



PREVALENCE OF TRACHOMA AMONG STUDENTS OF LIMMU GENET
PRIMARY SCHOOL, LIMMU KOSSA DISTRICT, JIMMA ZONE, OROMIYA
REGION, ETHIOPIA

BY: - TOLOSSA BIKILA

A RESEARCH SUBMITTED TO JIMMA UNIVERSITY, COLLEGE OF PUBLIC HEALTH
AND MEDICAL SCIENCE, DEPARTMENT OF OPHTHALMOLOGY, IN PARTIAL
FULFILLMENT OF THE REQUIREMENT FOR BSC IN CATARACT SURGEON.

JUNE, 2013

JIMMA, ETHIOPIA

PREVALENCE OF TRACHOMA AMONG STUDENTS OF LIMMU GENET PRIMARY SCHOOL, LIMMU KOSSA DISTRICT, JIMMA ZONE, OROMIYA REGION, ETHIOPIA

BY: - TOLOSSA BIKILA

A RESEACH SUBMITTED TO JIMMA UNIVERSITY, COLLAGE OF PUBLIC HEALTH AND MEDICAL SCIENCE, DEPARTMENT OF OPHTHALMOLOGY, IN PARTIAL FULFILLMENT OF THE REQUIREMENT BSC IN CATARACT SURGEON.

ADVISORS:

DR. SISAY BEKELE, (MD, FEACO, ASSISTANT PROFESSOR)

DR. JAFAR KEDIR, (MD, ASSISTANT PROFESSOR)

JUNE, 2013

Jimma, Ethiopia

ABSTRACT

Background:-Trachoma is one of the leading causes of preventable blindness worldwide. Trachoma can only spread in poor, overcrowded communities where hygiene is bad and where conjunctiva discharge is frequently passed from eye to eye. The main carriers of the infection are children below the age of 10.

Objective: -The purpose of this study was to assess the prevalence of trachoma in Limmu genet primary school.

Method: - A cross sectional study was conducted in Limmu genet primary school using a structured questionnaire and physical examination to determine the prevalence of trachoma. All selected students were assessed for trachoma using the simplified grading scheme proposed by the World Health Organization (WHO).

Result: -A total 176 students were seen in limmu genet primary school during the study period. Of the studied students, 93(52.8%) were male and 82(47.2%) were female. Among the studied group there was 15.9% active trachoma seen. Eighty percent of Trachoma is found in the age group of 5-9years old followed by age group of 10-14years old which accounts 20% . Males and females were affected almost equally. The prevalence of trachomatous follicle (TF) was found to be 8.5% and the prevalence of trachomatous intense (TI) was found to be 7.4%.

Conclusion and recommendation: - Trachoma is a treatable and preventable disease. But when it is neglected it can result in blindness. In the study area there was less prevalence of trachoma(15.9%) than oromia regional as well as national 41.3% and 40.14% respectively. Even though, Considering this the concerned bodies should be given health education on personal and environmental hygiene and antibiotics use to reduce the prevalence of trachoma.

ACKNOWLEDGEMENT

First of all I would like to forward my heartfelt gratitude to my advisors Dr. Sisay Bekele and Dr. Jafer Kedir for their constructive advice and comments in developing this research . I would also like to thank college of public health and medical science, Jimma University for giving me this opportunity to conduct the study.

Table of Contents

ABSTRACT.....	i
ACKNOWLEDGEMENT.....	ii
ACRONYMS AND ABBREVIATIONS	vi
CHAPTER ONE	1
1. Introduction.....	1
1.2 .Background.....	1
1.3 Statement of the problem.....	3
CHAPTER-TWO	5
2. Literature review	5
CHAPTER THREE	8
3. Significance of the study.....	8
CHAPTER FOUR	9
4. OBJECTIVES	9
4.1. General objective.....	9
4.2. Specific objectives.....	9
CHAPTER FIVE	10
5. Methodology	10
5.1. Study area	10
5.2. Study period.....	10
5.3. Study design.....	10
5.4. Population	10
5.4.1. Source population	10
5.4.2. Study population.....	10
5.4.3. Sample size and Sampling techniques	10
5.5. Variables	11
5.5.1 Dependant variables.....	11
5.5.2 Independent variables	11
5.6. Materials	11

5.7. Data collection	12
5.8. Data quality control.....	12
5.9. Data analysis	12
5.10. Ethical consideration.....	12
5.11. Plan for dissemination of the findings	12
5.12. Operational definition	12
CHAPTER SIX.....	13
6. Results.....	13
CHAPTER SEVEN	17
CHAPTER EIGHT.....	19
8. Conclusion and Recommendation	19
8.1 Conclusion.....	19
8.2 Recommendation	19
REFERENCES.....	20
ANNEX.....	22
Questionnaire	22

List of tables

Table 1: Age,sex and grade of the children among Limmu genet primary school students, in limmu kossa woreda, Jimma zone, Oromiya region, Ethiopia 2013.....	13
Table 2: Socio demographic characteristics of the children among Limmu genet primary school students, in limmu kossa woreda, Jimma zone, Oromiya region, Ethiopia 2013.	14
Table 3: Eye care related behaiors and sanitation conditions among students in Limmu genet primary school, Limmu kossaworeda,Jimma zone, Oromiya region, Ethiopia 2013.....	15
Table 4 Distribution of trachoma severity among the children of Limmu genet primary school students, in Limmukossaworeda,Jimma zone, Oromiya region, Ethiopia 2013.	16

