

# **PREVALENCE OF ORAL HABITS AMONG JIREN PRIMARY SCHOOL STUDENTS IN JIMMA TOWN, SOUTH WESTREN ETHIOPIA**

BY:-

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A RESEARCH PAPER TO BE SUBMITTED TO THE SCHOOL OF DENTISTRY, COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCE AND STUDENTS RESEARCH PROGRAM IN JIMMA UNIVERSITY IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS OF DEGREE OF DOCTOR OF DENTAL MEDICINE(DMD)

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COLLEGE OF PUBLIC HEALTH AND MEDICAL SCIENCE DEPARTMENT  
OF DENTISTRY

PREVALENCE OF ORAL HABITS AMONG JIREN PRIMARY SCHOOL  
STUDENTS IN JIMMA TOWN, SOUTH WESTREN ETHIOPIA

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## ABSTRACT

**Background:** oral habits are common in infantile period normally and most of them are started and finished, spontaneously. If they persist beyond the normal age group, they will disturb the oral health of the individuals, cause psychological stress and lead to esthetic problem of the person. They are caused by as compensation to feeling of lost, rebel, attention seeking, imitation, fear, systemic problem and occlusal interference as many pediatricians consensus. The prevalence of this problem varies from population to population, regardless of race, ethnicity or culture. The effects they cause depend on the intensity, duration and frequency of the type of habit practiced.

**Objective:** the purpose of this study was to determine the prevalence of oral habits in Jiren primary school students, Jimma town, Ethiopia.

**Methods:** A cross-sectional study was conducted from June 03 to June 06, 2013 with systematic random sampling technique. The 238 sample was selected from a total of 626 students. The data was collected using face-to-face interview guided structured questioners, systematic observations and clinical examination using disposable gloves and spatulas. The collected data was analyzed using manual ways.

**Results and discussion:** The result shows that the prevalence of oral habits in Jiren primary school students was 73.9%(176). Pencil/foreign body sucking 58.4%(139) was the leading oral habit practiced, followed by finger/thumb sucking 24.8%(59). similarly, a study done in 4590 Indian school students shows pencil biting as a leading oral habit practiced. The difference may be due to environmental or genetic factors.

**Conclusion and Recommendation:** pencil/foreign body sucking was the most prevalent oral habit practiced but mouth breathing was the least. JUSH dentistry department should give OHE on the effects of oral habits to the school students and the staffs.

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# TABLE OF CONTENT

Titles	page no.
Abstract.....	I
Acknowledgment.....	II
Table of content.....	III
List of tables.....	V
Abbreviations.....	VI
Operational definitions.....	VII

## CHAPTER ONE

1. Introduction.....	1
1.1 Back ground.....	1
1.2 Statement of the problem.....	3

## CHAPTER TWO

2. Literature review.....	5
2.1 Significance of the study.....	8

## CHAPTER THREE

3. Objective.....	9
3.1 General objective.....	9
3.2 Specific objective.....	9

## CHAPTER FOUR

4. Methodology.....	10
4.1 Study area.....	10

4.2 Study period.....	10
4.3 study design.....	10
4.4 population.....	10
4.4.1 Source population.....	10
4.4.2 Study population.....	10
4.5 Sampling size and sampling technique.....	11
4.6 Inclusion and exclusion criteria.....	12
4.7 study variable.....	13
4.8 Data collection and analysis .....	13
4.9 Data collection material and instruments.....	13
4.10 Ethical consideration.....	14
4.11 Data quality assurance.....	14
4.12 Limitations of the study.....	14
CHAPTER FIVE	
5. Result.....	15
CHAPTER SIX	
6. Discussion.....	25
CHAPTER SEVEN	
7. Conclusion and Recommendation.....	29
ANNEX	
Annex 1 Reference.....	31
Annex 2 Questionnaires.....	33

## LIST OF TABLES

Table1: Frequency distribution of respondents by their socio-demographic Variable among Jiren primary school students, Jimma town, June 03 to 06, 2013.....	15
Table 2: Frequency distribution of respondents by their parent’s occupation and educational level in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	16
Table3: Distribution of oral habits with sex by number and percent among Jiren primary school students, Jimma town, June 03 to 06, 2013.....	17
Table4: Distribution of oral habits with age and educational level in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	17
Table5: Distribution of oral habits with parent’s occupation and educational level in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	18
Table6: Distribution of different types of oral habits by gender in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	19
Table7: Distribution of different types of oral habits according to age in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	20
Table8: Distribution of different types of oral habits by their grade level in Jiren primary school students, Jimma town, June 03 to 06, 2013.....	21
Table9: Distribution of normal occlusion and mal occlusion by gender among Jiren primary school students, Jimma town, June 03 to 06, 2013.....	22
Table10: Distribution of oral habits in relation with Angle’s malocclusion by gender Among Jiren primary school students, Jimma town, June 03 to 06, 2013.....	23
Table 11: distribution of oral habits with other types of malocclusion among Jiren primary school students, Jimma town, June 03 to 06, 2013.....	24

## ABBREVIATIONS

ACB –anterior cross bite

OB –open bite

OHE –oral health education

MB –mouth breathing

PCB –posterior cross bite

TC -teeth crowding



## Operational definition

**Habit:** something that is fixed and constant that shows repetitive actions.

**Oral habit:** any habitual use of the mouth unrelated to eating, drinking or speaking

**Finger sucking:** is placement of thumb or one or more fingers in the mouth.

**Tongue thrusting:** a forward placement of the tongue between the upper and lower teeth to meet the lower lip in sounds of speech.

**Mouth breathing:** refers to a persistent state of inhaling and exhaling through the mouth.

**Normal occlusion:** desirable articulation between the upper and lower jaw with mesio-buccal cusp of upper first molars occluding in the buccal groove of lower first molars and the teeth arranged in a smooth curving line of occlusion.

