ASSESSING THE PREVALENCE OF ACTIVE TRACHOMA AMONG YOUNG CHILDREN IN RELATION TO THE IMPLEMENTATION OF SAFE STRATEGY IN EBINAT AND EAST BELESA WOREDA, NORTH WEST ETHIOPIA.

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Assessing the prevalence of active trachoma among young children in relation to the implementation of SAFE strategy in Ebinat and East Belesa Woreda, Northwest Ethiopia.

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List of abbreviations

A/A	Addis Ababa
ANRS	Amhara National regional state
AOR	Adjusted Odds Ratio
CHA	Community Health Agents
D/r	Doctors
GET	Global Elimination of Trachoma
HA	Health assistant
KAP	Knowledge, Attitude, & Practice
KM	Kilometer
MPH	Master of Public Health
NGOS	Non governmental organization
SAFE	**S**urgery for Trichiasis, **A**ntibiotic for active Trachoma, **F**ace cleanliness, Environment Improvement
TF	Trachomatous Inflammation, follicular
TI	Trachomatous Inflammation, Intense
TT	Trachomatous Trichiasis
TTC	Tetra cycline eye ointment
WHO	World Hearth Organization

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Abstract

Background: - Trachoma is still a widespread disease that causes blindness in many developing countries. Disease transmission occurs primarily between children and the women who care for them. There are currently 590 million people at risk from blinding trachoma, 150 million people with active trachoma, 10.6 million people with Trichiasis, and 5.9 million people with irreversible blindness due to trachoma. In Ethiopia the national blindness prevalence is estimated to be 1.25% and more than 900,000 persons are believed to be blind.

Objective :- This study is designed to assess the prevalence of active trachoma among young children in relation to the implementation of SAFE strategy in their living area.

Methods :- A comparative cross sectional study to assess the prevalence of active trachoma among young children, with a total of 1244 children included in the study. The sampling technique was multi-stage sampling by randomly selecting six *kebeles* from Ebinat *woreda*, and four *kebeles* from East Belesa *woreda*. The selected *kebeles* were divided into 144 villages, and among these 15 villages were selected by simple random sampling methods. 796 households with children under ten years in the selected villages were interviewed, and 1244 children were examined for the presence of active trachoma disease. This study took place between October and December 2004.

Result In this study the prevalence of active trachoma in Ebinat *woreda*, where the SAFE strategy had been implemented, was 32%, and in East Belesa *woreda*, where the SAFE strategy was not implemented, prevalence was 56.9%. Awareness of the community for the preventions of trachoma in the area where SAFE strategy implemented was higher than non-implemented area. But in practice there were no differences except that face washing was more practiced in the area of SAFE strategy implemented.

Conclusion The prevalence of active trachoma was lower in the area where SAFE strategy was implemented but it was higher in children residing in the area where SAFE strategy was not implemented. Infrequent face-washing habit was the strongest predictor of active trachoma.

Recommendation Efforts should be concentrated on improving face-washing habit of children to reduce the magnitude of trachoma. Government and non-government organizations, planners and health policy makers should give a special emphasis for the role of SAFE strategy on trachoma control program.

Introduction

Trachoma is a form of chronic contagious conjunctivitis caused by Chlamydia trachomatis and characterized by recurrent re-infection. It leads to scarring of the conjunctival tissue, gradual shrinking of the upper lids, and inturned eye lashes (Trichiasis). It can be transmitted through the discharge from infected children eyes, and passed on by hands (fingers), on clothes, or by flies that land on the eyes of non-infected child. The transmission is common between children and the women who care for them. It is predominantly found in rural communities where people live in crowded conditions and have limited access to water & health care (1,2,3, 4).

Trachoma is found throughout the world, and represents a significant public health problem in a number of countries in Africa, the Eastern Mediterranean, dry areas of the India sub continent, South East Asia, the Western pacific and some areas of Oceania. Globally it is estimated that 590 million people are at risk from blinding trachoma, 150 million people have active trachoma in need of treatment, 10.6 million people have Trichiasis in need of surgery, and 6 million have developed irreversible blindness (5,6).

The prevalence of trachoma in African countries is very high, For instance in Algeria the overall trachoma prevalence in schools health was 26%, in Burkina Faso national prevalence was 26.9% (TF/TI), in Ghana overall prevalence was 16.1% (TF/TI), in Kenya prevalence of trachoma was 30% (TF/TI), and in Chad active trachoma (TF/TI) among children under 10 years was 29.7%, [7].

Ethiopia has a population of 72 million people and trachoma is known to be a public health problem in all parts of the country and as such is recognized by the Ministry of Health. National data from a countrywide epidemiological survey are not available. But based on small-scale surveys, the estimated prevalence of active trachoma is 45%, TS 80%, TT 3% and Co 0.4%.

The national blindness prevalence is estimated to be 1.25%, meaning that more than 900,000 persons are believed to be blind. The leading causes of blindness are cataract followed by trachoma (30%), others like glaucoma, malnutrition and infections contribute to the remaining 30%. Several risk factors that predispose to trachoma infection have been identified. The major ones are lack of water, crowding and hygienic practices. Cattle ownership, low socio-economic status, and sleeping in a room with a cooking fire are also important in some societies (8,9).

SAFE STRATEGY

A WHO alliance for the global elimination of trachoma (GET 2020) was established in 1997. The work of a broad spectrum of collaborating international organizations, non-governmental organizations (NGOs) and foundations falls within the umbrella of GET 2020. Because of these, the World Health Organization has endorsed a multi-faceted strategy named SAFE to combat trachoma, which consists of surgery (S) to correct Trichiasis, antibiotics (A) to treat active disease, and methods to interrupt transmission based on face washing (F) and environmental improvements (E). Together, these strategies are known by the acronym of “SAFE”. It is expected that the use of the SAFE strategy will make it possible to eliminate trachoma as a blinding disease by 2020 (10,11).

In order to attain the goal of eliminating trachoma as a blinding disease by 2020, Ministries of Health of all affected countries are encouraged to implement this WHO strategy. Activities performed on SAFE strategy In Ethiopia, the government views blinding trachoma as a public health problem, and the control program, with a trachoma task force, is part of the country’s national program for the prevention of blindness. According to an estimate in 2000, there are more than 20 million people with TF/TI. In 2003 there were an estimated 1,890,000 people with TT, and more than 15,000 operations were performed. Primary Health Care workers have been trained to recognize and treat TF/TI and refer TT cases. Tetracycline eye ointment is available in most

Primary Health Care centers and towns and village pharmacies, at US $0.25 – 0.50 per tube. Azithromax is not available in rural pharmacies. Activities of the F and E components of the SAFE strategy have included health education using posters and leaflets. The provision of safe water supply to schools and small communities with NGO support, and health education and demonstrations at school by NGOs, Ministry of Health staff and teachers work on the E component. This component also involves the construction of demonstration VIP latrines, slab production, health education on garbage disposal, latrine construction and the production and distribution of fly swabs & traps (7,12).

In Amhara National Regional State the SAFE strategy has been practiced actively within a few areas (w*oredas*). From January 2001, the Amhara Regional Health Bureau and the Carter Center Ethiopia conducted a community based trachoma prevalence survey in four *woredas* in south Gondar Zone (Dera, Ebinat, Estie, and Simada). The purpose of the survey was to provide baseline epidemiological data on trachoma prevalence in the area, to determine the severity, and to provide information for strategic planning of trachoma control activities in the zone.