ACRONYMS AND ABBREVIATIONS

- CO- Corneal Opacity
- GET- Global Elimination of Trachoma
- HP-Health Post
- SAFE- S-stands for Surgery, A- stands for Antibiotics, F- stands for Face washing and E- stands for Environmental sanitation.
- TF-Trachomatous Follicles
- TI- Trachomatous Scaring
- TS- Trachomatous Scarring
- TT- Trachoma Trichiasis
- WHO- World Health Organizatio

CHAPTER ONE

1. Introduction

1.2 .Background

Trachoma is one of the leading causes of blindness worldwide and the leading cause of preventable blindness. It is endemic in Africa, Eastern Mediterranean Region, Australia and parts of South East Asia. Trachoma is caused by the recurrent chronic infection of the eye with *Chlamydia trachomatis* and progress from inflammation to conjunctival scarring, lead deformities, corneal abrasion and visual impairment. The blinding sequelae, which occur in middle age, is felt to be the result of numerous or lengthy episodes of severe inflammatory trachoma in childhood. It is the most common infectious causes of blindness and is responsible for an estimated 15% of global blindness. It is the most common infectious causes of blindness, and is responsible for an estimated 15% of global blindness. Progressive scarring from this infection causes cascade of effects: entropion, trichiasis, corneal infections, corneal scarring, and ultimately blindness. At present trachoma is still the world's leading infectious causes of blindness and the leading cause of ocular morbidity. It is estimated by WHO that at present there are 140 to 150 million worldwide with trachoma; 10 to 10.6 million suffer from trichiasis and need surgery to prevent blindness from developing. Trachoma causes one quarter of the world blindness, and although it has disappeared from many developed areas, it remains a major problem, especially in underprivileged rural areas in developing countries (1).

The World Health Organization's classification for acute trachoma defines mild trachoma (grade TF) as the presence of five or more follicles in the upper tarsal conjunctiva of at least 0.5 mm diameter. Severe trachoma (grade TI) is defined as pronounced inflammatory thickening of the upper tarsal conjunctiva that obscures more than half of the normal deep vessels. Repeated infection causes scarring trachoma, in which the upper eyelid is shortened and distorted (entropion), and the lashes abrade the eye (trichiasis). Blindness results from corneal opacification, which is related to the degree of entropion or trichiasis(2).

The main carriers of the infection are children below the age of ten years and especially preschool children. The disease spreads from child to child by direct contact on fingers of children and their mothers, on clothes, hand kerchiefs and common towel usage, overcrowding poor hygiene and in particular large number of flies all helps the disease to spread(3). Especially the eye-seeking fly *Musca sorbens* which lays its eggs on exposed human feces. It clusters within family members with increased risk among caretakers (4).

Although effective prevention strategies and treatment are available, trachoma still remains the major cause of infectious blindness worldwide. Approximately 80% of blindness in Ethiopia is believed to be avoidable; i.e., either preventable or curable and trachoma is one of the major

causes of low vision and blindness. Given the enormity of the disease, WHO launched the Alliance for the Global Elimination of Trachoma (GET) by 2020 using the 'SAFE' strategy. The strategy has four components: Surgery, Antibiotics, Facial cleanliness and Environmental sanitation**(4)**.

1.3 Statement of the problem

Trachoma is the leading cause of infectious blindness in the world. It is endemic in 55 countries; over 500 million people are at risk of being blind by this disease. It is estimated that 6 million people are blind from trachoma. Beginning in childhood, the disease in its active state primarily affects children aged 1-9. (5). particularly in developing countries where 90% of the blind live and international actions to prevent avoidable blindness have been gaining momentum over the last decade. According to the WHO about 37 million people are blind and 124 million people have low vision worldwide. About 75% of all blindness worldwide is avoidable and is mainly caused by cataract and trachoma. (6)

Trachoma continues to be endemic in many of the poorest and most remote areas of Africa, Asia and the Middle East. Communities with trachoma are often those with the fewest resources to take on health issues, and trachoma preferentially affects the most vulnerable members of those communities, women and children. Trachoma affects an estimated 40 million people and an estimated 7.6 million are blind or severely visually impaired due to trachoma. The total productivity loss from visual loss due to trachoma is estimated at US\$5.3 billion (2003 US dollars), and health economists suggest an even greater burden when including disability due to the chronic sequelae of trachoma even prior to visual impairment. Trachoma clusters in endemic countries, and is more often seen in districts and communities where there is an absence of basic water and sanitation. Even within communities, there is a strong degree of clustering within neighborhoods and households, as might be expected from an infectious disease where transmission can occur by sharing clothes, towels or sleeping quarters.(8)

Trachoma affects about 21.4 million people of whom about 2.2 million are visually impaired and 1.2 million are blind. It was once endemic in most countries. It is responsible, at present, for more than 3% of the world's blindness but the number keeps changing due to the effect of socio-economic development and current control programmes for this disease. In spite of this, trachoma continues to be hyper endemic in many of the poorest and most remote poor rural areas of Africa, Asia, Central and South America, Australia and the Middle East. The sequelae of active trachoma appear in young adulthood and in middle-aged persons. In hyper endemic areas active disease is most common in pre-school children with prevalence rates as high as 60-90%. It often strikes the most vulnerable members of communities--women and children. Adult women are at much greater risk of developing the blinding complication of trachoma than are adult men. This increased risk has been explained by the fact that women generally spend a greater time in close contact with small children, who are the main reservoir of infection (9).