**Malocclusion:** an improper relationship between the upper and lower jaw and malalignment of individual teeth in each arch.

**Angle's C-I malocclusion:** when there is a normal molar relationship exists but there is crowding, misalignment of the teeth, cross bites, etc.

**Angle's C-II malocclusion:** where the molar relationship shows the buccal groove of the mandibular 1<sup>st</sup> molar distally positioned when in occlusion with the mesiobuccal cusp of the maxillary 1<sup>st</sup> molar.

**-Division 1:** when the maxillary anterior teeth are proclined and a large overjet is present.

**-Division 2:** when the maxillary anterior teeth are retroclined and a deep overbite exists.

**Angle's C-III malocclusion:** where the molar relationship shows the buccal groove of the mandibular 1<sup>st</sup> molar mesially positioned to the mesiobuccal cusp of the maxillary 1<sup>st</sup> molar when the teeth are in occlusion.

## CHAPTER ONE

### 1. INTRODUCTION

Oral habit is a repetitive action which provokes disorders in teeth and the surrounding supporting tissues. These habits include thumb/finger sucking, lip and nail biting, tongue thrusting, and mouth breathing. However, they may persist as the children grows older these habits are normally temporary, causing oral structure growth disturbance which may lead to local disorders such as malocclusion(1).

Oral /Para functional habit is the habitual exercise of a body part in a way that is other than of the most common use of that body part. Dentists use this term to refer to Para functional uses of the mouth, tongue and jaw unrelated to eating, drinking or speaking.

In initial stages, oral habits are of conscious effort gradually they become less conscious and often become unconscious if performed repeatedly. They have a definite effect on developing teeth and its supporting structures (2).The extent of these effects varies from case to case, depending on a wide range of variables including the actual habit employed, the duration and intensity of the habit, and the inherent dental and skeletal relationship(3).

Oral habits especially if they persist beyond the pre-school age have been implicated as an important environmental etiological factor associated with the development of malocclusion. Environmental influences during the growth and development of the face, jaw and teeth consist largely of pressures and forces related to physiologic activity (3).

Function must adapt to the environment. Pressures against the jaws and teeth will occur during oral activities and could affect how jaws grow and teeth erupt (3).

Different dental professionals classified oral habits in different ways. Among them, the first was WILLIAM JAMES(1923) who classify oral habits into two types :(2)

- \*useful habits –needs for survival of individual.

- \*harmful habits – mouth breathing, tongue thrusting

MORRIS AND BOHANNA(1969) classify oral habits into:

- \*pressure habits – digit sucking

- \*non pressure habits – mouth breathing

- \*biting habits – nail and lip biting

In most cases, the parent's doesn't have worry about the oral habits their children have. However, the impact of oral habit is come primary on the social and psychological well-being of the individual rather than susceptibility to dental disease and loss of function (5).

The high prevalence of oral habits implies that public health efforts are required, as such condition affects negatively the individual quality of life, particularly in the case of children and adolescent who are sensitive about their appearance(6).

Pediatric dentistry and orthodontic care in ETHIOPIA are still rare public health services probably due to the lack of professionals and high cost of orthodontic treatment.

Jimma is one of the cities in Oromiya state, found south West of Ethiopia with a population of low socio-economic background;the population is mostly Oromo. However,no any epidemiological studies have been conducted with regard to prevalence of oral habits in primary school students.

## 1.2 STATEMENT OF THE PROBLEM

At the global level, Oral habits represent a relevant public health problem because of their high prevalence and the resulting aesthetic and functional impairment, leading to a negative impact on quality of life and high treatment cost for the patient (7).

An attractive smile enhances self-esteem and self-confidence of individual which can make positive difference at school, work and in the community.

Finger or thumb sucking is the placement of thumb or one or more fingers in varying depths into the mouth. A common habit seen in most of the children and may be practiced even in intra-uterine life and is considered as normal till age of 3 ½ to 4 ½ years. The etiologies may be feeling of insecurity, child deprived of parents love and care and learned pattern without any underlying cause. The effects may be labial tipping of upper front teeth, increased overjet, anterior open bite and contraction of cheek muscles which results in narrow maxillary arch and posterior cross bites(2, 5).

Tongue thrusting is a condition in which the tongue makes contact with any teeth anterior to the molars during swallowing. The causes may be the improper bottle feeding, prolonged tonsillar and URTI, persistent infantile swallow or presence of conditions like macroglossia and constricted dental arches. The effects include proclination of anterior teeth, anterior open bite, bimaxillary protrusion and posterior cross bite(2, 8).

Mouth breathing is the mode of respiration that influences the posture of the jaw, the tongue and to a lesser extent the head. Thus, mouth breathing leads to altered jaw and tongue posture and malocclusion. The effects will be long and narrow face, narrow nose and nasal passage, short and flaccid upper lip, increased overjet, anterior marginal gingivitis, and anterior open bite(2, 5).

Lip biting involves the lower lip which is turned inwards and pressure is exerted on the lingual surfaces of the maxillary anterior. It appears after forced discontinuation of thumb or finger sucking .the effects will be proclined and retroclined lower anterior, hypertrophic and redundant lower lip or cracking lips(2, 5).

Foreign object sucking: Indeed,our teeth are the hardest tissue in our body yet they are not meant to cut things. Most people bite hard objects,cut string and remove clothing tags using their teeth. This is still a bad habit for it can lead to crack and fracturing (5).

Although many people may not be aware of these harmful habits, since many begin at childhood, people should become conscious of some of these to help avoid costly and unnecessary dental treatment and help maintain that healthy, youthful smile.