The survey indicated that these four woreda were highly affected with trachoma, overall the prevalence of active trachoma among children 1-10 years was 80% and the prevalence of Trichiasis (TT) among women above 40 years old was 20% (13). These represent some of the highest prevalence's of active trachoma in Ethiopia. Because of these in ANRS, the Carter Center Ethiopia made an official agreement to reduce the problem of trachoma in these areas and input different resources to reduce the prevalence of active trachoma. For example, 1% TTC eye ointment was distributed to 70,301 clinical cases, 16,179 operations were done for Trichiasis cases, and 7,238 latrines were constructed and different IEC materials distributed. The resource and activities among these four *woredas* were the same, except that Ebinat *woreda* distributed mass treatment (azithromax) 181,073 doses by the year 2003 and 110,000 doses by 2004. There was no area in

ANRS except these four *woredas* actively implementing the SAFE strategy to reduce the burden of trachoma in their community. This study was designed to assess the prevalence of active trachoma among children by comparing an area where the SAFE strategy was actively implemented (Ebinat *woreda*) and an area where the SAFE strategy was not actively implemented (East Belesa *woreda*)(14,15,16).

Literature review

The WHO, in collaboration with various non-governmental organizations and national health services, recently began implementing a program to eliminate blinding trachoma. Global elimination of trachoma by 2020 (GET 2020). The program has adopted a strategy called SAFE, consisting of the following control measures: Surgery for Entripion/Trichiasis, Antibiotics for infectious trachoma, Facial cleanliness to reduce transmission and Environmental improvement such as control of disease spreading flies and access to clean water (3,4)

Tizazu and Mburu reported in 1983 that the prevalence of blindness in East Equatorial region, Southern Sudan, was 6.4%, with rates as high as 13% in some villages. In villages with rates over 10% the major causes of blindness was trachoma, contributing over 50% of the cases (9).

From a study that was carried by Budden in 1981, the prevalence of blindness in Ethiopia is estimated to be 1.5%. The same survey report showed that trachoma was the leading cause of blindness (42%) followed by cataract (29%). Based on this estimate currently 900,000 to 1,000,000 people are blind of which nearly 400,000 are related to trachoma (12)

In 2000, in south Gondar, a prevalence survey was conducted, and showed, the overall prevalence of active trachoma (TF/TI) among children 1-10 years to be 80%, representing some of the highest levels of active trachoma found in Ethiopia (13).

Trachoma occurs in areas with poor personal and community hygiene (i.e. hot, dry, dusty climate), and infection with trachoma typically affects the most marginalized, deprived members of a

community. According to the authors concerning age and sex, active disease occurs in the infectious pool (reservoir for disease), i.e. pre school children of both sexes and their (usually female) care-providers. Trichiasis & blindness may be 2-4 times more common in women than men. Active disease occurs most commonly in pre school aged children, with the highest prevalence in those children aged 3-5 years (14).

A single annual dose of azithromycin has significantly accelerated progress to ward the elimination of trachoma (15). The survey, which was done in 1995 that assessed knowledge, attitude and practice of mother with children under 15 on trachoma prevention, 74.7% of mothers who had heard about trachoma, 64% were mention trachoma symptom, 85.6% knew that trachoma is contagious. The majority source of information on trachoma for mother was health workers at 36% followed by women's union staff at 35% (19).

A study in Nepal compared the use of azithromax for mass treatment of all children, and targeted children with all members of their households. It showed that mass treatment of children was slightly more effective in terms of decreasing the prevalence of clinically active trachoma (estimated by clinical examination) and of Chlamydia infection (estimated by DNA amplification test). Both the targeted and mass treatment strategies for distributing azithromycin significantly reduced the level of trachoma in children six months after treatment (20).

Sahilu, et al (1992) identified several environmental risk factors thought to be associated with trachoma in Ethiopia. These risk factors included garbage disposal near the home and crowded sleeping conditions (23).

Desole (1987) proposed that based on his studies in Ethiopia, there is an association between cattle and trachoma, in that cattle attract flies and flies are trachoma vectors (8). According to Zerihun in Jimma, latrine ownership was found to have a protective effect against trachoma (25).

Different reports indicate that the prevalence of trachoma is quite high in Ethiopia throughout the country. A study by Lemma estimated the prevalence rate of trachoma to be 40.9%, in children age 5 to 15 years in Wollo, north Ethiopia, and the prevalence in children 5-9 years was found to be 43%. A community based survey in Jimma zone; southwestern Ethiopia showed the prevalence of active trachoma to be 25% in all age groups and 35.7% in children aged less than 10 years (8,12, 22,32). There is considerable evidence that people with clean faces are less likely than others to have active trachoma. A community based study conducted on children aged 1-7 years in Tanzania showed that sustained facial cleanliness was a protective factor for both any trachoma and severe trachoma. Consequently there is an assumption that promoting hygiene may reduce trachoma. A study done in Wereilru *woreda*, South Wollo, documented a significant association between children washing their face less than once per day and the prevalence of trachoma (32) [As] a study showed that the prevalence of trachoma disease among young children in South Gondar zone was 65.2% (33).

Objectives

1. General Objectives

To assess the prevalence of active trachoma among young children living in Ebinat Woreda where the SAFE strategy has been actively implemented and in East Belesa Woreda (a non-implemented area).

2. Specific Objectives:

1. To determine the prevalence of active trachoma among young children aged 1-10 years.
2. To compare knowledge and practices of the community related to prevention of trachoma.
3. To identify risk factors that associate with trachoma disease.

METHODS AND SUBJECTS

Study design

A comparative cross sectional study comparing trachoma prevalence between Ebinat, and East Belesa *woreda* according to their SAFE strategy implementation.

Study Area:

The study was carried out in the community between Ebinat *woreda* where the SAFE strategy has been implemented and in East Belesa *woreda*, where the SAFE strategy was not functional. The time of the study was between October and December 2004. Both areas are located in North West Ethiopia in ANRS.Ebinat & East Belesa *woreda*s are found in South Gondar and North Gondar zone in ANRS respectively. Both areas are 700 km from the capital, Addis Ababa. Ebinat *woreda* consists of 32-peasant association and 2 urban settlements; whereas East Belesa *woreda* consists of 20 peasant associations and 2 urban settlements. In both areas the majority of the population lives under rural conditions with agriculture as their main form of subsistence. The areas are not easily accessible, and there is minimal infrastructure like roads, health facilities, schools, etc.

Both Woredas have similar health service coverage. Each *woreda* has a health center and Ebinat *woreda* has 9 health posts (health stations) where as East Belesa has 7 health posts /health stations. The only difference in Ebinat *woreda* is a primary eye care activity in the health institutions, which is supported by the Carter Center Ethiopia from the year 2001. Activities include lid surgery, antibiotic distribution (tetracycline eye ointment, azithromax), environmental improvement, and improving face washing. There are seven health assistants who are trained to perform lid surgery and there are trachoma control program coordinators at *zonal* and *woreda* level.

Study population:

The source population was all young children living in Ebinat & East Belesa *woreda*s, the study population was all households from the selected *kebeles* in each *woreda*, and the study subjects were children 1-10 years

Sample size

A study conducted in northwest Ethiopia recently documented prevalence of active trachoma to be 65% among children less than 10 years (33). The sample size was calculated using the two-proportion formula.

$$n_1 = \left[Z_{\alpha/2} \sqrt{(1+1/r)\, P\,(1-p)} + Z_{\beta} \sqrt{P_1\,(1-P_1) + \frac{P_2\,(1-P_2)}{r}} \right]^2 \Big/ (P_1 - P_2)^2$$

Key

P = (population proportion) = $\frac{p_1 + r p_2}{1+r}$

$n_{1=}$ Sampling size in the area of SAFE Strategy implemented, 338

n_2 = Sampling size in the area of SAFE Strategy is not implemented, 225

Population ratio = 1.5:1

OR = 1.7

p_1= The assumption of prevalence of trachoma in SAFE strategy implemented area, 55%

p_2=The assumption of prevalence of trachoma in area the SAFE strategy is not Implemented, 65%.

$Z_{\alpha/2}$ = Value of the standard normal distribution corresponding to 95% of Confidence level, 1.96

.