Trachoma continues to be a significant cause of blindness in pockets of Tanzania as well as other Sub-Saharan African countries (7).The burden of blindness in the Sub-Saharan Africa is the greatest of all the other regions of the world. Sub-Saharan Africa contains less than 10% of the world's people, but 20% of the world's blind. In contrast, countries with established market economies account for 15% of the global population, but only 6% of blindness. The prevalence of blindness is 10-20 times greater in the developing countries than the developed countries. One country that possesses high rates of vision impairment is Ethiopia.

Ethiopia is believed to have one of the world's highest rates of blindness and low vision. From the total 75 million populations, 1.2 million are blind, 2.8 million people have low vision, 9 million children of the age group 1-9 years have active trachoma, and 1.3 million adults live with trachomatoustrichiasis (TT). More than a quarter of blindness in Ethiopia is either preventable or curable. According to the National Survey on Blindness, prevalence of blindness in Ethiopia is 1.6% (1.1% for urban and 1.6% for rural population) and low vision is 3.7% (2.6% for urban and 3.8% for rural). Blindness and low vision are more prevalent among females; 1.9% versus 1.2% for blindness, and 4.1% versus 3.1% for low vision. Prevalence of childhood blindness is 0.1% and accounts for 6% of the total blindness burden in Ethiopia. The major causes of blindness in Ethiopia are cataract (49.9%), trachomatous corneal opacity (11.5%), refractive error (7.8%), other corneal opacity (7.7%), glaucoma (5.2%) and macular degeneration (4.6%). The national prevalence of active trachoma either TF/TI for children in the age group 1-9 year is 40.1%. There is significant regional variation of active trachoma prevalence with the highest prevalence being in Amhara (5.2%). The national prevalence of trachomatoustrichiasis (TT) for age group 15 and above in Ethiopia is 3.1%. Trachomatoustrichiasis is highest in females compared to males (4.1% versus 1.6%) (10). The prevalence of trachoma in limmu kossa woreda is not yet well known as well as in study area. This research will be done to assess the prevalence of trachoma and its determinant factors in limmu kossa primary school.

CHAPTER-TWO

2. Literature review

Trachoma is the leading cause of infectious blindness worldwide. It is known to be highly correlated with poverty, limited access to healthcare services and water. In 2003, the WHO estimated that 84 million people were suffering from active trachoma, and 7.6 million were severely visually impaired or blind as a result of trachoma (10).

As survey conducted in 2006 in 10 provinces of China and in six states of India, the prevalence of active trachoma was 2.34% and 6% in children aged 10 years and younger(11).

As survey conducted in 40 villages of Unity State, before unadjusted and after adjusting for age, sex; the prevalence of trachoma inflammation-follicular (TF) in children 1–9 years age was 70.5% and 71.0%. Similarly, the prevalence of trachomatous trichiasis (TT) in adults was 15.1% and 13.5% before and after adjustment respectively (12).

As study conducted in China on rural primary school children, Out of 2676 eligible children, 593 cases of active trachoma were found, the prevalence of trachoma was 22.16%. In 1606 boys, the prevalence of active trachoma was 19.74%, compared with 25.79% for girls. Girls were affected by active trachoma higher than boys (25.79% versus 19.74%). There was no significant difference among different age groups in term of the prevalence of trachoma. The prevalence of trachomatous follicle (TF), trachomatous inflammation (TI), and trachomatous scarring (TS) was 5.68%, 19.21%, 0.56%, respectively. TI was more prevalent in girls than in boys (22.90% versus 16.75%)(13).

As population based study conducted in Malawi (Chikwawa and Mchinji district), the prevalence of trachomatous inflammation, follicular (TF) among children aged 1-9 years was 13.6% in Chikwawa and 21.7% in Mchinji districts respectively(14).

As a study conducted in Nigeria on 307 students (153 students in Bama central primary school and 154 students in sayo primary school), the overall prevalence of active trachoma was 22.2% & 1.3% had trichiasis (TT). The prevalence of trachoma at Bama central primary school was 20.9% and at Soye primary school was 23.4%. In both schools, the prevalence of active trachoma was higher amongst the 5-9 year age group, followed by 10-14 years age group. In Morocco the prevalence of TF/TI in children under 10 years in 4 provinces were: Errachidia, 9.4%; Figuig, 0.1%; Ouzdoud, 0.7%; Tata, 5.2%. Similarly in Mwanza region in Tanzania the prevalence of active trachoma was 5.5% though the prevalence was 15.5% in poorest school. In Zambia, Senegal and Ghana the prevalence of active trachoma for children was 13.2%, 10.8% and 16.1% respectively (1).