This proposed research proposal will determine the prevalence of oral habits in Jiren primary school Jimma Town and try to address the major etiological factors that cause the problem and to create awareness about the use of early reverse of oral habits.

## CHAPTER TWO

### 2. LITERATURE REVIEW

The need for information regarding the prevalence of oral habit in male and females and in different age and ethnic group has provided many studies in this respect.

A study done in Brazil on malocclusion and deleterious oral habits among 2,060 Brazilian students age 12-15 years showed that the prevalence of malocclusion was 83% and the most prevalent deleterious oral habit in adolescents were nail biting, object biting and check /lip biting, which were associated with finger sucking infancy ( $p < 0.05$ ) (9).

Study on the relationship between bruxism, occlusal factors and oral habits among 592 Brazilian public school students aged 4-16 years showed that oral habits were observed in 53% with nail biting was the most frequent habit(35%), mainly in the female subjects(10).

A study done in Spain on prevalence of oral habits and teeth alterations among 1,100 Valencia school children stated that the prevalence of oral habits was 53%. No differences in oral habits were found between boys and girls. Open bite, maxillary cross bite and over jet can be related to oral habits, although this association was not statically significant (11).

Study in Germany on correlation between malocclusion, oral habits and socio-economic factors on a sample of 30 public school children showed that prevalence of malocclusion observed 66.6% were class II, 20% were class I malocclusion 75% had oral habits and low income is frequently associated with malocclusion(12).

A study in Rome on prevalence of vicious habits in 4500 children showed that the prevalence of oral habits was 38.70%; girls(61.5%) were more affected than boys and also the children from urban schools 65.8%.Mouth breathing was the commonest habit(59.5%),followed by tongue thrust(21.5%) and finger sucking(14.5%) (13).

On assessment of Para functional oral habits among a sample of Saudi dental patients, the result showed that the percentage of total prevalence of oral habits for mouth breathing and thumb sucking was 20.2% and 16.7% of the study sample, respectively. In addition, the percentages of boys affected by breathing disorder and thumb sucking were 19% and 10.6%, respectively. Whereas, girls with breathing disorder and thumb sucking, account for 22.5% and 30%, respectively (14).

A study done in Mangalore (India) on prevalence of oral habits in children stated that out of 4,590 school children 29.7% of the population had habits of which 3.1% had digit sucking, 4.6% mouth breathing, 3.02% tongue thrusting, 6% lip/cheek biting, 12.7% nail biting and 9.8% pencil biting habits, respectively. Digit sucking, pencil biting and tongue thrust were highly prevalent among group I (3-6 years) children. Mouth breathing is significant in group II (7-12 years) cases where as lip/cheek biting and nail biting were more common in group III (13-16 years) cases. Digit sucking, tongue thrusting, and mouth breathing were more prevalent among the boys whereas lip/cheek biting, nail biting and pencil biting were more prevalent among the girls. 28.95% of the children in group II and IIIwith habits had malocclusion (15).

A study in India conducted on 5,554 children aged 5-13 years old with the objectives of recording the prevalence of oral habits among North Indian children selected from the school of Delhi showed that the prevalence of oral habits was 25.5%. Tongue thrust was the commonest habit (18.1%) followed by mouth breathing (6.6%). Thumb sucking was relatively less common habit and seen in only 0.7% of children (6).

There were no significant differences between boys and girls for the prevalence of oral habits. However, for the specific habit types there was a sex difference. Thumb sucking more in girls (1.0%) than boys (0.4%) and this difference is statically significant ( $p < 0.001$ ). Mouth breathing is more in boys (7.8%) than girls (5.3%). No differences in tongue thrust habit between boys (17.5%) and girls (18.6%) (6).

A study done in India on prevalence of childhood habits among 2636 student population showed that 19.95% (526) were victimized by adverse oral habits, where girls (53.04%) had a major share over boys (46.05%). Nail biting on 44.1%, tongue thrusting on 33.65%, lip biting on 10.07%, pencil biting on 9.32% and thumb sucking on 1.9% was found, respectively (16).

A study done in Gulbarga city( India) on prevalence of oral habits in 1000 school children aged 11-13 years shows that 18% children had tongue thrusting habit, 17% had mouth breathing and 3% had nail biting. Prevalence of oral habit was by 10% in 11 year children, 12% in 12 year old children and 8% in 13 year old children. 18% female children had oral habits and 20% of male had oral habits (3).

A study done in Nigeria on oral habits, prevalence and effects on occlusion of 4-15 year old school children in Lagos showed that 316 children (34.5%) of total children examined, exhibited one form of oral habit or another. The most common habit observed was digit sucking ((17%). Increased over jet was observed in 33% of the habit children and 25.3% of the non-habit children. Anterior open bite was observed in 12.5% of the habit children and 3.1% of non-habit children. Posterior cross-bite was observed in 1.9% of the habit group and 1.5% of the non-habit group (17).

A study done in Egypt on prevalence of oral habits and mouth breathing as etiologic factors of malocclusion in a group of 1120 Egyptian school children showed that in malocclusion group 40% of the cases had no habits, 31% were mouth breathers, 12% had a combined habit tongue thrust and mouth breathing, 4% bite their lips, 5% sucked their thumbs, and 7% were tongue thrusters (18).



## 2.1 SIGNIFICANCE OF THE STUDY

Even though oral habits are widely distributed problems all over the world, only little attention has been given for it. Especially, in our country Ethiopia oral habits considered as a minor thing that have no consequence. Therefore, this study hoped to:

- Provide an epidemiological data about the magnitude and severity of the problem in the area.
- Give a baseline data for future studies done on the impact of oral habits, since there is no research done in the area before this time.
- Provide information about oral habit for school children under study and to initiate them to practice prevention.