$Z_{1-\beta}$= Value of the standard normal distribution corresponding to a power of 80%

Taking design effect =2

Adding 10 % for non response rate

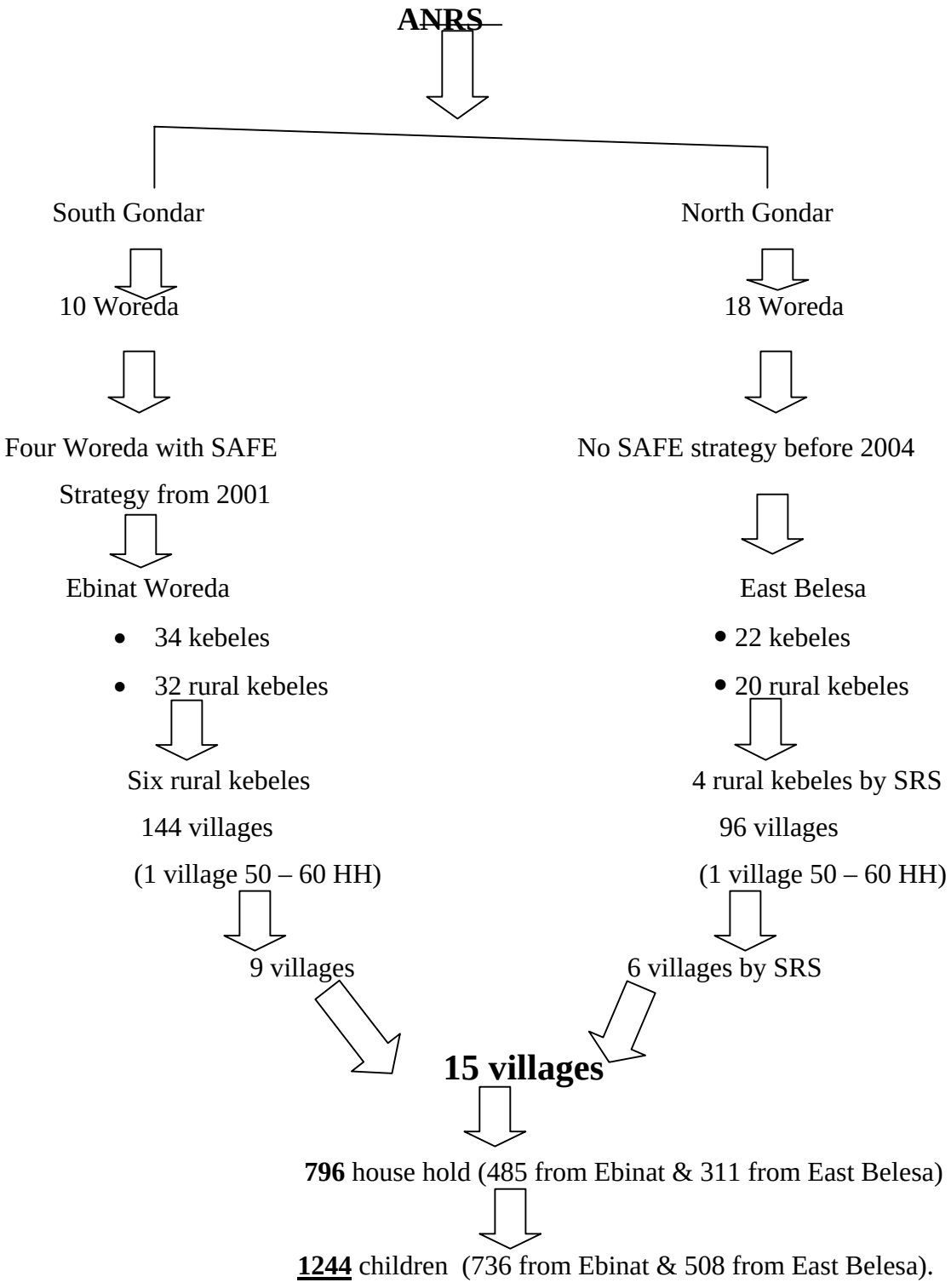
n=563x2+10%(1238)

n=1238 children

Sampling Technique

This used multistage cluster sampling by randomly selecting six (6) *kebeles* (peasant association) from Ebinat *woreda* where the SAFE strategy had been implemented, and four (4) *kebeles* from East Belesa (the area where the SAFE strategy was not actively implemented). The selected *kebeles* were divided into villages, and each had on average 24 villages. In Ebinat *woreda* there were 144 villages among the selected *kebeles,* of which 9 were selected by simple random sampling, and in East Belesa there were 96 villages from selected kebeles of which six (6) villages were selected by the same method. Lists of peasant associations and villages were available in the district office. In all selected villages all households with children 1-10 years were interviewed via the head of the household or the housewife, and children were examined. A total of 796 households were interviewed about socio demographic information, knowledge and practice to ward prevention of trachoma, and 1244 children were examined for the presence of active trachoma disease. During the survey three households were not interviewed or their children examined because of their absence after repeated visits.

Schematic presentation of sample selection procedure:-



Data Collection:

The study used both qualitative and quantitative methods.

I. Quantitative:

1 Interview:- The study interview was divided into three parts. Part one was about household characteristics, part two was concerning knowledge and practice of households for prevention of trachoma disease, and part three was about individual characteristics (children). Interviewer received three days of training on how to conduct the questionnaires. The principal investigator gave this; pre testing was done on 42 households in rural community in Libo kemkem *woreda,* with one exception all individuals responded to all questions without any agitation. The question concerning income status of a household did not evoke reliable responses. Among 42 households, 28 respondents were housewives and 12 of these were reluctant to respond and asked the interviewer to get the information from their husband. One 52-year-old male began to cry when asked his income, because he was embarrassed by his low productivity. Because this question irritated nearly half of the households, the question was excluded from the final questionnaire.

The investigation was carried out from October to December 2004. The data collectors (high school graduates) interviewed the household and the health workers examined young children. A household was defined as those people whose meals primarily came from the chosen dwelling.

Before starting the interview or examination of children, the purpose of the study was explained to the head of households (husband or housewife's). All subjects (head of households either the husband or housewife) were asked for their verbal consent to be interviewed

The examinations and interviews were scheduled for the early morning hours in order to find the head of household with their children in the chosen dwelling. Direct observations were required to confirm the presence of latrine and garbage pit. During eye examination when both eyes were involved the finding of the worse eye were recorded

2. Eye examination:- These were carried out on all children in the study population by five (5) health workers (1 Nurse, and 4 ophthalmic medical assistants) working in the region. Those health workers had already been trained by ophthalmologists from Felegehiwot Hospital (Regional hospital for ANRS) for one month.

Each child aged 1-10 years in the household from selected villages was examined for the presence of trachoma. Each eye was examined with the examiner setting in front of the individual in daylight using a binocular loupe (x2.5) and using a hand flashlight (Torch). Each eye was examined and assessed separately. The examiner cleaned his hands with disinfectant solution (alcohol) between each examination.