In Ethiopia population based cross sectional study conducted indicates that the national prevalence of active trachoma (either TF or TI) for children in a group 1-9 years is 40.14%. Considerable regional variations are observed in the occurrence of active trachoma; the highest prevalence is in Amhara (62.6%), Oromia (41.3%), SNNP (33.2%), Tigray (26.5%), Somali (22.6%) and Gambella (19.1%). The rural prevalence of active trachoma is almost fourfold compared to the urban (42.5% rural Vs 10.7% urban). The national prevalence of trachomatoustrichiasis (TT) is 3.1% with the highest prevalence in Amhara regional state (5.2%). Trachomatoustrichiasis is higher in females compared to males (4.1% Vs 1.6%). Over 9 million 1-9 year old children live with active trachoma, and 1.3 million people 15 years and older have trachomatoustrichiasis. Active Trachoma and trachomatoustrichiasis are concentrated in the regions of the country with high population density, namely the Amhara, Oromia, and SNNP regional states. The prevalence of trachoma is three to fourfold in rural resident and among females. The demand for trachoma mass treatment with Azithromycin, provision of lid surgery to correct trachomatoustrichiasis, and the need to improving hygienic conditions is enormous (4).

A population-based survey on trachoma was carried out in Jimma zone. The survey showed that trachoma is hyperendemic: of 7,423 people examined, 33.02% had signs of trachoma, 28.9% of males and 37.01% of females; 26.13% of the urban and 34.09% of the rural population had clinical signs of trachoma. Active trachoma (TF*TI) was seen in 24.5% of the study population (an estimated half million people). The prevalence of signs of active trachoma among children 0–10 years of age was 35.7%. Blinding trachoma (CO*TT) was seen in 3.81% of the population: 6.86% of the female population aged 15 years had trichiasis and/or entropion. An estimated 17000 people in the zone are blind; 3500 of these from trachoma. About 52,000 people are in danger of blindness from trichiasis. Primary eye care activities such as promoting health education (face washing) among community members, especially women and children, mass chemotherapy for trachoma, training of health workers and establishment of community-based surgical services are recommended (15).

As study was conducted in BasoLiben District, from a total of 792 children screened for trachoma, the overall prevalence of active trachoma was 24.1% consisting of only 17.2% TF & 6.8% TI. Active trachoma is a major public problem among 1–9 years children and significantly associated with a number of risky factors. Improvement in awareness of facial hygiene, environmental conditions, mass antibiotic distribution and health education on trachoma transmission and prevention should be strengthened (16).

According to study conducted in the Lume and Mojo districts, the prevalence of TF for children between 1-9 years old is 13% which is much lower than the national prevalence of 40.1%. In this same study trachomatoustrichiasis (TT) in adults showed a much lower prevalence than the national standard (3.1% vs 1.68). However, the current prevalence is still higher compared to the WHO standard (<1% for TT). Trachoma is highly correlated with the availability of water and behavior towards face washing habit in the community. About six in every ten (62.4%) of the

children had a clean face on examination; 72.5% households reported washing faces of children two or more times a day. This study showed that 77% of the respondents have a habit of washing their face 1-2 times a day. Prevalence of trachoma manifested among the interviewed and clinically examined children and adults was found to be 12% and 1.68% respectively. There is need to develop a strategy to strengthen community based information and education through the existing health extension workers (HEW) about trachoma. Primary school has to be a target place to educate children on personal and environmental hygiene particularly facial cleanness. (10).

CHAPTER THREE

3. Significance of the study

Trachoma is an important public health problem and has enormous human, social and economic consequences. There are studies done in many parts of Ethiopia on trachoma, it was not yet done at the area the study is going to be done. Thus, this study is expected to help in having a recent data on prevalence of trachoma in the study area which will be fundamental in planning care for trachoma. Finally it serves as the basis for designing and implementing preventive measures to be undertaken by the Limmukossa health office and health planners. It is also hoped that the study will be an inspiration for further study; especially population based extensive researches by giving light on areas of specific area of concern.

CHAPTER FOUR

4. OBJECTIVES

4.1. General objective

- **To assess trachoma prevalence in Jimma zone Limmukossaworeda, Limmu genet primary school, 2013.**

4.2. Specific objectives

4.2.1. To assess trachoma morbidity among the children of Limmu genet primary school.

4.2.2. To determine severity of trachoma according to WHO in Limmugenet primary school.

4.2.3. To describe students eye care related behavior and sanitation condition by trachoma morbidity among Limmu genet primary school.

CHAPTER FIVE

5. Methodology

5.1. Study area

Jimma is one of the zones in the Oromia Region of Ethiopia. Limmu kossa is one of the woredas in Jimma zone and this woreda has a total population of 183,000, with an area of 1462 square kilometers.. Its climatic condition is, high land (dega)25%, mid land (wainadega) 65% and kola 10% . This woreda has 44 kebeles, 6 Health centres, 40 health posts,3 high schools, 1 preparatory, 59 primary schools including Limmu genet primary school . Limmu genet primary school is found in limmu genet twon at the distance of 75 km from Jimma town. This school comprise grade 1-8, with total student of 2154 and from these students the number of grade1-3 student is 692 according to the registration on the academic year 2012/2013.

5.2. Study period

The study was carried out from April 20 – 30, 2013.

5.3. Study design

A cross sectional study design was used.

5.4. Population

5.4.1. Source population

All students in grade 1- 3 in Limmu genet primary school in academic year 2012/2013

5.4.2. Study population

The study population was the sample selected from the source population.

