

MATERIALS AND METHODS

This investigation was conducted on 576 consecutive orthodontic patients examined at the University of Ghana Dental School between 1994 and 2000 inclusive. The personal and clinical data; age, sex, type of habit, duration of the habit and the occlusion based on Angles classification¹ were recorded. The overjet, overbite and openbite measurements were determined with an orthodontic Boley gauge. The clinical appraisal was performed solely by the first author. The tongue thrust habit was evaluated according to a procedure described by Moyers². Both parents as well as the children were questioned about the oral habits and the results were analyzed using descriptive statistics.

RESULTS

The age of the patients ranged from 5 to 45 years with a mean of 14 ±6years. Of the 576 orthodontic patients, 32.8% (189) had a history of oral habits, 36.3% of the total female and 27.1% of the total male population had a history of oral habits (Fig 1). The most common oral habit was thumb-sucking (Fig 2) followed by tongue-thrusting and finger-sucking. Other minor habits including pacifier use (0.5%) accounted for 8.5%(Table 1).

TABLE 1: Prevalence of Various Oral Habits according to Sex

Habit	Males		Female		Total	
	No.	%	No.	%	No.	%
Thumbsucking	35	58.3	82	63.6	117	61.9
Tongue Thrusting	9	15.0	19	14.7	28	14.8
Finger Sucking	6	10.0	22	17.0	28	14.8
Others	10	16.7	6	4.7	16	8.5
Total	60	100	129	100	189	100

*Others Include Lip Biting (4.8%), Mouth Breathing (1.5%), Big Toe sucking (0.5%), Nail Biting (0.5%), Pacifier Sucking (0.5%).

Majority of the patients (40.6%) in this study stopped their habits in the age range of 4.5 to 8.5 years. A greater percentage of females (8.6%) than males (2.8%) continued their habit beyond the age of twelve (Table 2). The effect of oral habits on the overjet is shown in Table 3. Severe overjet (above 4.1mm) was recorded in 60.7% of children who practiced thumb-sucking and 71.4% of those with finger-sucking. The

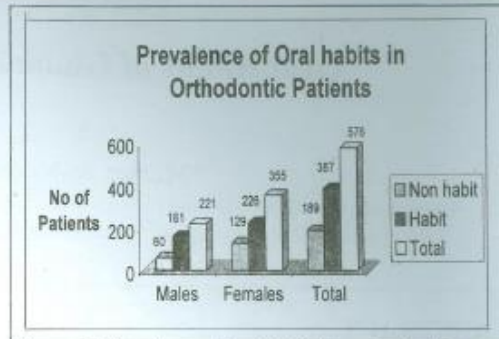


Figure 1: Prevalence of oral habits in orthodontic patients



Figure 2: Profile view of patient sucking his right thumb



Figure 3: Associated open bite of dentition of patient in figure 2. The open bite is exaggerated on the right side which is the same side as the thumb that is sucked.

percentage of children with tongue-thrusting habit (53.6%) who had severe overjets was similar to the non habit group (50.2%). Table 4 shows the effect of habits on the overbite and openbite of orthodontic patients. Open bite (Fig 3) was more frequent in the group with habits than in the non-habit group. The tongue-thrusting group had the highest prevalence of open bite.

TABLE 2: Age of Cessation of Oral Habit

Age/Years	Male		Female		Total	
	No.	%	No.	%	No.	%
Below 4.5	11	30.6	26	37.1	37	34.9
4.5 – 8.5	17	47.2	26	37.1	43	40.6
8.5 – 12.5	7	19.4	12	17.2	19	17.9
12.5 +	1	2.8	6	8.6	7	6.6
Total	36	100	70	100	106	100

Patients excluded were those who could not remember when their habits ceased as well as those whose habits persisted at the time of the examination.

The different classes of canine relationships with the various habits are shown in Table 5. In contrast to the non habit group, thumb-sucking and finger-sucking (digit-sucking) groups had a higher proportion of class II canine relationships but a smaller percentage of class I relationships. Tongue thrusting on the other hand recorded more class I and class III relationships than the non- habit group.

DISCUSSION

The prevalence of oral habits in Ghanaian Orthodontic children was 32.8%. The recorded prevalence of oral habits in this study was higher than those of Larsson (13%)¹⁴, Nanda et al (19.2%)¹⁵ and Widmalm et al (28%)¹⁷ but similar to the study of Bergink (33%)¹⁸. The sample population of orthodontic patients may explain the high prevalence

rate in this study. In the present study, more females had oral habits than males. This finding is in agreement with other investigations except that of Widmalm et al¹⁷, which observed a higher frequency in African-American males than females.