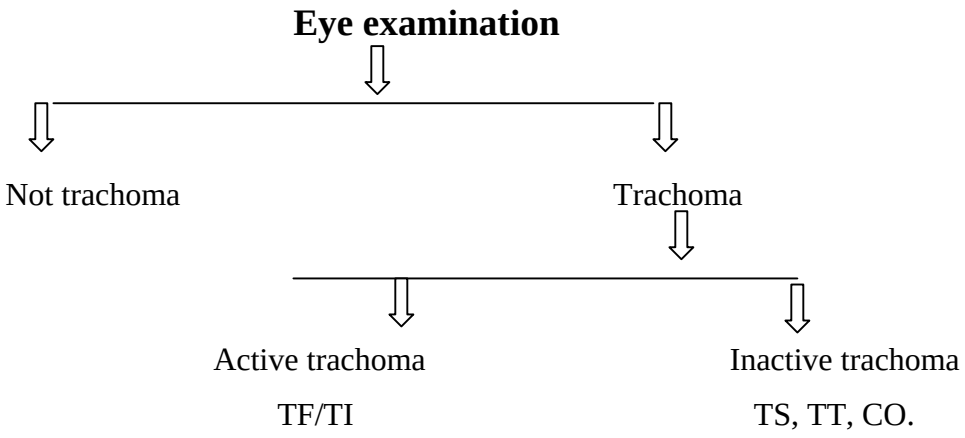
To be considered present clinical signs needed to be clearly seen. When there was doubt a sign was recorded as absent. A child found to have inflammatory trachoma, or conjunctivitis was given a full course of tetracycline ophthalmic ointment therapy with demonstration of its application.

The intensity of trachomatous disease observed on the everted upper tarsal conjunctiva was graded according to the WHO recommendations (below). Absence of signs of trachoma mean the normal conjunctiva of the upper tarsal area is pink and is smooth, thin and transparent.

Presence of trachoma as graded by WHO Classification System

Sign	Description
TF. Trachomatous Inflammation follicular	Greater than 5 follicles (>0.5 mm in size) on central upper tarsal conjunctiva
TI. Trachomatous Inflammation intense	inflammatory thickening of the upper tarsal conjunctive with more than 50% of deep tarsal vessels obscured.
TS. Trachomatous Scarring	presence of easily visible scarring in the upper tarsal conjunctiva
TT. Trachomatous Trichiasis	presence of at least one eye lash touching the eyeball, or evidence of recent epilation of inturned eyelashes.
CO. Corneal	presence of easily visible corneal opacity which obscures at least part of the pupil margin.

Schematic presentation of the eye examination and result reporting procedure.



II. Qualitative

The qualitative part employed "key informant interviews" of different community leaders, Community Health Agents and teachers, and Focus group discussions were conducted in areas with currently active SAFE strategy implemented, and non-implemented areas. Four FGDs were organized, two groups from each *woreda,* and each group constituted 6-8 participants. The participants of the FGD were selected by the supervising health workers from different *kebeles* (peasant association).

Variables of the study:-

*Dependant variables**:***

- Presence of signs of trachoma

*Independent variables***:** Age, sex, education status, and face washing habit of the child; and occupation, religion , education status and Ethnicity of the head of house hold, and family size of the house hold, cooking place in the living room, presence of window in the cooking room, presence of latrine, distance of water source and house hold water consumption

Operational Definitions

Clean face - a child who did not have an eye discharge or nasal discharge at the time of survey.

Free from Trachoma – children that did not have signs or symptoms of active trachoma.

Knowledge – information awareness

SAFE strategy implemented –the activity of all components of SAFE had been implemented for at least one year.

Trained health worker – can be a nurse or health assistant who were trained for trichiasis surgery for one month.

Village –50-60 groups of household (grouped by District office)

Data quality assurance:

Recruited data collectors were high school graduates who reside in the main town of the *woreda*. All of them had participated previously in community based data collection for different purposes, and there fore they were experienced. Training was given for three days on skills of data collection by the investigator. The study used a pre-tested questionnaire. The questionnaire was first written in English then translated to Amharic and back to English to check the consistency of information before applying it for data collection. One ophthalmic nurse and four ophthalmic medical assistants who were giving eye care service in government institution in the region performed eye examination of the study children. They had all participated in a rapid assessment of trachoma recently done in the region. Grading and reporting of examination result was based on WHO recommended grading scheme. At the end of each working day 20% of the questionnaires were checked for completeness and accuracy by the investigator, and data cleaning was performed repeatedly to assure good quality.

Data Entry and Analysis

Data were entered into the computer using EPI-INFO version 6.04 and SPSS 11.0 software program. Cleaning and analysis of data were carried out using this software package. Statistical tests like the chi-square test were used, and a p-value of less than or equal to 0.05 was considered significant.

Ethical consideration:

Ethical clearance was obtained from the Community Health Department Medical Faculty of AAU, and supportive letters from ANRS administrative Health bureau office, Ebinat *woreda* health office, and East Belesa *woreda* Health office. The purpose of the study was explained to a responsible member of each selected household before interview and examination. Verbal consent was obtained from the head of each selected household

Results

A total of 1244 children were identified from 796 households for ocular examination in the community survey within Ebinat and East Belesa *woredas*. The number of households and children in Ebinat *woreda* were 485 and 736 respectively, and in East Belesa *woreda* were 311 households with 508 children.

Table: - 1

Demographic characteristics of the study population at household level in Ebinat and East Belesa *woredas*, ANRS, December 2004.

Variables	**Ebinat** *woreda* **(n =485 HH) n (%)**	**East Belesa** ***woreda*** **(n=311 HH) n (%)**	**Total (n=796) n (%)**
Gender of head of Household			
Male	408(84%)	249(80%)	657(82.5%)
Female	77(16%)	62(20%)	139(17.5%)
Religion			
Christian	478(98.6%)	303(97.4%)	781(98%)
Muslim	7(1.4%)	8(2.5%)	15(2%)
Family size			
Mean	5.05	4.81	
Ethnicity - Amhara Others	485(100%) 0(0%)	311(100%) 0(0%)	796(100%) 0(0%)
Occupation			
Farmer	469(96.7%	280(90%)	749(95.4%)
Craftsmen	2(0.4%)	13(4.2%)	15(1.9%)
Merchant	7(1.4%)	7(2.3%)	14(1.8%)
Housewife	4(0.8%)	3(1%)	7(0.9%)
G/Employee	3(0.6%)	8(2.6%)	11(1.4%)
Literacy Rate			
Illiterate	378(77.9%)	246(79.1%)	624(78.4%)
Read & write	76(15.7%)	39(12.5%)	14(1.8%)
1-12 grade	31.(6.4%)	26(8.4%)	57(7.2%)

NB. n is number of households.

Among the heads of households 82.5% (657) were male, and 17.5% (139) were female. All study participants at household level were of Amhara descent. Almost all households 98% (781) identified themselves as Orthodox Christian, with the remaining 2% (15) as Muslim. The literacy rate among the heads of households, 78.4% (624) were illiterate, 14.4% (115) were able to read and write, and 7.2% (57) had attended school from grade 1-12. The average family size among the population was from 4-6 and the mean family size in Ebinat was 5.05 and East Belesa was 4.81. The main occupation of the population within these two *woredas* was farming. 95.4% (749) were farmers, and 1.9% (15) craftsmen, 1.8 % (14) merchants and 1.4 % (11) were government employees.

Table 2

Age and sex distribution of children examined in community survey in Ebinat and East Belesa *woredas,* ANRS, December 2004.

Age group (Years)	**Ebinat *Woreda (n=796)***		**E.Belesa *Woreda (n=508)***		**Total No. Of children**	
	Male (%)	**Female (%)**	**Male (%)**	**Female (%)**	**Male (%)**	**Female (%)**
1-2	50 (46.7%)	57 (53.3%)	39 (43.8%)	50 (56.2%)	89 (45.4%)	107 (54.6%)
3-4	123 (48.8%)	129 (51.2%)	68 (47.9%)	74 (52.1%)	191 (48.6%)	203 (51.4%)
5-6	91 (51.7%)	85 (48.3%)	48 (44.6%)	59 (55.4%)	139 (49%)	144 (51%)
7-8	70(47.9%)	76 (52.1%)	60 (51.7%)	56 (48.3%)	130 (49.6%)	132 (50.4%)
9-10	26 (47.3%)	29 (52.7%)	26 (48%)	28 (52%)	52 (48.6%)	57 (51.4%)
Total	360 (48.9%)	376(51.1%)	241 (47.4%)	267 (52.6%)	601 (48.3%)	643 (51.7%)

51.7 % (601) of the children were male. The age range was between 1 year & 10 years, with a mean age of 4.94 years, median of 5 years and mode 4 yrs. In this study the proportion of male children to female children was 1:1.07

Table3: - Distribution of active trachoma in children by sex in Ebinat and East Belesa *woredas*, ANRS, December 2004.