## CHAPTER THREE

### 3. Objective

#### 3.1 General objective

To assess the prevalence of oral habits in Jiren primary school students in Jimma town.

#### 3.2 Specific objective

- To determine the oral habits by number and percent.
- To assess the prevalence of oral habits with socio-demographic factors.
- To determine the association of oral habits with malocclusion.

## CHAPTER FOUR

### 4. Methodology

#### 4.1 Study area

This study was conducted in Jiren primary school which was constructed in 1939 by the collaboration of people in the area and government. It is 500 meters from JUSH and the area has a climate of woinadega. Now, the school gives service for 293 male and 333 female, a total of 626 students.

#### 4.2 Study period

The study was conducted from June 03 to June 06, 2013.

#### 4.3 Study design

A cross -sectional study was conducted in Jiren primary school, Jimma town, Oromo regional state.

#### 4.4 Population

##### 4.4.1 Source population

A total of 626, students from grade 1 to 4, in Jiren primary school students were taken as a source population.

##### 4.4.2 Study population

Samples of 238 students were taken from the source population which was selected randomly according to their role numbers.

## 4.5 Sampling technique and size

Students from grade 1 to 4 were included in sample size which was selected by systematic random sampling technique according to their role numbers.

Sample size determination: the minimum sample size required for a very large population is:

$$n = \frac{Z^2 pq}{d^2}$$

Where, Z= 1.96 precise at 95% confidence interval

P=expected prevalence rate of oral habits (50%) will be taken to maximize sample size since no data was available about prevalence.

n=sample size

q=1-p

d=marginal error to be committed by the researcher (5%)

$$\text{Hence, } n = \frac{(1.96)^2 (.5)(.5)}{(.05)^2}$$

$$n = \frac{(3.8416)(.25)}{(.0025)} = 384.16 = 384$$

But since  $N < 10000$ , the sample size formula is modified as:

$$Nf = \frac{n}{1 + \frac{n}{N}} = \frac{384}{1 + \frac{384}{626}} = \frac{384}{1 + .61} = 238.4 = 238$$

$238/626 = 0.38$ , so 38% of students from each class were taken: K value =3

Grade	total no.	Sample
1 <sup>st</sup>	144	53
2 <sup>nd</sup>	157	70
3 <sup>rd</sup>	200	83
4 <sup>th</sup>	125	32
Total	626	238

#### 4.6 Inclusion and exclusion criteria

Inclusion criteria were including:

- age less than 21.
- want to get information about oral habits.

Exclusion criteria include:

- lack of willingness to give informed consent
- inability to communicate in Oromifa, English and Amharic

## 4.7 Variables

Independent	dependent
=age	=thumb/finger suck
=sex	=tongue thrust
=ethnicity	=mouth breathing
=religion	=lip/cheek biting
=malocclusion	=nail biting
=level of education	=foreign object biting

## 4.8 Data collection and Analysis

Data was collected by recording the required information on pre-prepared questioners regarding their socio-demographic characteristics, oral habits and whether they have or don't have malocclusion using dental examination instruments such as examination gloves, spatulas and others.

For this data collection process two well-trained dental interns were involved. Finally, the collected data was analyzed manually and tested statically to assess the significance of association of the different factors in relation to oral habits.

## 4.9 Data collection materials and instruments

+ Pen	+ wooden spatula
+ Pencil	+ gloves
+paper	+ questionnaire

#### 4.10 Ethical consideration

Before data collection process, an official letter was written from Jimma university students research project (SRP) or from school of dentistry to Jiren primary school personnel to ask permission. Moreover, verbal consent was obtained from the students before the interview and examination.

The significance of the study was clearly informed to respondents and to the school director and the sample was collected from only those who will come voluntarily. The individual was questioned politely and carefully during examination.

#### 4.11 Data quality assurance

Data was checked for completeness and consistency on data collection format before the actual data analysis has begun. Pre-test was done for examining the practicability, reliability and suitability of the method on around 10 Jiren primary school students. Those collected data with incomplete information did not be included in the analysis.

#### 4.12 Limitations of the study

- Lack of enough budget to do more extensive study on oral habits
- Lack of enough time for systematic observation of the samples to collect appropriate data

## CHAPTER FIVE

### 5. Result

Table 1: Frequency distribution of respondents by their socio-demographic variable among Jiren primary school students, Jimma town, June 2013.

Characteristics		No.	%
Age (years)	<8	49	20.6
	8-10	99	41.6
	10-12	57	23.9
	12-14	27	11.3
	14-16	5	2.1
	>16	1	0.4
	Total	238	100
Sex	Male	106	44.5
	Female	132	55.5
	Total	238	100
Ethnicity	Oromo	211	88.6
	Amhara	13	5.5
	Tigray	4	1.7
	Other	10	4.2
	Total	238	100
Religion	Muslim	187	78.6
	Orthodox	30	12.6
	Protestant	19	7.9
	Other	2	0.8
	Total	238	100
Grade	1 <sup>st</sup>	53	22.3
	2 <sup>nd</sup>	70	29.4
	3 <sup>rd</sup>	83	34.9
	4 <sup>th</sup>	32	13.4
	Total	238	100



Among a total sample of 238 students the dominant age group was 8-10 years old (41.6%) and the least was in the age range above 16 years old (0.4%). 44.5% males and 55.5% females with the sex ratio of 0.8. In regard to their religion the majority 187 (78.6%) were Muslims, 30 (12.6%) were Orthodox and 19 (7.9%) were Protestant. Concerning the student's ethnicity the dominant ethnic group 211 (88.6%) were Oromo and the least 8 (3.4%) was Tigre. Depending on their educational level most students 83(34.9%) were 3rd grade and the least 32 (13.4%) were 4th grade (table 1).

