Dental Habits among 2 to 5 years old Children in Benin City

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ABSTRACT

Objective: To assess dental habits and factor associated occlusal traits among 2-5years old children in Benin City, Edo State.

Methods: A cross sectional study was carried out amongst 352 respondents using systematic sampling technique for selection. Pre-tested interviewer administered questionnaires were used for data collection. Data was analyzed with IBM SPSS version 21.0 software. The association between socio-demographic variables and dental Habit amongst respondents was analyzed using chi squared test and Fisher's exact test where applicable. The level of significant was set at $p < 0.05$.

Results: The prevalence of Dental habit in the study was found to be 71.0%. Digit sucking was the most prevalent dental Habit in the study 36.0%. The highest proportion of tongue thrusting was found among 3-4years age group while bruxism was higher among 2years old. More than Half the respondents 54.0% believed anxiety to be a predisposing factor to dental habit. Spacing was observed to be prevalent as occlusal trait among respondents 51.7%.

Conclusion: The study revealed an overall prevalence of dental habits of 71.0% with higher prevalence of finger sucking, bruxism and lip sucking among males while mouth breathing, tongue thrusting and use of pacifiers was found to be higher among females. The study revealed common predisposing factor to development of dental habit to be stress, anxiety, imitation of habits, loneliness, abandonment. The study revealed a high prevalence of spacing and open bite during the intraoral assessment

Keywords: Dental habit, digit sucking, bruxism

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INTRODUCTION

A habit is a repetitive behaviours which are common in the infantile period and mostly starts and stops spontaneously. The environment a child grows is also crucial for development of these habits since it could produce a state of well-being and satisfaction.[2] It is known that habits can manifest a child's adjustment problems or inappropriate emotional expression. Hence, habits are defence mechanism against the external environment which is hostile for the child.

Digit sucking is one of most common repetitive behaviours in infantile periods and also constitute one of the first sophisticated patterns of behaviour in infant.[1 This] may be related to the fact that survival of a newborn depends largely on the instinctive sucking abilities with resultant nourishment, psychological and interpersonal development.

Oral habits are usually into two main groups: Acquired oral habits (functional) - include those behaviours which are learned and could be stopped easily and when the child grows up, he or she can give up that behaviour and start another one. Compulsive oral habits (parafunctional) - consists of those behaviours which are fixed in a child and when emotional pressures are intolerable, he or she can feel safe with this habit.[2]

Dental habits beyond preschool age can be a significant aetiological factor in the development of malocclusion leading to socially handicapped child.

Malocclusion which can be a sequelae of oral habits according to the World Health Organization, rank the third highest among oral pathologies, second only to dental caries and periodontal disease, and therefore rank third among worldwide public health dental disease priorities. Malocclusion has been shown to affects oral health, leads to increased prevalence of dental caries and may result in temporomandibular joint disorders.[3]

This study will highlight the dental habits among primary school children and their relationship to malocclusion as these information will serve as a

useful tool for the design of targeted health plans, programmes and preventive actions directed at the health education and enlightenment of this group. Determining the prevalence of dental habits among this group, will reveal common oral habit practices and indirectly, gaps in knowledge about oral habits, thus targeted education and awareness campaigns can be institutionalized to cover these gaps. Furthermore, findings from this study will serve as a basis for formulating advocacy tools for a clearer policy directed at assessing oral health of nursery school children backed by appropriate legislation as well as, increase awareness on the need for good oral habits. With an increasing interest in the early recognition of malocclusion and a corresponding emphasis on preventive procedures, more information on nursery school children may prove useful. The objective of the study was to assess the prevalence and predisposing factors to dental habits and occlusal traits among 2-5years old children in Benin City.

MATERIALS AND METHODS

Study setting/design

This cross sectional study was carried out among 2-5years old Nursery school children in selected nursery schools and homes in Benin City, Edo State, Nigeria between January and June, 2016.

Selection criteria

All children within the age bracket of 2-5years selected for the study and were available at the time of study, and were willing to participate in the study were included while children within the age brackets of 2-5years whose parents or guardian gave consent but were ill or incapacitated to participate in the study were excluded. Children within age brackets of 2-5years but undergoing orthodontics treatment were also excluded.