Sex of children	**Ebinat *woreda* (n=736) Children**		**E-Belesa *woreda* (n=508) Children**		**Total no of children (n=1244) Children**	
	With Trachoma	**Free from Trachoma**	**With Trachoma**	**Free from Trachoma**	**With Trachoma**	**Free from Trachoma**
Male	118 (32.8%)	242 (67.2%)	143 (59.3%)	98 (40.7%)	261 (43.4%)	340 (56.6%)
Female	120 (32%)	256 (68%)	146 (54.7%)	121 (45.3%)	266 (41.4%)	377 (58.6%)
Total	238 (32.4%)	497 (67.6%)	289 (56.9%)	219 (43.1%)	527 (42.4%)	717 (57.6%)

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The distribution of active trachoma by sex was approximately equal in Ebinat *woreda* but slightly more common in male children in East Belesa *Woreda.* As table 4 shows us- In East Belesa the prevalence of active trachoma among male were 59.3% (143), and 54.7% (146) in female children.

Table: -4

Distribution of active trachoma in children by age in Ebinat and E-Belesa *Woredas*, ANRS, December 2004.

Age group in year	**Ebinat *woreda* (n=736) Children**		**E-Belesa *woreda* (n=508) Children**		**Total no of children(n=1244) Children**	
	With Trachoma	**Free from Trachoma**	**With Trachoma**	**Free from Trachoma**	**With Trachoma**	**Free from Trachoma**
1-2	50 (46.7%)	57 (63.3%)	52 (58.4%)	37 (41.6%)	102 (52%)	94(48%)
3-4	81 (32%)	171 (68%)	91 (64.1%)	51 (35.9%)	172((43.7%)	222(56.3%)
5-6	49 (27.8%)	127 (72.2%)	62 (57.9%)	45 (42.1%)	111(39.2%)	172(60.8%)
7-8	42 (28.8%)	104 (71.2%)	58 (50%)	58 (50%)	100(38.2%)	162(61.8%)
9-10	16 (29.11%)	39 (69.9%)	26 (48%)	28 (51.97%)	42(38.5%)	67(61.5%)
Total	238 (32.4%)	498 (67.6%)	289 (56.9%)	219 (43.1%)	527 (42.4)	717(57.6%)

Of the 736 children examined in Ebinat *woreda* 32.4% (238) had active trachoma; of the 508 children examined in East Belesa *woreda* 56.9% (289) had active trachoma. The peak age of active trachoma was different in these two areas, at 1-2 years in Ebinat *woreda*, and 3-4 years in East Belesa *woreda*.

Table 5: - Distribution of active trachoma in children by their education status in Ebinat & Belesa *woredas,* ANRS, December 2004.

Educational status Of children	Ebinat *woreda* (n=736) Children		E-Belesa *woreda* (n=508) Children		Total no of children(n=1244) Children	
	With Trachoma	Free from Trachoma	With Trachoma	Free from Trachoma	With Trachoma	Free from Trachoma
Preschool children	191(133.4%)	380(66.5%)	231(61.8%)	143(38.2%)	422(44.7%)	523(55.3%)
Illiterate	17(35.4%)	41(66.6%)	24(43.6%)	31(56.4%)	41(36.3%)	72(63.7%)
Drop out	1(33.3%)	2(66.7%)	3(100%)	0(0%)	4(66.7%)	2(33.3%)
1-4 grade	29(27.9%)	75(72.1%)	31(40.8%)	45(59.2%)	60(33.3%)	120(66.7%)
Total	238(32.3%)	498(67.7%)	289(56.9%)	219(43.1%)	527(42.4%)	717(51.6%)

The majority of children were in preschool age, among these the prevalence of trachoma was very high especially children who were living in East Belesa Woreda. Lower prevalence of trachoma occurred among children who continued formal school.

able 6 : - Comparison of knowledge of the study population at household level about trachoma disease transmission and preventive between Ebinat and Belesa Woreda, ANRS, December 2004.

Variable	Ebinat Woreda (n=485)	East Belesa Woreda (n=311)	Chi-square	P-Value
Do you know what trachoma is?				
Yes	383(79%)	228(73.3%)	2.74	>0.05
No	102(21%)	83(26.7%)		
Blindness can be due to trachoma?				
Yes	343(70.7%)	202(65%)		
No	1(0.3%)	5(22%)	16.7	**<0.05**
I don't know	39(8.4%)	21(.2%)		
Is trachoma transmissible?				
Yes	325(67%)	169(59.3%)		
No	6(1.6%)	4(1.8%)	0.50	>0.05
I don't know	52(13.6%)	55(24%)		
Mechanism of transmission				
-Through flies				
Yes	302(62.3%)	130(41.8%)	25.50	**<0.001**
No	23(7.15)	39(22.1%)		
-Through contaminated fingers				
Yes	291(60%)	140 (45%)		
No	34(10.3%)	29(17.2%)	5.50	>0.05
-Through contaminated towels or cloths -Yes	289(59.6%)	135.(43.4%)		
-No	36(11.15)	34(20.1%)	33.02	**<0.001**
Methods of prevention				
-By using latrines -Yes	312(64%)	142(45.6%)	32.17	**<0.001**
- No	71(81.8%0	86(37.7%)		
-By washing face (keep clean face)				
Yes				
No	311(64%)	165(53%)	9.15	**<0.05**
-By using refuse disposal pit (Buying & Burning	72(18.8%)	63(27.6%)		
Yes				
No	299(61.6%)	115(37%)	56.00	**<0.001**
Treating cases (s & a)	84(21.9%)	113(49.6%)		
Yes				
No	300(61.9%)	109(33.4%)	64.06	**<0.001**
Cattle reside out side the house	83(21.7%)	119(52.2%)		
Yes				
No	296(61.%)	108(34.7%)	60.81	**<0.001**
Using Kitchens out side the house with windows	87(22.7%)	120(52.6%)		**.**
Yes			59.69	**<0.001**
No	293(60.4%)	107(34.4%)		
	90(23.5%)	121(53.1%)		

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Among the heads of households, 79% (383) from Ebinat, and 73.3%(228) from East Belesa responded that they know the name of disease of trachoma. As shown in table 7, more households in Ebinat than in East Belesa knew the disease trachoma, but the difference between the two areas was not statistically significant [x^2 = 3.46, p>0.05]. The majority of the heads of household responded that blindness could be due to trachoma, (70.7% (343) and 65% (202) from Ebinat and East Belesa Woreda, respectively). There was a stastically difference between the two areas, [x^2 = 16.61, P<0.001) .

Among households in Ebinat Woreda 67% (325) responded that Trachoma is a transmissible disease, compared to 59.3% (169) in East Belesa Woreda, but there was no statistically significant difference between *woredas* [x^2 =1.04,P>0.05).

Concerning methods of transmission of trachoma disease, 62.3%(302), 60%(291) and 59.6% (289), of households from Ebinat and 41.8%(130), 45%(140), and 43.4%(135) of households from East Belesa responded that trachoma disease can be transmitted by flies, contaminated fingers (hands), contaminated towels or cloths, respectively. The method of transmission through flies and with contaminated towels or cloths were significantly different, which means the community in Ebinat were more knowledgeable than the community in East Belesa [x^2 =25.5.P<0.001 and x^2 =33.02, P=<0.001 respectively). There was no statistically significant difference between the households who said trachoma could be transmitted by fingers [x^2 = 5.50, p>0.05].

