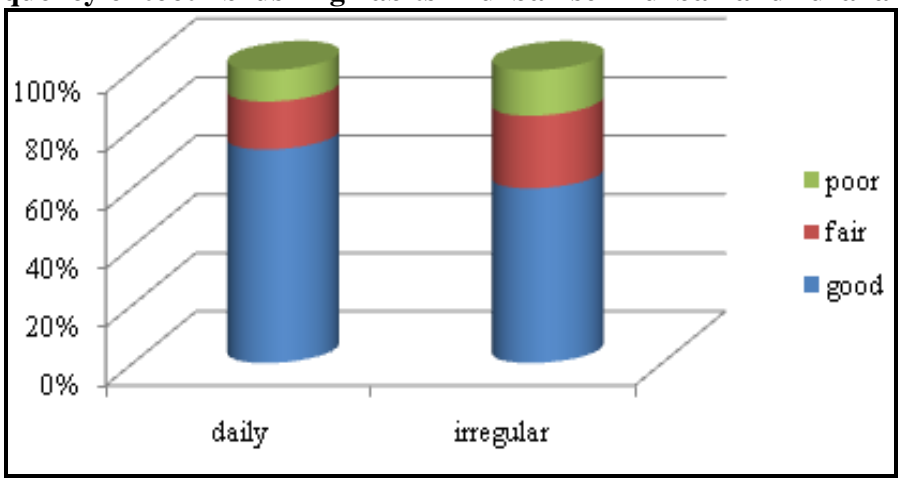
Necessity of tooth brushing	Irregularly %	Daily %	P
Yes	76.53	87.34	0.0001
No	23.47	12.66	

Table No.3: Sugar Consumption

S.No	Habits of drinking night juices or milk	Irregularly %	Daily %	P
1	Yes	13.0	9.63	0.06
2	No	87.0	90.37	
Addition of sugar				
3	Less than 2 times	22.76	20.22	<0.0001
4	More than 3 times	77.24	79.78	
Consuming sweet				
5	Daily	39.86	31.71	0.0007
6	1Weekly	60.14	68.29	



Frequency of tooth brushing habits in urban semi-urban and rural areas



Percentage distribution of oral hygiene in children

CONCLUSION

Overall prevalence of occlusal traits showed the characteristic features of the children which may end up with malocclusion in future. Gender influence on occlusal characteristics were made on different children. These two findings may help us in correcting the malocclusion and provide us the path for proper treatment planning. Results based on this study is compared with the studies made with different population for prevalence of occlusal traits owing to viability and ethnicity. A need for further investigation pertaining to the maintenance of these malocclusion traits in the future is emphasized.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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