Sampling/Sample size

systematic sampling technique was used to 352 children which was the minimum sample size calculated using the Cochran's formula for minimum sample size determination in cross-sectional study.[4] Where n= minimum sample size when population is >10,000, Z= standard normal deviate set at 1.96 corresponding to 95% confidence interval, d= acceptable degree of error = 5%, p=Prevalence in the target population estimated to have a particular characteristic and q= 1.0 – p. Therefore using p = 35.4% proportion of school children who had oral habits in a study done in Bitola, Macedonia.[7]

Data collection tools

Quantitative method of data collection was used was interviewer-administered questionnaire

Clinical assessment

A clinical assessment of the child to identify the presence of oral habits was carried out in two phases. First, a visual extraoral exploration to examine fingers, lips, nose, nails and finger cuticles. Then, an intraoral examination which included the exploration of the tongue at rest position, palate and teeth.

The external oral examination included a visual study of the following:

The fingers, to check for cleanliness or presence of calluses.

The lips, to observe if (a) the upper lip covered two-thirds of the upper incisor teeth, (b) the labial closure was performed smoothly without forcing the lower lip, (c) the lower lip was unchanged in relation to the upper lip and (d) presence of skin irritation near the lower lip.

The nose, in which there were two conditions observed: (a) nostrils were rounded or flattened and (b) breathing remained normal when manually closing the lips.

The nails and cuticle of the fingers to find any bite marks, wear as well as any possible inflammation or infection.

The internal oral examination included: Tongue at rest position to see if it was (a) central or laterally interposed between arcades and (b) find presence of markings or scarring, (c)Shape of the palate.

The upper incisor teeth showed (a) wear or fractures, (b) diastemas and (c) protrusion. The lower incisors teeth to see whether they a) were lingualized and (b) showed any wear or fractures.

The following conditions were taken into account to classify an oral habit as present:

Finger sucking was considered a bad habit when the parent replied the child sucked their fingers or if they clinically presented the following characteristics: extraorally, clean calloused finger. Intraorally, separated arcades (a) constricted upper jaw and incisives bent forward (protruding) or presence of diastemas. b) Lower incisors tilted backwards (lingualized); also, when the buccinator, orbicularis and mentalis muscles showed hypertonicity.

Mouth breathing was labeled as a bad habit if parents answered the child spent day and night with the mouth open and displayed one of the following characteristics: showing most or all of the labial surface of the upper incisors (short upper lip), altered lip closure (When closing, the lower lip became tense and chin appeared depressed, lower lip interposed between the upper incisors, dry lips, flattened nostrils and when closing the lips, breathing quickened becoming difficult or impossible.)

Table 1: Sociodemographics characteristics of respondents

Age (years)	Frequency	Percent (%)
2	81	23.0
3	140	39.8
4	110	31.3
5	21	6.0
Sex		
Male	251	71.3
Female	101	23.7
Duration of breastfeeding (months)		
0-6	172	48.9
>6	182	51.1

Table 2: Occurrence of dental habits among respondents

Dental habit	Frequency (n)	Percent (%)
Yes	250	71.0
No	102	29.0
Dental Habits	Frequency (n = 250)	Percent (%)
Digit sucking	90	36.0
Tongue thrusting	45	18.0
Mouth breathing	40	16.0
Nail biting	35	14.0
Lip chewing	25	10.0
Use of pacifier/dummy sucking	10	4.0
Bruxism	5	2.0

Table 3: Sociodemographics and tongue thrusting among the respondents

	Tongue thrusting				
	Yes n(%)	No n(%)	Total n(%)	χ^2	P-value
Sociodemographics					
Age (years)				0.409	2.980
2	29(35.8)	52(64.2)	81(100.0)		
3	44(32.1)	93(67.9)	137(100.0)		
4	44(40.0)	66(60.0)	110(100.0)		
	5(23.8)	16(76.2)	21(100.0)		
Sex				6.982	0.001
Male	70(28.2)	178(71.8)	248(100.0)		
Female	52(50.0)	52(50.0)	104(100.0)		
Duration of breastfeeding (months)				6.865	0.009
0-6	48(28.1)	123(71.9)	171(100.0)		
>6	74(40.9)	103(59.1)	181(100.0)		

Regarding Nail-biting, the child was seated comfortably and lips were separated to observe teeth, especially the upper and lower anterior, in search of attrition, wear, and altered position. Likewise, nails and cuticles were completely examined to see the absence or presence of inflammation or infections. Similarly, it was considered a habit when parents stated infants always or often bit their nails.