Table 2: Frequency distribution of respondents by their parent's occupation and educational level in Jiren primary school students, Jimma town, June 2013

Parent			No.	%
Father	Occupation	Gov't worker	101	42.4
		Merchant	22	9.2
		Farmer	115	48.3
	Educational level	Illiterate	81	34.0
		Primary	46	19.3
		Secondary	29	12.2
		High school	38	16.0
		College/university	44	18.5
Mother	Occupation	Gov't worker	54	22.7
		Merchant	24	10.1
		Housewife	160	67.2
	Educational level	Illiterate	115	48.3
		Primary	48	20.2
		Secondary	25	10.5
		High school	33	13.9
		College/university	17	7.1

In the assessment of the distribution of respondents by their parent's occupation and educational level: 48.3% of their fathers were farmers and 67.2% of their mothers were housewives. 34.0% of the students fathers were illiterate and 19.3% have completed their primary education where as 48.3% of their mothers were illiterate and 20.2% have completed their primary education. Only, 18.5% and

7.1% of the students' fathers and mothers, respectively, have reached at the college or university level (table 2).

Table 3: Distribution of oral habits with sex by no. and percent among Jiren primary school students, Jimma town, June 2013.

	Sex				Total		X <sup>2</sup> =4.907 Df =1 P =0.0267
	Male		Female		No.	%	
	No.	%	No.	%			
Practice oral habit	74	31.1	102	42.9	176	73.9	
Not practice oral habit	32	13.4	30	12.6	62	26.1	
Total	106	44.5	132	55.5	238	100	

Of the screened 238 student population, 45.5% were males and 55.5% were females. It was found that among the sum total of student screened, 176 (73.9%) were victimized by adverse oral habits, where girls (42.9%) had a major share over boys (31.1%) and this difference was statically significant (p=0.0267) (Table 3).

Table 4: Distribution of oral habits by age and educational level in Jiren primary school students, Jimma town, June 2013.

Character		Have oral habit		No oral habit		Total		
		No.	%	No.	%	No.	%	
Age	<8	39	16.4	10	4.2	49	20.6	X <sup>2</sup> =7.108 Df =5 P =0.2127
	8-10	75	31.5	24	10.1	99	41.6	
	10-12	41	17.2	16	6.7	57	23.9	
	12-14	19	8.0	8	3.4	27	11.4	
	14-16	2	0.8	3	1.3	5	2.1	
	>16	0	0	1	0.4	1	0.4	
	Total	176	73.9	62	26.1	238	100	
Grade	1 <sup>st</sup>	40	16.8	13	5.5	53	22.3	X <sup>2</sup> =7.54 Df =3 P =0.0565
	2 <sup>nd</sup>	45	18.9	25	10.5	70	29.4	
	3 <sup>rd</sup>	69	29.0	14	5.9	83	34.9	
	4 <sup>th</sup>	22	9.2	10	4.2	32	13.4	

From (table - 4 ) we can see that prevalence of the oral habits were dominant in the age groups of 8-10 years (31.5%) and the least prevalent 0.8% in the age groups of 14-16 years old, respectively. The distribution showed that some reduction of the habits prevalence with the aging of students but this was not statically significant ( $p=0.2127$ ).

In case of distribution of oral habits according to grade level 29.0% prevalence in the 3<sup>rd</sup> grade was the dominant and 9.2% prevalence among 4th grade students was the least, respectively. According to the distribution we can conclude the prevalence of oral habits have gross variation from 1st grade to 4th grade (table 4).

Table 5: Distribution of oral habits by their parent's occupation and educational level in Jiren primary school students, Jimma town, June 2013.

Parent			Oral habit				
			Yes		No		
			No.	%	No.	%	
Father	Educational level	Illiterate	58	24.4	23	9.7	X <sup>2</sup> =1.128 Df =4 P =0.8848
		Primary	33	13.9	13	5.5	
		Secondary	21	8.8	8	3.4	
		High school	30	12.6	8	3.4	
		Collage/university	34	14.3	10	4.2	
		Total	176	73.9	62	26.1	
	Occupation	Farmer	88	37.0	27	11.3	X <sup>2</sup> =2.921 Df =2 P =0.2321
		Merchant	13	5.5	9	3.9	
		Gov't worker	75	31.5	26	10.9	
		Total	176	73.9	62	26.1	
Mother	Educational level	Illiterate	89	37.4	26	10.9	X <sup>2</sup> =2.451 Df =4 P =0.6534
		Primary	35	14.5	13	5.5	
		Secondary	19	8.0	6	2.5	
		High school	22	9.2	11	4.6	
		Collage/ university	11	4.6	6	2.5	
		Total	176	73.9	62	26.1	
	Occupation	Housewife	127	53.9	33	13.9	X <sup>2</sup> =7.822 Df =2

	Merchant	14	5.9	10	4.2	P =0.0200
	Gov't worker	35	14.7	19	8.0	
	Total	176	73.9	62	26.1	

-Distribution according to parents educational level:

Nearly 37.4% and 24.4% of the habit students have illiterate father's and mother's, respectively. 14.5% and 13.9% of the habit student have fathers and mothers who completed primary education, respectively. However, 4.6% and 14.3% of the habit students have fathers and mothers with a college/university level, respectively. The prevalence of oral habits were dominant in those who have illiterate father and mother (table5).

-Distribution according to parents' occupation:

37.0%, 31.5% and 5.5% of the habit students have farmer, government worker and merchant fathers, respectively. Also, 53.9%, 5.9% and 14.9% of the habit students have housewife, government worker and merchant mothers, respectively (table 5). So the prevalence of oral habits was dominant in those who have farmer fathers and merchant mothers.