Among the prevention methods, 64.3%(312) and 45.7%(142) respondents from Ebinat and East Belesa Woreda respectively believed that using latrines could prevent trachoma disease. These were statistically significant (x^2 = 25.5, p<0.001). 64% (311) of respondents from Ebinat, and 53% (165) from East Belesa responded that trachoma disease could be controlled by keeping clean face (washing face). This was statistically significant [x^2 =9.77.P<0.001]. 61.6% (299) house holds from

Ebinat and 37%(115) from East Belesa responded that trachoma disease could be controlled by using a refuse disposal pit [burying or burning]. This difference was statistically significant [x^2 =56, P<0.001].61.8%(300) of households from Ebinat and 35% (109) of households from East Belesa responded that treating people who have trachoma disease could control active trachoma disease. There was a statistically significant difference between the two Woredas (x^2 = 66.6,P<0.001). 61%(296) of households from Ebinat and 34.7%(108) of households from East Belesa responded that trachoma can be prevented by keeping cattle outside the living houses and 60.4%(293) of households from Ebinat and 34.4%(107) from East Belesa responded that trachoma disease can be prevented by using kitchens outside the living house with windows. Respondents who were saying trachoma disease could be prevented in these ways were more likely to be from Ebinat Woreda. There was a statistically significant difference in both prevention methods of trachoma (x^2 =63.29, P<0.001; x^2 = 59.69,P<0.001 respectively). (Table 6)

Table 7

Comparison of Practices with environmental factors of the study population related to prevention of trachoma at household level between Ebinat and East Belesa Woreda ANRS, December 2004.

Variable	Ebinat (n=485)	East Belesa (n=311)	Chi-square	P-value
Cooking places				
In the living room	404(83.3%)	238(73.3%)	5.36	>0.05
Other than living room	81(16.7%)	73(26.7%)		
Cooking places				
-With windows	18(4%)	10(3.7%)	6.06	>0.05
- With out windows	421(96%)	262(96.3%)		
Waste Disposal system				
-In the farm land &-Others	440(90.7%)	280(90%)	5.60	>0.05
-Burying /Burning	45(9.3%)	31(10%)		
House hold				
-With latrine	38(7.8%)	18(5.7%)	0.001	>0.05
-Without latrine	447(92.2%)	293(93.3%)		
Cattle Shelter				
- In living room	22(6%)	3(1.5%)	0.000	>0.05
- Out of living room	344(94%)	187(98.5%)		
Water consumption per day				
-Less than 40 liters	348(71.8%)	228(78.3%)	0.16	>0.05
-More than 40 liters	137(28.2%)	83(26.7%)		
Face washing habit				
One or more per day	439(90.5%)	200(64.3%)	106.43	<0.001
Once per week	5(1.03%)	32(10.3%)		
Less than once per week	41(8.5%)	79(25.45)		
Use of soap				
-Used (yes)	81(16.7%)	60(19.35)	0.91	>0.05
-Not used (no)	404(83.3%)	251(80.75)		

NB. n is number of house holds.

Information concerning environment and sanitation practices know to be associated with trachoma was collected in each household. Based on this information, practices were compared between these two *woredas*. Among all these practices at household level, there was no statistically significant difference between Ebinat and East Belesa except frequency of face washing habits was higher in Ebinat than in East Belesa. There was a statistically significant difference [X^2=106.43, p<0.001).

Table 8 Analysis of the association of socio demographic characteristics with the prevalence of active trachoma in children, ANRS December 2004.

Variable	Total number of children (%)	Children with active trachoma (%)	OR (95%CI)	
			Crude	Adjusted
Sex of the head of house hold			0.693	0.700
Male	1048(84.25)	429(40/9%)	(0.510-0.941)	(0.513-0.954)
Female	196(15.8%)	98(50%)	1.00	1.00
Religion -Orthodox	1224(98.4%)	517(42.2%)	0.901	0.947
		10(50%)	(0.671-1.210)	(0.702-1.278)
- Muslim	20(1.6%)		1.00	1.00
Occupation –Farmer	1182(95%)	501(42.4%)	1.073	1.141
			(0.772-1.492)	(0.873-1.407)
-Others	62(5%)	26(41.9%)	1.00	1.00
Education status - Illiterate	936(75.2%)	393(425)	1.362(0.746-2.489)	1.454(0.737-2.868)
-Read & Write	219(17.6%)	89(40.6%)	1.321(0.675-2.585)	1.415(0.638-3.136)
-1-12 grade	89(7.2%)	45(50%)	1.00	1.00
Family Size				
Less or equal to 5	714(57.4%)	303(42.4%)	1.017	0.968
			(0.954-1.083)	(0.768-1.222)
More than 5	530(42.6%)	224(42.35)	1.00	1.00
Number of children under 10 in the family -Less or equal to 2	958(77%)	408(42.65)	0.881 (0.712-1.091)	1.147 (0.867-1.517)
-More than 2	286(23%)	119(41.65)	1.00	1.00
Number of room in the house				
One room	1137(91.45)	408(42.6%)	0.503(0.195-1.294)	0.414(0.155-1.707)
Two room	85(6.85)	35(41.25)	0.536(0.191-1.506)	0.496(0.173-1.423)
Three room	22(1.8%)	6(27.35)	1.00	1.00
Presence of cattle in the family				
Cattle	895(71.9%)	368(41%)	0.834	0.818
No Cattle	349(28.1%)	159(45.6%)	(0.650-1.071)	(0.632-1.058)
Primary water source				
Un protected water	767(61.7%)	367(47.8%)	1.121	1.848
			(1.075-1.169)	(1.455-2.345)
Protected water	477(38.3%)	160(33.5%)	1.00	1.00
Sex of the child				
Male	601(48.3%)	261(43.4%)	1.085	1.088
Female	643(51.7%)	266(41.4%)	(0.866-1.359)	(0.869-1.364)
Age of the child			1.091	1.488
1-6 years	873(70.2%)	385(44%)	(1.038-1.146)	(1.177-1.880)
7-10 years	371(29.8%)	142(38.2%)	1.00	1.00

The prevalence of active trachoma among children living in female-headed households was found to be 50%(98) but in male headed households, 40.9%(429). The signs of active trachoma were 0.700 times more in children who were living in female-headed households. There was a statistically significant association between sex of the head of households with prevalence of active trachoma (OR (95%CI), 0.700(0.513-0.954).

Between religion the prevalence of active trachoma was slightly higher by among Muslims 50%(10) than Orthodox 42.2%(517), but this was not having statistically significant association (OR (95%CI), 0.947(0.702-1.278) .The magnitude of active trachoma was higher in children of households headed by craftsmen and government employees (41.3%) than farmer-headed households (37.9%), but the association was not statistically significant (OR (95%CI), 1.141(0.873-1.407)).Children living in households with family size of five or less or more than five had the same prevalence of trachoma. There was no any significant association between family size and prevalence of in these area [OR (95%CI), 0.968(0.768-1.222)].

958 children resided in families with one or more children less than ten years, of which 42.6%(408) had active trachoma, while 286 were in families with more than two children less than 10 years, and 41.6%(119) of these had active trachoma. There was no statistically significant association between numbers of children less than 10 years in a family and prevalence of trachoma disease [OR (95%CI), 1.147(0.867-1.517)].

The prevalence of active trachoma among children of family who were getting their water from un protected water source were having1.848 times higher the prevalence of trachoma than children of families who got their water from protected source [OR (95%CI), 1.848(1.455-2.345)].

There was no statistically significant association between cattle ownership and prevalence of active trachoma [OR (95%CI), 0.818(0.632-1.058)]The distribution of active trachoma was slightly higher

in male children 43.4% (261) than in female children 41.4 %(266), but this was not having a statistical significant association [OR (95%CI), 1.088(0.689-1.364]. Of the total number of children 70.2%(873) who were preschool, 44%(385) had active trachoma; and 29.8%(271) were school age (7-10years), of which 38.5%(142) were with active trachoma. There was statically significant association between age category and prevalence of active trachoma [OR (95%CI), 1.488(1.177-1.988)].