5.4.3. Sample size and Sampling techniques

The sample size was determined by using population proportion formula (17). The sampling technique was systematic simple random sampling.

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

$$d^2 (N-1) + z^2pq$$

Where n= is sample size calculated

Z= is confidence interval (at 95%) =1.96

P= is proportion of prevalence rate for the population i.e. 50%; q is 1-p=0.5

N= is total population (grade 1-3students) =692

Therefore, substituting the respective values

$$n = \frac{692(1.9)^2(0.5)(0.5)}{(0.05)^2(692-1) + (1.96)^2(0.5)(0.5)}$$

$$= 247$$

So, using the correction formula

$$n_f = \frac{n}{1 + \frac{n}{N}}$$

$$= \frac{247}{1 + \frac{247}{692}}$$

$$= 176$$

$$= 176 \text{ students}$$

$$= 176 \text{ students}$$

$$= 176 \text{ students}$$

5.5. Variables

5.5.1 Dependant variables

-trachoma prevalence(TF, TI,TS,TT.CO.)

5.5.2 Independent variables

Age

Sex

Adequate water source

Face washing habit

Latrine availability

Family size

5.6. Materials

-Structured data collection questionnaires

-Torch

-magnifying loupe (+2.5X) were used.

5.7. Data collection

Data was collected for 5 consecutive days by principal investigator and two trained health extension workers.

5.8. Data quality control

- Data was edited, cleaned, checked for completeness and cross checked for accuracy.
- Orientation and supervision for data collectors.

5.9. Data analysis

Data was collected, edited and analyzed by SPSS version 16.0 the result was displayed by tables and figures.

5.10. Ethical consideration

Official letter from Jimma university department of ophthalmology was provided to the school directors and district health office and explanation about the objective of the study and consent was taken from the family of the children for their full cooperation and if she/he has trachoma disease I sent to near by health facility to be treated.

5.11. Plan for dissemination of the findings

After completion of this research the result was distributed to JimmaUniversity,college of public health and medical science, department of Ophthalmology, Limmu genet primary school and to concerned bodies as well.

5.12. Operational definition

- Trachomatous follicle (TF) - presence of five or follicles in the upper tarsal conjunctiva at least 0.5mm.
- Trachoma inflammation (TI) - inflammatory thickening of the upper tarsal conjunctiva that obscure more than half of the normal deep tarsal vessels.
- Trachoma scarring (TS) - the presence of easily visible scarring in the tarsal conjunctiva.
- Trachomatoustrichiasis (TT) - evidence of at least one eye lash touching the cornea. Evidence of recent removal of in turned eye lash is also graded as TT.
- Corneal opacity (CO) - presence of easily visible corneal opacity that obscures at least part of the pupillary margin.
- Clean face - a child who did not have an eye discharge or nasal discharge, fly on face at the time of visit.
- NoTrachoma – children that did not have signs of active trachoma.

CHAPTER SIX

6. Results

A total of 176 students were seen in limmu genet primary school during the study period. Of the studied students, 93(52.8%) were male and 82(47.2%) were female. Among these, the majority(85.2%) of students were found in age 5-9 years old followed by age 10-14years old(13.6%) . The majority of the students were Muslim (56.2%) followed by Orthodox(37.5%) and Oromo is the dominant ethnicity(65.9%) followed by Amhara(18.2%). For most respondents, the occupation of the fathers was merchant(40.2%) followed by Employed(35.0%) while Mothers were House wife(57.7%) followed by Merchants(28.0%). The education of Father and Mother were mostly grade 1-6 which accounts 39% & and 37.7% respectively(Table 1& 2).

The prevalence of active trachoma in the study school was 15.9%. From respondents 80% of trachoma was found in age group of 5-9years old followed by age group of 10-14years old (20%) and males and females are almost affected equally. This study indicates that TF was found on 8.5% and TI was found on 7.4% of the total students participated in screening.

Table 1: Age,sex and grade of the children among Limmu genet primary school students, in limmu kossa woreda, Jimma zone, Oromiya region, Ethiopia 2013.

Age and sex		Grade of students						Trachoma		Total
Age	Sex	Grade 1		Grade 2		Grade 3		Yes	No	
		No.	%	No.	%	No.	%			
5-9	M	26	44	26	44	27	46.6	6	73	79
	F	29	49	22	37.3	20	34.5	6	65	71
10-14	M	1	1.7	7	11.9	5	8.6	2	11	13
	F	2	3.4	4	6.8	5	8.6	1	10	11
≥15	M	0	0	0	0	1	1.7	0	1	1
	F	1	1.7	0	0	0	0	0	1	1
Total		59	100	59	100	58	100	15	161	176

Table 2: Socio demographic characteristics of the children among Limmu genet primary school students, in limmu kossa woreda, Jimma zone, Oromiya region, Ethiopia 2013.