Table 6: Distribution of different types of oral habits by gender in Jiren primary school students, Jimma town, June 2013.

Habit	Gender				Total	X2	Df	P value
	Male (106)		Female(132)					
	No. (%)	Not affected	No. (%)	Not affected	No. (%) affected			
Finger/thumb sucking	25(10.5)	81	34(14.5)	98	59(25)	6.863	1	0.0088
Tongue thrusting	13(5.5)	93	17(7.1)	115	30(12.6)	0.02	1	0.8875
Mouth breathing	10(4.2)	96	16(6.7)	116	26(10.9)	0.436	1	0.5090
Lip/cheek biting	8(3.4)	98	13(5.4)	119	21(8.8)	0.387	1	0.5339
Nail biting	19(8.0)	87	22(9.2)	109	41(17.2)	0.052	1	0.896
Pencil/foreign body sucking	52(21.8)	54	87(36.6)	45	139(58.4)	6.873	1	0.00875

Distribution according to gender:

The results (table 6) showed that the percentage of total prevalence of oral habits pencil/foreign body sucking 58.4% the predominant habit and 8.8% lip/cheek biting was least of the study sample.

19

In addition, the most common oral habit practiced by both boys (21.8%5) and girls (36.6%) were pencil/foreign body sucking and the least lip/cheek biting in both sex. Whereas, girls with breathing disorder, thumb-sucking, tongue thrusting, lip biting, nail biting and pencil sucking account for 6.7%, 14.5%, 7.1%, 5.4%, 9.2% and 36.6%, respectively.

Table 7: Distribution of different oral habits according to age in Jiren primary school students, Jimma town, June 2013.

		Age (years)						total
		<8	8-10	10-12	12-14	14-16	>16	
Finger/thumb sucking	M	8	14	1	1	1	0	25
	F	3	13	12	6	0	0	34
Tongue thrusting	M	3	5	3	1	1	0	13
	F	1	12	4	0	0	0	17
Mouth breathing	M	3	5	1	1	0	0	10
	F	3	1	8	3	1	0	16
Lip/cheek biting	M	3	5	0	0	0	0	8
	F	2	5	4	1	1	0	13
Nail biting	M	5	11	1	1	1	0	19
	F	3	8	10	2	0	0	23
Pencil/foreign object sucking	M	17	25	6	3	1	0	52
	F	14	36	22	11	4	0	89
Total		65	140	72	30	10	0	317

- Distribution according to age:

From the (table- 7) we can see that the maximum number of the students who practiced oral habits was in the age group 8-10 years old and the least was above 16 years old. The most common oral habit practiced in all age group was pencil/foreign body sucking. Most of the oral habits were practiced most commonly in the age group of 8-10 years old.

Table 8: Distribution of different oral habits with their grade level in Jiren primary school students, Jimma town, June 2013.

	Grade level											
	1 <sup>st</sup>			2 <sup>nd</sup>			3 <sup>rd</sup>			4 <sup>th</sup>		
	M	F	T	M	F	T	M	F	T	M	F	T
Finger/thumb sucking	13	2	15	4	20	24	6	12	18	2	0	2
Tongue thrusting	2	2	4	3	3	6	6	11	17	2	1	3
Mouth breathing	3	2	5	3	11	14	3	3	6	1	0	1
Lip/cheek biting	2	2	4	2	6	8	4	5	9	0	0	0
Nail biting	6	1	7	6	14	20	4	4	8	3	4	7
Pencil/foreign object sucking	22	13	35	3	27	30	19	38	57	8	8	16
Total	48	22	70	21	81	102	42	73	115	16	13	29

-Distribution according to grade level:

In assessing the distribution of oral habits according to their grade level 70 (22.1%), 102 (32.3%), 115 (36.4%) and 29 (9.2%) students were found in the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> grade students, respectively. The most predominant oral habit practiced among students was pencil/foreign body sucking (58.8%) and the least was lip/cheek biting (table 8).

Table 9: Distribution of normal occlusion and malocclusion in Jiren primary school students, Jimma town, June 2013.

Occlusion characteristics	Gender					
	M		F		Total	
	No.	%	No.	%	No.	%
Normal	28	11.8	30	12.6	58	24.4
Class I	47	19.7	60	25.2	107	44.9
Class II division 1	8	3.4	21	8.8	29	12.2
Class II division 2	3	1.3	13	5.5	16	6.8
Class III	21	8.8	11	4.6	32	13.4

-Distribution of occlusion:

As the table shows (table 9), the most prevalent occlusion characteristics in both males and females were 44.9% class-I malocclusion, followed by 24.4% normal occlusion, 13.4% class-III malocclusion and 12.2% class-II division I malocclusion, respectively.

Table 10: Distribution of oral habits in relation with Angle's malocclusion classification among Jiren primary school students, Jimma town, June 2013.

In the assessment of prevalence of oral habits in students who have Angle's malocclusion (table 10): 46 school students with angle's malocclusion were found to have finger/thumb sucking habit, 25 tongue thrusting, 16 mouth breathing, 20 lip/cheek biting, 33 nail biting and 107 pencil/foreign object sucking, respectively. However, among the habits assessed only tongue thrusting ( $p=0.0082$ ) and pencil/foreign body sucking ( $p=0.000$ ) were statically associated with Angle's malocclusion. Oral habits were common in those who have malocclusion (table 10).