Table 9 Analysis of the potential risk factors related to active trachoma in children from ANRS, December 2004

	EBINAT WOREDA		OR (95%CI)	E-BELESA WOREDA		OR (95%CI)
Variable	Total no of children **(n=736)**	Children with active trachoma	**Adjusted**	Total no of children **(n=508)**	Children with trachoma	**Adjusted**
Cooking place						
Other than living room	135	42	1.770 (0.860-2.640)	81	37	0 .823 (0.440-2.864)
In the living room	601	196	1.00	427	175	1.00
Cooking room						
With windows	34	9	0.610 (0.268-1.389)	16	5	0.547 (0.161-1.855)
With out windows	702	229	1.00	492	284	1.00
Waste disposal						
Burying/Burning	51	21	1.629 (0.894-	73	35	1.092 (0.729-1.659)
Farming &others	685	217	2.968)	435	254	1.00
			1.00			
House hold						
With latrines	66	27	1.625 (0.948-2.791)	73	35	1.270 (0.526-3.069)
With out latrines	670	211	1.00	435	254	1.00
Cattle vs. No cattle						
Cattle	544	188	0.929 (0.615-1.404)	31	16	0.554 (0.404-0.758)
No cattle	162	50	1.00	477	273	1.00
Cattle shelter						
Other than living room	689	221	1.084 (0.591-1.988)	501	283	4.619 (0.552-38.63)
In living room	47	17	1.00	7	6	1.00
Distance of water						
Less than an half hour	669	224	1.629 (0.894-2.968)	211	117	0.950 (0.819-1.102)
More than an half hour	67	16	1.00	297	172	1.00
Consumption of water						
More than 40 liters	224	70	1.037 (0.982-1.095)	144	86	0.960 (0.843-1.093)
Less than 40 liters	512	168	1.00	364	203	1.00
Frequency of Facewashing						
≥ Once per a day	666	200	0.800 (0.529-1.211)	321	147	0.554 (0.404-0.758)
≤ six per week	70	38	1.00	187	142	1.00
Facial cleanliness						
Clean face	386	67	0.199 (0.140-0.284)	203	71	0.412 (0.261-0.656)
Un clean face	350	171	1.00	305	218	1.00
Soup use- Yes	108	26	1.209 (0.466-1.162)	96	23	0.374 (0.193-0.723)
No	628	212	1.00	412	266	1.00

Compared to the analysis of potential risk factors between children who were living in cooking place inside the living house and other than living houses, cooking room with windows and with out windows, house hold with latrine and with out latrine, house hold with cattle and with out cattle, distance of primary source of water with less than half an hour and more than half an hour, and consumption of water less than 40 liters and above 40 liters were not having a significant association with the prevalence of active trachoma.

But face washing from East Belesa, the children who were from a family that practiced child face washing once or more a day had shown 0.554 times lower than the children who were from a family that practiced their child face washing less or equal to six times per week; and among children who used soap for face washing were having 0.374 times lower the prevalence of active trachoma than were not used in the same area.

In both areas (SAFE strategy implemented and non implemented) dirty face was statistically significantly associated with the prevalence of active trachoma (table 9)

Qualitative Part:

I. In-depth Interview

In-depth interviews were held with responsible people at community level, including two elementary school directors, six chairmen of peasant association, two community health agents. The purpose of these interviews was to address issues that could be better assessed by the qualitative method and also to supplement the finding of the quantitative Study. All participants were interviewed with semi-structured questions. The majority knew the term trachoma, its sign and symptoms in both areas.

As explained by the school directors from Ebinat *woreda*, they know the signs, symptoms and transmission method of trachoma. They got this information because the district health office and the Carter Center Ethiopia trained them. They also have a health club in their school, which include HIV/AIDS, malaria, and trachoma preventive club. The teachers have followed daily the face washing of their students. But it was not the same in East Belesa *woreda*. The chairman and CHA had different training about prevention of trachoma, and they participated in the distribution of IEC materials to their community, advocating how to transmit and prevent trachoma disease in meetings, church, etc, and they participated as coordinators of the community for azithromax distribution but all these activity was not manifested from East Belesa Woreda. Some from both *woredas* mentioned that it was difficult to reduce the prevalence of trachoma in the area, because people believed trachoma was a familial disease & cured by itself with traditional beliefs. But now they all agreed that people believed that trachoma was a treatable disease.

As the majority explained most of them have knowledge that smoking is one of the risk factors for trachoma disease, but they have not kitchens or an extra house to be used for cooking.

Although materials are available around them to make extra buildings or kitchens, they themselves and the community believed that smoking in the living house helps to avoid insects, which is why they do not cook outside the living house.

II. **Focus group discussion: -**The FGD interview in each area was two groups, which were group of mothers (women) and groups of father (men). The reasons of grouping were to compare beliefs of prevention of trachoma between male and female dwellers.

In the SAFE strategy implemented area, eight women and eight men, and in East Belesa Woreda seven women and six men participated in different groups. The majority of men agreed that they know trachoma as it is an eye disease, which is manifested with redness of the eye, lacrimation, pain on the eye, and they discussed that trachoma is transmissible and preventable disease. The majority of women defined trachoma as an eye disease and they mentioned the signs and symptoms like the men, but some of them said they did not know that trachoma disease is either a transmissible or a preventable disease. Most of the men mentioned that this information was obtained from different meetings or church and some of them have obtained it from health institutions. Most women said that they had obtained this information from health institutions.

In East Belesa *woreda* half of men said that trachoma is an eye disease but some said that it is a discoloration of the eyes (whitish cornea). Half of them described the signs and symptoms, its transmissibility and prevention in the same way as the men from Ebinat *woreda*. Most of them agreed the primary source of this information was obtained from health institutions. The majority of women from East Belesa said that they did not know what trachoma was, but when they discussed the advantage of TTC eye ointment they related the name of trachoma with their local language

Bile(**ቡሌ**) and some related with *kirt* (**ቅርጥ**) and most of them mentioned that this disease is caused by urination in front of their living house.

Concerning face washing and latrine availability, In Ebinat *woreda* most participants agreed that face washing and availability of latrines are important for prevention of trachoma and two of them mentioned that they have a latrine but among their family children are not usually used it. But the women said that face washing every morning was a ‘must’, it was accepted culturally. Because of this all of them practiced washing their childrens’ faces each morning, though not purposely for prevention of trachoma disease.

In East Belesa *woreda* some of the men said that face washing and latrine availability are helpful for prevention of trachoma disease, but some of the men also said that having an available latrine was not important for prevention of trachoma. The women discussed along the same lines as the women living in Ebinat *woreda*.