Thumb-sucking was the most common oral habit. It was reported more frequently in females than in males, our observation is supported by other studies in Europe¹⁴, Nigeria¹⁵ and India¹⁵. The use of the pacifier (dummy-sucking) was uncommon in this study. This observation is similar to previous investigations in India¹⁵ but different from the Swedish reports^{4,14}, which showed significant increase in the use of the pacifier. The Swedish studies^{4,14} concluded that there was a definite relationship between the increased use of the pacifier and a decrease in digital-habits in Sweden.

In the present study, a significant number of patients stopped their habits between the ages of 4.5 to 8.5 years which is in agreement with the findings from India¹⁵, but differs from the European studies^{4,14,16} which reported earlier cessation times of oral habit. Larsson¹⁴ noted that children who used the pacifier stopped the habit earlier compared to those who practiced digit-sucking. The increased use of the pacifier reported in the European group may therefore account for the earlier cessation times reported in this group. Although we will not advocate the use of the pacifier in our environment due to our experience of unhygienic practices with feeding bottles, cessation of all oral habits during the early mixed dentition is

TABLE 3: Measurement of patients with and without habits

Overjet/mm	Oral Habit								Non Habit		Total	
	Thumb-sucking		Finger-sucking		Tongue-thrusting		Others		No.	%	No.	%
	No.	%	No.	%	No.	%	No.	%				
Crossbite	1	0.8	-	-	-	-	-	-	24	6.2	25	4.3
0 – 2.0	15	12.8	-	-	6	21.4	4	25.0	50	12.9	75	13.0
2.1 – 4.0	27	23.1	8	28.6	6	21.4	2	12.5	110	28.4	153	26.7
4.1 +	71	60.7	20	71.4	15	53.6	10	62.5	194	50.2	310	53.8
Non available	3	2.6	-	-	1	3.6	-	-	9	2.3	13	2.2
Total	117	100	28	100	28	100	16	100	387	100	576	100

TABLE 4: Measurement of patients with and without habits

Overbite and Openbite/mm	Oral Habit								Non Habit	
	Thumb-sucking		Finger-sucking		Tongue-thrusting		Others		No.	%
	No.	%	No.	%	No.	%	No.	%		
Over bite										
4.1 +	6	5.2	-	-	1	3.6	-	-	22	5.7
2.1 - 4.1	35	29.9	10	35.7	1	35.7	-	-	190	49.1
2.0	53	45.3	10	35.7	2	7.1	-	-	127	32.8
Edge to edge	8	6.8	1	3.6	2	7.1	-	-	15	3.9
Openbite										
Up to 2.1	4	3.4	2	7.1	6	21.4	-	-	8	2.1
2.1 - 4.1	4	3.4	3	10.8	5	17.9	-	-	12	3.1
4.1 +	4	3.4	2	7.1	1	3.6	-	-	2	0.5
Non available	3	2.6	-	-	1	3.6	-	-	11	2.8
TOTAL	117	100	28	100	28	100	16	100	387	100

TABLE 5: Cuspid Relationships of Patients with and without Habits

Type Of Occlusion	Oral Habit								Non Habit		Total	
	Thumb-sucking		Finger-sucking		Tongue-thrusting		Others		No.	%	No.	%
	No.	%	No.	%	No.	%	No.	%				
Class I	74	63.2	22	78.6	25	.3	13	81.3	311	80.4	445	77.2
Class II	34	29.1	6	21.4	-	-	3	18.7	53	13.7	96	16.7
Class III	6	5.1	-	-	3	0.7	-	-	10	2.6	19	3.3
Unclassified	3	2.6	-	-	-	-	-	-	13	3.3	16	2.8
TOTAL	117	100	28	100	28	100	16	100	387	100	576	100

highly recommended if the deleterious effects are to be avoided.

The deleterious effects on the orofacial structures observed in this study were increased overjet and excessive openbite, which were similar to the findings of Subtelny and Subtelny⁵, and Melson's¹⁷. The tendency of class II canine relationships to occur with digital habits was reported by Popovich⁶, and Infante⁷. Their result is in agreement with our observation but differs from those of Balack¹⁹ and Bowdens²⁰ who reported a class I tendency

CONCLUSION

The prevalence of oral habits in a sample of Ghanaian orthodontic patients was studied and their effects on

the occlusion investigated. Deleterious effects of habits were observed and therefore their early cessation is recommended. Thumb-sucking was the most common habit and the use of the pacifier one of the least. Although the pacifier habit is thought to be easier to stop than other oral habits, its use is not to be encouraged in our environment.

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