Oral habits		Angle's malocclusion				Normal occlusion
		C-I	C-II d 1	C-II d 2	C-III	
Finger/thumb sucking	Yes	22	13	6	5	16
	No	3	2	0	0	0
	Total	25	15	6	5	16
	Df =3 $\chi^2 = 1.7081$ p = 0.6351					
Tongue thrusting	Yes	16	0	1	8	5
	No	3	2	0	0	0
	Total	19	2	1	8	5
	Df =3 $\chi^2 = 11.7619$ p = 0.0082					
Mouth breathing	Yes	6	1	1	8	1
	No	3	0	0	0	0
	Total	9	1	1	8	1
	Df =3 $\chi^2 = 3.4522$ p = 0.3270					
Lip/cheek biting	Yes	10	6	1	3	1
	No	3	2	0	0	0
	Total	13	8	1	3	1
	Df =3 $\chi^2 = 2.78$ p = 0.4268					
Nail biting	Yes	21	6	1	5	13
	No	3	2	0	0	0
	Total	24	8	1	5	13
	Df =3 $\chi^2 = 2.4429$ p = 0.4856					
Pencil/foreign object sucking	Yes	63	17	8	19	26
	No	3	1	0	0	0
	Total	69	18	8	19	26
	Df =3 $\chi^2 = 98.563$ p = 0.000					



Table 11: distribution of oral habits with other types of malocclusion among Jiren primary school students, Jimma town, June 03 to 06, 2013.

With habits	ACB	PCB	ACB and PCB	TC	OB	Spacing
Finger sucking	8	10	0	30	22	3
Tongue thrusting	8	3	2	11	10	2
Mouth breathing	5	6	3	17	11	3
Lip biting	3	6	2	16	6	0
Nail biting	3	8	2	13	14	0
Pencil biting	14	17	5	62	22	8
Without habits	3	5	0	17	8	2

From the above table we can see that the distribution of oral habits were more prominent with those who have teeth crowding (149) and open bite (85) whereas, less in those who have spacing (18) and both anterior and posterior cross bite (14).

## CHAPTER SIX

### 6. Discussion

The purpose of this study was to provide adequate information about the prevalence of oral habits and their bad effects on the facial profile of an individual and to reduce the need of expensive orthodontic treatment. In addition, provide highlighted information to the school children as a preventive therapy. The methodology used clinical examination and systematic observation with interview of the respondents.

The prevalence of oral habits in the currently studied area was 73.6% which is differ from another study reported in Brazilians public school students aged 4-16 years (53%), 53% among 1,100 Valencia school children, 38,7% among 4500 Romanian school children, and 34.5% among 316 Nigerian school children aged between 4-15 year old. The difference may be due to genetic factor or socio-demographic factor. However, the study done in Germany by Daragu (2004) on 30 public school children showed that oral habit was prevalent on 75% of the students (12) and this is similar with this study finding.

In the present study the prevalence of oral habit was dominant in the age group 8-10 years old (41.6%) followed by 10-12 years old (23.9%) and the least was in the age group of above 16 years (0.4%). This result was consistent with the study done in India by D.P Bahyya 10% 11 year children, 12% in 12 year old children and 8% in 13 year practiced oral habits. The prevalence shows slight decrease with age but this is not statically significant ( $p > 0.05$ ). This difference in age wise prevalence is also reported by Shetty and Munshi (15). A steady decrease in oral habits with an increase in age was observed by Quashie-Williams (17). This is understandable and expected, because with the child's development and maturation his behavior matures also, and the oral habits are less manifested.

The present study shows difference between those who practice oral habit and not practiced oral habits in relation to father occupation but this was not statically significant ( $\chi^2= 2.921$ ,  $df= 2$ ,  $p > 0.05$ ).

25

Significant increase in the prevalence of oral habit was seen in students whose mothers were housewives as compared to those whose mothers were officials ( $\chi^2= 7.822$ ,  $df= 2$ ,  $p < 0.05$ ) and this may be due to lack of housewives knowledge on how to prevent oral habits and their bad effects.

The distribution presented parent's educational level shows that children often come from families where parents were illiterate; oral habits are the most manifested among the children in families where parents have no education (24.4% and 37.8%). The tested difference for the frequency of presence and absence of oral habits depending on the parents' education are not statistically significant. Oral habits are less manifested among children whose parents have higher education and that significance, when the distribution relating to the education of the father and mother were tested, is not statistically significant level of  $p > 0.05$ . Similarly, in 1990 in the mountain villages in Japan, 802 children between 3 and 11 years old were analyzed in relation to oral habits. It was found that certain habits are represented differently in terms of sex and age, and was more common among children whose mothers were not employed [15]. Santos SA (2009), monitoring 1190 children of 3–5 years old in Brazil, found a high prevalence, 40.2% of oral habits (finger sucking), pointing out that the younger groups of children who have parents with secondary education, are important associative factors. In another study conducted in 2004, in Nigeria, 493 children were monitored and the results showed no significant association between the prevalence of oral habits in children and the socio-economic situation of their families.

Pencil/foreign body sucking was the most prevalent oral habit among males (21.8%) and females (36.6%) in the present study sample. It was practiced in females than males and this difference was statically significant ( $p=0.00875$ ). Whereas, the least prevalent oral habit was lip/cheek biting in both females (5.4%) and males (3.4%). Similarly, a study done in Rome among 4500 children showed that the prevalence of oral habits were more in girls than boys. The explanation of

this gender difference may be related to the more attention and care the boys they receive from their parents than girls. In addition, boys are more active while girls are usually calm and tend to reflect their dissatisfaction by sucking fingers/foreign body.

26

The most prevalent oral habit in the present study sample was Pencil/foreign body sucking followed by finger/thumb sucking. Whereas digit sucking was the most frequently occurring oral habit, seen in 50% of the children, in the reports of Quashie-Williams (17). The study methods applied, the study population age range and data collection methods may be the reason for the difference of the results.