To detect the habit of Lip biting, the lip surrounding skin, hypertonicity of the mentalis muscle and the affected lip were assessed. Besides, it was manifested when the parent affirmatively replied the child bite their lip.

As for biting objects, the anterior upper and lower teeth and their position were completely observed. Along with this, it was a present habit if the parent or guardian replied the child always or often bite objects.

With respect to the use of pacifier or bottle, the upper and lower anterior teeth were examined to detect severe decay and lack of occlusion in the

Table 4: Sociodemographics and bruxism among the respondents

	Bruxism				
	Yes n(%)	No n(%)	Total n(%)	χ^2	P-value
Sociodemographics					
Age(years)				0.482	0.116
2	30(37.0)	51(63.0)	81(100.0)		
3	29(20.7)	111(79.3)	140(100.0)		
4	30(27.3)	80(72.7)	110(100.0)		
5	6(28.6)	15(71.4)	21(100.0)		
Sex				6.979	0.427
Male	71(28.3)	180(71.7)	248(100.0)		
Female	24(23.8)	77(76.2)	104(100.0)		
Duration of breastfeeding (months)				0.810	0.116
0-6	45(26.2)	127(73.8)	172(100.0)		
>6	50(27.8)	130(72.2)	180(100.0)		

Table 5: Sociodemographics and use of pacifier among the respondents

	Pacifier				
	Yes	No	Total	χ^2	P-value
Sociodemographics	n(%)	n(%)	n(%)		
Age (years)				0.889	0.154
2	7(8.6)	74(91.4)	81(100.0)		
3	11(8.0)	129(92.0)	137(100.0)		
4	10(10.1)	100(90.9)	110(100.0)		
5	2(9.5)	19(90.5)	21(100.0)		
Sex*				36.889	0.001
Male	7(2.8)	224(97.2)	251(100.0)		
Female	23(22.8)	78(77.2)	101(100.0)		
Duration of breastfeeding (months)				0.797	0.445
0-6	17(9.9)	155(90.1)	171(100.0)		
>6	13(7.2)	167(92.8)	181(100.0)		

*Statistically significant

Table 6: Sociodemographics and lip chewing among the respondents

	Lip chewing				
	Yes n(%)	No n(%)	Total n(%)	χ^2	P-value
Sociodemographics					
Age (years)				0.189	4.821
2	16(4.5)	65(80.2)	81(100.0)		
3	24(17.1)	116(82.9)	137(100.0)		
4	18(16.4)	92(83.6)	110(100.0)		
5	0(0.0)	21(100)	21(100.0)		
Sex				27.943	0.001
Male	59(23.1)	193(76.9)	248(100.0)		
Female	0(0.0)	101(100.0)	104(100.0)		
Duration of breastfeeding (months)				5.584	0.475
0-6	31(18.0)	141(82.0)	171(100.0)		
>6	27(15.0)	153(85.0)	181(100.0)		

anterior teeth area. Additionally, this habit was considered present when the parent or guardian affirmatively replied the child used a pacifier and drank bottle three or more times a day.

In relation to lip sucking, lip dryness, anterior teeth position as well as the hypertonicity of the affected lip and the asymmetry of the buccinator, orbicularis and mentalis muscles were considered. Together with that, the habit was considered present when the parent or guardian affirmatively answered the child sucked their lip.

Data analysis

The questionnaire was screened for completeness by the researcher, coded and entered into the IBM-SPSS statistics 21.0 software. Bivariate analysis was done and test for association was carried out using Fishers exacts and chi-square where necessary. Level of significance was set at $p< 0.05$.