		Frequence	%
Religion	Orthodox	66	37.5
	Muslim	99	56.2
	Protestant	11	6.3
	Other	0	0
Ethnicity	Oromo	116	65.9
	Amhara	32	18.2
	Gurage	13	7.4
	Other	15	8.5
Occupation Of father	Farmer	24	13.6
	Marchant	70	40.2
	Employed	61	35.0
	Daily labour	12	7
	other	7	4
Occupation Of Mother	House wife	101	57.7
	Farmer	0	0
	Marchant	49	28
	Employed	23	13
	Daily labour	1	0.6
	Other	1	0.6
Education of father	Illiterate	15	8.6
	1-6	68	39
	7-12	64	36.8
	12+	27	15.5
Education of Mother	Illiterate	56	32
	1-6	66	37.7
	7-12	39	22.2
	12+	14	8

Out of 176 respondents, 27.8 % and 72.1 % of the students wash their faces once and twice per day respectively and during face washing most(89.2%) students uses soap. Among the respondants (70.4%) of them did not share towel and 29.6% respondents were sharing their towels. 68.7% of the respondents use the water out side of there residencial area and in 31.3% was inside there compound.

All of the students had latrine in their residential compound and they use it regularly and their waste disposal practice was in waste disposal pit (87.5%) and open field(12.5%). From all students, only 1.1% were living with animals in their home. Most of them were living in family size of 4-6 (71%) followed by family size of 7-9 (15.3%) and majority of respondents were living in house having 3 and 2 classes which accounts 36.9% and 29.5% respectively. From all students 91.4% had clean face, 5.1% had discharge on noses and 3.4% had discharge on their eyes(table 3). The result of the study revealed that frequency of face washing, presence of latrine in residential area and face cleanness(discharge on eye and nose) have an association with the presence of trachoma with p-value of less than0.05.

Table 3: Eye care related behaviors and sanitation conditions among students in Limmu genet primary school, Limmu kossaworeda, Jimma zone, Oromiya region, Ethiopia 2013.

Risk factors		Trachoma			X ² (P-value)
		Total No.	No trachoma	Trachoma	
			No.(%)	No. %	
Frequency of face washing	Never	0	0(0.0)	0(0.0)	6.78(0.0092)
	Once a day	49	40(23.0)	9(5.1)	
	>=2	127	121(69.0)	6(3.4)	
Usage of soap for face washing	Yes	157	146(83)	11(6.3)	2.68(0.1016)
	No	19	15(8.5)	4(2.2)	
Sharing of towels	Yes	52	44(25.0)	8(4.5)	3.3(0.0693)
	No	124	117(66.5)	7(4.0)	
Water availability	In the compound	55	49(27.8)	6(3.4)	0.22(0.639)
	Outside the compound	121	112(63.6)	9(5.1)	
Presence of latrine in residential	Yes	176	161(91.5)	15(8.5)	Infinity(<.0001)
	No	0	0(0.0)	0(0.0)	
Type of latrine	Pit latrine	176	161(91.5)	15(8.5)	Infinity(<.0001)
	Water carriage	0	0(0.0)	0(0.0)	
	VIP	0	0(0.0)	0(0.0)	
Use of latrine regularly	Yes	176	161(91.5)	15(8.5)	Infinity(<.0001)
	No	0	0(0.0)	0(0.0)	
Waste disposal	Open field	22	18(10.2)	4(2.3)	1.76(0.1846)
	Disposal pit	154	143(81.2)	11(6.2)	
	Other	0	0(0.0)	0(0.0)	
Family size	1-3	24	22(12.5)	2(1.1)	0.99(0.6096)
	4-6	125	113(64.2)	12(6.8)	
	7-9	27	26(14.8)	1(0.6)	
	>10	0	0(0.0)	0(0.0)	

Live with animal	Yes	2	1(0.6)	1(0.6)	0.7(0.4028)
	No	174	160(90.9)	14(8)	
No. of rooms	1	11	9(5.1)	2(1.1)	4.53(0.2096)
	2	52	45(26)	7(4.0)	
	3	65	62(35.0)	3(1.7)	
	4 and more	48	45(26.0)	3(1.7)	
Face cleanness	Clean	161	156(88.6)	5(2.8)	71(<.0001)
	Discharge on eye	6	2(1.1)	4(2.2)	
	Discharge on nose	9	3(1.7)	6(3.4)	

Among all students, trachoma infected students were found to be in age group 5-9 years old (80%) and males and females were almost affected equally. The finding from this study grade one is more affected than grade two and three. This study indicates that TF was found on 8.5% and TI was found on 7.4% of the total students participated on screening. (Table 4)

Table 4 Distribution of trachoma severity among the children of Limmu genet primary school students, in Limmukossaworeda, Jimma zone, Oromiya region, Ethiopia 2013.

Age and sex distribution		Grade of trachoma											
Age	Sex	TF(1)		TI(2)		TS(3)		TT(4)		CO(5)		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
5-9	M	6	3.4	6	3.4	0	0	0	0	0	0	6	
	F	6	3.4	4	2.3	0	0	0	0	0	0	6	
10-14	M	2	1.1	2	1.1	0	0	0	0	0	0	2	
	F	1	0.6	1	0.6	0	0	0	0	0	0	1	
≥15	M	0	0	0	0	0	0	0	0	0	0	0	
	F	0	0	0	0	0	0	0	0	0	0	0	
Total		15	8.5	13	7.4	0	0	0	0	0	0	15	

CHAPTER SEVEN

DISCUSSIONS

There is high prevalence of active trachoma in under 10 years children with TF(8.5%) and TI (7.4%) and both(15.9%) . This result was almost in agreement with studies in other countries like in Malawi, 13.6% (14). The possible explanation could be increment of mass antibiotic distribution coverage with weak integration of health promotion on primary eye care, health information on personal and environmental hygiene of the Districts. The prevalence of active trachoma(15.9%) in this study was close to study in Zambia, Senegal and Ghana where the prevalence of active trachoma for children was 13.2%, 10.8% and 16.1% respectively (1).