The Present study revealed that Tongue thrusting habit was prevalent in 12.6% of the children; same is supported by the findings of Kharbanda et al., who reported 18.1% of children with tongue thrusting habit (6). However, our findings differed with the findings of Shetty and Munshi (15) who found a comparatively low prevalence (3.02%) of tongue thrust among Mangalore children in the age range of 3-16 years.

The prevalence of mouth breathing habit in the present study was 10.9% whereas, In Venezuela a prevalence of 63% MB was observed in a sample of 389 children aged between 5 and 14 years and enrolled at a single school (14). In Delhi, in India, a study assessing oral habits among 5,554 children aged 5 to 13 years and attending school found a 6.60% prevalence of MB (15). In Brazil, a study carried out in Pernambuco with children aged 8 to 10 years enrolled on the Santo Amaro Project, observed an MB prevalence of 53.3%. The prevalence of MB described in the literature covers such a wide range that is difficult to compare.

Tongue thrusting was 12.6% prevalent in the present study among school students and this finding was similar with the study done in India among 5554 children (16.1%) aged 5-13 years old as reported by Kharbanda Op (2004) (6).

Many people bite their nails in moments of stress. The prevalence of nail biting was 17.2% in the present study where as 35% among Brazilian public school students (10) and 3% among 1000 Gulbarga city school students aged 11-13 years

in India. Children do it in moments of anguish, when they do not know a lesson, read sad stories, listen to horror stories, or are “forced” to go to bed at night

In the present study the prevalence of mouth breathing, pencil sucking, Tongue thrusting, nail biting and thumb-sucking were 10.9%, 58.4%, 12.6%, 17.2%, and 25% respectively. Contrary to these findings was the observation by Shetty and Munshi, 1998 [15] who observed that 4.6%, 9.8%, 3.02%, 12.7%, and 3.1% of school children in India have mouth breathing, pencil biting, tongue thrusting, nail biting and digit sucking habits, respectively. The reasons for these inconsistent values of the previous reports might be attributed to different methods used for assessment of oral habits, different populations examined, ages and socio-economic status of the population involved.

The prevalence of oral habit was dominant among students who have class-I Angle’s malocclusion followed by class-III Angle’s malocclusion. Tongue thrusting and pencil/foreign body sucking were more prevalent among those who have Angle’s malocclusion and this difference was statically significant ( $p < 0.05$ ). The other types of oral habits were also more among those who have Angle’s malocclusion but this difference was not statically significant ( $p > 0.05$ ). Similarly, a sample of 30 German public school children showed that prevalence of malocclusion observed 66.6% were class II, 20% were class I malocclusion 75% had oral habits and low income is frequently associated with malocclusion.

The prevalence of oral habits in school children has not been studied in different population groups across Ethiopia to relate/compare the present finding. The result of the present investigation was very high, which require increased attention from the public health system regarding the dental health service and preventive orthodontic care. It is very important for parents to be aware of the existence of these habits among their children, to recognize the reasons for their existence and the harmful consequences that may arise, and to seek assistance from appropriate professionals.

## CHAPTER SEVEN

### 7.1 Conclusion

Based on the methodology applied and the results achieved, the following can be concluded:

-176 (73.9%) students from the sample population have practice one form of oral habit or another.

-oral habits found to be practiced among females (42.9%) more than males (31.1%).

-pencil/foreign body sucking was the most prevalent but mouth breathing and lip/cheek biting were the least prevalent oral habits.

-oral habits were practiced more among those who have illiterate parents.

-8-10 year's old age group was the most victimized by oral habits.

-oral habits prevalence has gross variation when the educational level of the students goes from 1<sup>st</sup> grade to 4<sup>th</sup> grade.

-Oral habits were commonly seen in Angle's class-I malocclusion and less commonly seen in Angle's class-II division 2 malocclusion.

-over all, oral habits were identified among significant number of the study population. The overall prevalence rate of oral habits in the present group of children was high. This data provides the base for planning the preventive

strategies in eradicating the oral habits and this reduce the occurrence of malocclusal traits, further contributing in the rise of national level of oral health.

## 7.2 Recommendation

1. Ministry of health should start a regular coordinated oral health prevention and promotion program at the community level.
2. JUSH in collaboration of dentistry department should give oral health education as a preventive and interceptive therapy to Jiren primary school students and staffs.

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## ANNEX 2-QUESTIONNAIRES

## Part I: Socio-demographic interview

1. Age (yrs and month)
2. Gender I. male  ii. Female
3. Ethnicity 1. Oromo  2. Amhara
3. Tigray  4. Others \_\_\_\_\_
4. Level of education grade 1<sup>st</sup>  grade 2<sup>nd</sup>
- grade 3<sup>rd</sup>  grade 4<sup>th</sup>
5. Religion i. Muslim  ii. orthodox
- iii. protestant  iv. Others \_\_\_\_\_
6. Parent's level of education father:
1. Illiterate  2. primary  3. secondary
4. high school  5. College/university

Mother:

1. Illiterate  2. Primary  3. Secondary   
 4. high school  5. College/university

7. Parent's occupation father :

- i. farmer  ii. Official  iii. Merchant

- Mother: i. house wife  ii. Official

33

Part II: Interview and systematic observation

1. put any mark in the space that indicate your own oral habit practice

	Oral habit	Yes	No
1	Finger/thumb sucking		
2	Tongue thrusting		
3	Mouth breathing		
4	Lip/cheek biting		
5	Nail biting		
6	Pencil/ foreign body sucking		

Part III: Examination of mal occlusion

1. normal occlusion   
 2. class I malocclusion   
 3. class II division 1   
 4. class II division 2   
 5. class III malocclusion

Part IV: Other types of malocclusion

6. anterior cross bite
7. posterior cross bite
8. anterior and posterior cross bite
9. teeth crowding
10. open bite