Ethical considerations

Permission was be obtained from management of the nursery school before the study. Informed consent was obtained from the parent or guardian of the study participants

RESULTS

Over one-third of the 140 (39.8%) were within the age of 3. Hundred and ten (31.3%) were within 4years Three-quarters (71.3%) were males and more than half (51.1%) had breastfeeding for more than 6 months (Table 1). Of the 250 respondents that had at least one dental habit 90 (36.0%) had finger sucking, 45(18.0%) had tongue thrusting, 40 (16.0%) had mouth breathing, 35(14.0%) had nail biting, 25(10.0%) had lip chewing while 10(4.0%) uses pacifiers (Table 2). More than half the respondents 54.0% believed anxiety to be a predisposing factor to dental habit. Spacing was observed to be prevalent as occlusal trait among respondents 51.7%.

The highest proportion of respondents 44 (32.1%) and 44(40.0%) with tongue thrusting were within the age of 3 and 4years respectively. Seventy (28.2%) had tongue thrusting and this was found to be statistically significant with (p-value =0.001) (Table 3).

The highest proportion of respondents with bruxism 30 (37.0%) were 2years old while the highest proportion of respondents were males 71(28.3%). A high proportion of respondents with bruxism 50(27.8%) were breastfed for 6 months (Table 4).

The highest proportion of respondents who use pacifier were within the age of 4years 10 (10.1%), were females 23 (22.8%), and were breastfed for less than six months (Table 5).

The highest proportion of respondents with lip chewing habit were within the age of 3 years 24 (17.1%), were males 59 (23.1%), and were breastfed for less than six months 31 (18.0%) (Table 6).

DISCUSSION

Majority of the respondents in the study were found to be within the age bracket of 3 and 4years. With most the children's parents married 95.5%. Divorce, separation and single parenting could be a source of emotional stress for a child which have been seen to result in development of dental habits among children as a way of defense mechanism as reported in a study.[5]

Majority of the children's parents were found to have secondary level of education. Education is an important social determinant of health as education can impact positively on levels of social engagement which is an important factor in generating more cohesive, safer, healthier societies. Benin tribe was the predominant tribe in the study. This may be attributed to the fact that the study was carried out in Benin City. Most respondents were Christians, this due to fact that Christianity is the main religion of the people in the study area. Little over half of the children were breastfed for over six months. Breastfeeding reduces the use of dummy sucking and pacifiers among children as a way of pacifying children when they are hungry or crying.

The prevalence of dental habits in the study was found to 71.0% with the respondents having at least one dental habit, this contrast a 2009 study done in Bitola Macedonia[5], which had a lower prevalence of 39.4%. Similarly, the study prevalence was higher than that of a study among preschoolers in Mexico[6], which had 57.7% and 5-13years school going children in India[7], which had and overall prevalence of 16.8%. The observed difference in the prevalence of dental habit in this study could be attributed to the fact that dental habits is considered physiological before the age of 6years. Hence the high prevalence among 2-5years old in this study.

Furthermore, the study revealed that the commonest dental habit is finger sucking, this contrast the findings in Mexico and India which had the commonest dental habit as nail biting and tongue thrusting respectively.[3,6]

Gender distribution of dental habits revealed a higher prevalence of finger sucking, lip chewing and bruxism among male respondents whereas mouth breathing and use of pacifiers was higher among the female respondents. The association between gender and mouth breathing was found to be statistically significant with p=0.001. This is

similar to findings from the Mexican study[6] of 2013 which had a prevalence of finger sucking among boys and use of pacifiers among girls. Similarly, the study in Albania[8] also found a higher prevalence of finger sucking among males and use of pacifier among females. However, the Macedonian study[5] of 2009 found no statistically significant difference in gender distribution of dental habits. The study highlights that stress, anxiety, loneliness, abandonment, imitation and gender are perceived predisposing factors to development of dental habit among the children as some habits were commoner among female children.

CONCLUSION

The study revealed an overall prevalence of dental habits of 71.0% with higher prevalence of finger sucking, bruxism and lip sucking among males while mouth breathing, tongue thrusting and use of pacifiers was found to be higher among females. The study revealed common predisposing factor to development of dental habit to be stress, anxiety, imitation of habits, loneliness, abandonment. The study revealed a high prevalence of spacing and open bite during the intraoral assessment.

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