As a study conducted in Nigeria primary school the overall prevalence of active trachoma was 22.2% and 1.3% had trichiasis (TT) and the prevalence of active trachoma was higher amongst the 5-9 year age group, followed by 10-14 years age group(1). The same is true for this study more age affected was 5-9 years old. Prevalence of active trachoma decreases with increasing age and the vice versa being true for the inactive form is also in agreement with the natural history of trachoma. An inflammatory stage during childhood, with the formation of lymphoid follicles and diffuse infiltration with papillae in the conjunctiva, and chronic inflammation, eventually resulting in conjunctival scarring, which in turn leads to trichiasis and corneal complications in older children and adults (20).

As study conducted in china on rural primary school children girls were affected by active trachoma higher than boys(13) and also in ethiopia as study conducted, the prevalence of trachoma were three to fourfold in rural resident and among female . But in our study area, there was no marked gender difference in the prevalence of active trachoma. The possible reason is the study was in urban area.

According to study conducted in the Lume and Mojo districts 62.4% of the children had a clean face on examination; 72.5% households reported washing faces of children two or more times a day (10). Similarly in our study area, face washing habit among students were twice per day in 72.1% .

As the survey conducted in central Ethiopia revealed that in major towns where sanitation status and water supply is better the prevalence of active trachoma is very low. The availability of water and sanitation services in rural Ethiopia makes trachoma prevention very challenging. Considering the reported face washing habit and the facial cleanliness observations coupled with the general poor hygienic practices, it is not perhaps surprising to see such high prevalence of trachoma(19). In our study area the Water availability around 68.7% was out side of there residential near by area and 31.3% was inside there compound. From all screened students (91.4%) there face is clean and this indicates that the prevalence of trachoma is not as high as other areas.

Another study in southern Ethiopia also reported that living in low and mid altitude and farther away from water source is a risk factor for active trachoma (21). The density of 'eyeseeeking' flies is also high in areas where the prevalence of active trachoma is very high; the fly density is also highest in the lower altitudes (22).

CHAPTER EIGHT

8. Conclusion and Recommendation

8.1 Conclusion

- The prevalence rate of active trachoma in Limmu gennet primary school was 15.9% which was below the national prevalence (40.14%) and Oromia region (41.3%).
- Eighty percent of trachoma is found in age group of 5-9 years old followed by age group of 10-14 years old which accounts 20% of the study population.
- Males and females were affected almost equally. The prevalence of trachomatous follicle (TF) was found to be 8.5% and the prevalence of trachomatous intense (TI) was found to be 7.4%.
- Face washing habit among students were once and twice per day in 27.8% and 72.1% respectively and during face washing most(89.2%) students use soap. Among the respondents most of them did not share towel (70.4%) and 29.6% respondents were sharing their towels.

8.2 Recommendation

- The woreda health office should strengthen preventive strategy for trachoma.
- All health professionals working in all levels should play their role by giving health education regarding the methods of prevention of trachoma in children.
- There is need to develop a strategy to strengthen community based information and education through the existing health extension workers (HEW) about trachoma.
- Primary school has to be a target place to educate children on personal and environmental hygiene particularly facial cleanliness. Because Trachoma is still endemic in children of primary schools areas.
- The Federal Government of Ethiopia and the regional governments need to enhance their commitment to eliminate the unnecessary loss of sight by increasing resources allocation and improving health services capacity at all levels to effectively and timely provide preventive and curative eye care services.

REFERENCES

1. Adah O.S, et al. The effect of health education and antibiotics use on the prevalence of trachoma in school children in Borno state of Northern Nigeria: *jos journal of medicine* (2010);5(1):pp38
2. World Health Organization. A guide trachoma prevention through school health curriculum development, *Geneva*, (2006) ; pp1
3. Prof. Berhane.Y, Dr.Worku.A, Dr. Bejiga. A,. National Survey on Blindness, Low Vision and Trachoma in Ethiopia: National Blindness and Low Vision Survey, (2006); pp.4.
4. Berhane, Y., Worku, A., Bejiga, A., Adamu, L., Alemayehu, W., Bedri, A., & West, S. Prevalence of trachoma in Ethiopia. *Ethiopian Journal of Health Development*, (2007); 21(3), pp211-215.
5. Mabey, D., & Fraser-Hurt, N. Extracts from “Clinical Evidence”: Trachoma. *BMJ: British Medical Journal*, (2001);323(7306), pp.218.
6. John Sanford smooth. *Eye diseases in hot climate*, principles of treatment. (4thed.): Elsevier, India. (2003); pp. 79_92.
7. Lewallen.S. Evaluating a school-based trachoma curriculum
In Tanzania *Advance Access publication*, (2008); 23 (6) PP. 1068–1073
8. Public Health Problem of Trachoma.. Trachoma and Antibiotic Use: The 'A' in SAFE. *Expert Rev Anti Infect Ther.* (2012); 10(1):pp.75-83.Retrieved from http://www.medscape.com/viewarticle/755821_2
9. World health organization Prevention of Blindness and Visual Impairment. Priority eye diseases. (2012); Retrieved from <http://www.who.int/blindness/causes/priority/en/index.html>
10. Negash.K .Y, Getachew.M. M and Asrat.A.J. Trachoma and its determinants in Mojo and Lume districts of Ethiopia. *Pan African Journal.* (2012); 13(1): pp. 8
11. Mariotti, S. P., Pascolini, D., & Rose-Nussbaumer, J. Trachoma: global magnitude of a preventable cause of blindness. *British Journal of Ophthalmology*, (2009); 93(5), 563-568.
12. Edwards, T. *et al* .Prevalence of Trachoma in Unity State, South Sudan: Results from a Large-Scale Population-Based Survey and Potential Implications for Further Surveys. *PLoS Neglected Tropical Diseases*, .(2012); 6(4), e1585.
13. Wang. LH, *et al*. Prevalence of trachoma in rural primary school children in Tengzhou City of Shandong Province in China. *journal on trachoma prevalence in primary school* (2010);46(5):pp.395-9.
14. Khumbo.k. *et al*. Prevalence and Risk Factors for Trachoma in Central and Southern Malawi. (2010). *Academic Journal Vol. 5 (2)*

15. Zerihun, N.. Trachoma in Jimma zone, South Western Ethiopia. *Tropical Medicine and International Health*, (1997); 2.
16. Ketema, K., Tiruneh, M., Woldeyohannes, D., & Muluye, D. Active trachoma and associated risk factors among children in Baso Liben District of East Gojjam, Ethiopia. *BMC public health*, (2012); 12(1), 1105.
17. Wayne, W./Danesl .A foundation for analysis in the health sciences of biostatistics 7thed, (1998); pp. 175
18. FMOH. Health and Health Related Indicators 2004/5.
19. Alemayehu W, Tekle-Haimanot R, Forsgren L, Erkstедt J. Causes of visual impairment in central Ethiopia. *Ethiop Med J*. (1995); 33(3):163-74.
20. Thylefors B, Dawson CR, Jones BR., West SK., Taylor HR., A simple system for assessment of trachoma and its complications. *Bull World Health Organ* . (1987) ;65:477- 85.
21. Haileselassie T, Bayu S. Altitude-a risk factor for active trachoma in southern Ethiopia. *Ethiop Med J*. (2007);45(2):181-6.
22. Taye A, Alemayehu W, Melese M, Geyid A, Mekonnen Y, Tilahun D, Asfaw T. Seasonal and altitudinal variations in fly density and their association with the occurrence of trachoma, in the Gurage zone of central Ethiopia. *Ann Trop Med Parasitol*. (2007);101(5):441-8.

ANNEX

Jimma University

College of public health and medical sciences

Department of ophthalmology

Questionnaire

I. Identification

- 1.1. Name of student _____
- 1.2. Age _____, Sex _____, Grade _____
- 1.3. Address: Kebele _____, District _____
- 1.4. Religion: A/ Orthodox B/Muslim C/Protestant D/Other
- 1.5. Ethnicity: A/Oromo B/Amhara C/Gurage D/Other
- 1.6. Literacy of the house hold

1.6.1 Father of the child A/ illitrete B/grade 1-4 C/grade 5-8 D/ Grade 9-10 E/11-12 F/12+

1.6.2 Mother of the child A/ illitrete B/grade 1-4 C/grade 5-8 D/ Grade 9-10 E/11-12 F/ 12+

1.7. Occupation of the house hold:

1.7.1 Occupation of the father A/ farmer B/marchant C/employed D/ daily labour E/other

1.7.2 Occupation of the mather A/house wife B/farmer C/marchant D/employed

E/daily labour F/other _____

II. Eye care related behaviors and sanitation conditions.

2.1. How many times do you wash your face per a day?

A/ Never B/Once a day C/ >= 2 per a day.

2.2. Do you use soap when you wash your face?

A. Yes B. No

2.3. If yes, how frequent do you use?

CONSENT FORM

To parent's of student _____

Subject: - To ask permission

My name is TolossaBikila and cataract surgery student. I am proposing to do a research on prevalence of trachoma at Limmu genet primary school on student. I examine your child's eye with torch and if she/he has this disease I send to near by health facility to be treated. This examination not harm by any means your child's eye. Therefore, I need your permission to do this research on your child's eye.

Thank you!

WAADAAWALII GALTEE

Maatiibarataa _____ tiif

Dhimmiisaa:-Eeyyamagaafachuudha.

AnimaqaankooTolossaBikilabarataogeessaijayonanta'u,
ijamucaakeessaniimanabarumsaattiLimmu
genetkeessattiakkainni/isheendhukubaTirakoomaaqabuuf/qabduufhinq
abnebatiriidhansakatta'eeyooinni/isheenqabaate/ttegaramanayaaladhi
hoottierginan. Akkasumasqu'aanaa/research/
anidhukkubakanarattimanabarumsashallogaggeessuufakkaisineyyamak
essaniinkabajaanisingafaadhaan.Qu'annaankarkamiiniyyuuijamucaake
essaniirrattidhibbaatokkoilleehinqabu.

Galatoomaa!