Discussion:-

The study found a high level of active trachoma in East Belesa *woreda* where the SAFE strategy was not actively implemented (56.9%), while in Ebinat *woreda* where the SAFE strategy was successfully implemented, it was only 32.4%. The prevalence of trachoma showed a big difference from the previous baseline data in 2001 among children of Ebinat *woreda*, when prevalence among 1 to 10 year olds was 80%(13). However, the results of this study in both areas show that the prevalence of trachoma still exceeds the WHO threshold levels used to determine trachoma as a severe public health problem. The threshold prevalence for TF/TI among children age 1-10 years old is 20%. Therefore the prevalence of active trachoma in East Belesa was 3 times that threshold (56.9%), and in Ebinat *woreda*, even though the level was lower than the previous survey (when it was 4 times the threshold (80%)(13)), after a four years SAFE strategy implemented the prevalence of active trachoma in the age between 1-10 years was still above the WHO threshold level. In Ebinat *woreda* relatively high prevalence of active trachoma occurred in the age between 1-2 years, but in East Belesa *woreda* the peak distribution of active trachoma was between 3-4 years, and trachoma in pre school age children had a significant association [OR (95%CI), 1.488(1.177-2.345). This was also true according to M.Dense study the highest prevalence of active trachoma occurs in pre school children (14). The difference of peak age between the two areas may be due to azithromax distribution in Ebinat *woreda*, because the study showed a single annual dose of zithromax has significantly accelerated progress toward the elimination of trachoma (15)

The term trachoma & transmission of trachoma disease were equally known in Ebinat & East Belesa *woreda*s. But the consequence of trachoma that is blindness was more known by Ebinat community. Concerning methods of transmission also there was a difference in knowledge between

the two communities, except that beliefs of transmission of trachoma disease through contaminated fingers was the similar in each community

As WHO remarked “the prevention of blindness from trachoma could be only achieved sustain ably, if all four pillars of the SAFE strategy were implemented as a whole”(5,20,21). Having knowledge about SAFE strategy including methods of prevention of trachoma disease in the community is mandatory. For this reason, in this investigation, knowledge between the area where SAFE strategy had been applied and the non-applied area was compared, and the study showed that there was a difference in knowledge of trachoma prevention methods between Ebinat and East Belesa *woredas*. Knowledge of methods of prevention: by using latrines, children keeping faces clean, using refuse disposal pit, treat cases, and using kitchens outside the living houses with windows was significantly different between the two areas (table6). These differences may be due to distribution of IEC materials for trachoma prevention, repeated community health education by trained health workers or volunteers, and expanding eye care units in the area from Ebinat district health office in co-operation with the Carter Center Ethiopia. But in East Belesa *woreda* these activities were limited (17,18).

Environmental factors compared between *woredas* included cooking places, waste disposal systems, the presence of latrine, cattle shelters, and child’s face washing. Of these environmental factors only waste disposal system and children’s face washing habit were significantly difference between communities [$x^2 = 50.60$, $P< 0.001$, $x^2 = 106.43$, $P<0.001$ respectively).

Generally the practices of prevention of trachoma between the two *woredas* were little different. It may be that to change knowledge into practice is difficult within a limited period of time. Comparison was made between the prevalence rates of trachoma among children in male-headed households and female-headed households. The children from female-headed households had more active trachoma than children from male-headed households. The difference was

statistically significant [OR (95%CI), 0.700(0.513-0.954). This may be due to lower income in female-headed households. As usually observed, female-headed households in the rural community had low and irregular income. There was no significant difference in prevalence of trachoma between male and female children [OR (95%CI), 1.088(0.869-1.364)], probably due to the fact that males and females of the indicated age group were more or less equally exposed to the risk factors for trachoma (20)

As Desol G. showed, large family size was not necessarily a risk factor for trachoma (22). In this study also there was no association between occurrence of trachoma disease and large families [OR (95%CI), 0.968(0.768-1.222)]. The risk of acquiring disease might be related to the likely hood of contact with an infected individual rather than being a member of large family (23). The number of children under 10 years within a household was not associated with prevalence of active trachoma [OR (95%CI), 1.147(0.867-1.517)].

Cattle ownership is a very important aspect of Ethiopian society, and was common among these populations (75.6%). The study found no significant association between cattle ownership and active trachoma [OR (95%CI), 0.818(0.632-1.058)]. The presence of cattle has been associated with trachoma in some studies; it is argued that cattle living in the living room or in the yard might increase the density of flies and subsequently the presence of trachoma. However, in this study, the presence of a stable seems to have a protective effect (24). The paradox could be explained by the fact that cattle ownership is a sign of traditional wealth.

It has been argued that accumulation of garbage around living houses or inside the yard could attract flies and could be a risk factor for trachoma. But in this study there was no evidence to support this hypothesis in both areas (woredas), there was no significant association between garbage disposal system and prevalence of trachoma [OR (95%CI), 1.629(0.894-2.968), and 1.092(0.729-1.659) in Ebinat and East Belesa woreda respectively]. The finding suggests that flies

are not the principal method if transmission and showed that their control alone had little influence on the occurrence of trachoma (24)

Latrine owners have been found to be protected against trachoma. In southern Ethiopia, Zerihun (1997) reported that 64% of the study population had access to latrines and that the absence of a latrine was significantly associated with trachoma prevalence (25). But in this study absence of latrines was not significantly associated with prevalence of trachoma. These explanations could be in the distinction between latrine availability and use. Adults may use the available latrine, but their children usually defecate in the bush around the living houses (such type of practice is common in rural community).

Trachoma is often associated with face washing; many authors have shown the importance of face washing in the prevention of trachoma. In this study also true in the area where SAFE strategy was not implemented (East Belesa), it was significantly associated with prevalence of trachoma [OR (95%CI), 0.199(0.140-0.284)], these was not true in the area where SAFE strategy has been implemented. Unclean face had also an association with prevalence of active trachoma in both areas [OR (95%CI]. 0.199(0.140-0.284) and 0.412(0.261-0.656) in Ebinat and East Belesa woreda respectively], these showed children who had clean face were having reduced prevalence of active trachoma .The same observation has been made in Tanzania; were children with clean faces were less likely to have trachoma or severe trachoma (26,27)). In East Belesa woreda children who used soap for face washing had also lower prevalence of trachoma than were not use, but this was not true in Ebinat woreda.

Limitation of the study

Limitation.

- The study could not include more districts, kebeles, and villages due to lack of sufficient resources, so that its out come could not be more generalizable to the majority of rural community.

- Lack of base line data from East Belesa woreda.

- Its reliability

Conclusion

- The prevalence of active trachoma was lower in the area in which the SAFE strategy was implemented.
- Awareness (knowledge) of the preventions of trachoma in the area where SAFE strategy actively implemented was higher than non-implemented area. But there were no significant differences in practices except that face washing was more practiced in the area in which the SAFE strategy was implemented.
- In the area where SAFE strategy was not implemented, infrequent face washing, having a dirty face and not using soap for face washing were associated with active trachoma, but in area in which the SAFE strategy was, only having a dirty face was associated with active trachoma disease.

Recommendation

- ✓ Efforts should be more applied on improving face-washing habits of children to reduce the magnitude of transmission of trachoma.
- ✓ The need of well-organized Health education program with in the community that targeting children and mothers on the trachoma control program
- ✓ The Government and non-government organization with the planners, and Health policy makers in different levels should give more attention for the component of SAFE strategy on trachoma control activities.
- ✓ Further detailed studies are required to investigate the role of SAFE strategy that brought a change on the transmission of trachoma.

Annex I

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Annex II

Questionnaire to be used in a study to assess the prevalence of trachoma in children living in Ebinat & East Belesa Woreda in Amhara region Ethiopia.

Date ----------

Woreda Code----------

Peasant association ----------

Villages code no ----------

House hold, Code no----------

Hello , I am---------- .I am here to enroll and interview eligible study participants ,and fill in questioner forms .I am glad to inform you that, you are one of the eligible participants and you are well come to take part in this study . I am also delighted to tell you that I am really value your participant as your individual contribution to the study out put will definitely be very significant. How ever ,it is up to you to decide whether to participate in this study or not .I will admire and respect what so ever your decision is. I would also like to inform you that your name will not be written anywhere in this paper. Would you be willing to participate in this research?

1. Yes ---------- 2. No ----------

(The interviewer, signature in either of the given spaces certifies the verbal informed consent of the respondent.)

Now, I would like to ask you some questions that may inform the principal investigator about your personal back ground, living environment and some of your & your family activities. Although I fell some of the questions are private, your honest & genuine response will highly be appreciated and credit ed by the principal investigator as it will enable him to make realistic analysis and to propose a very practical suggestions. If you don't understand Questions, you have the right to skip it. You are also entitled to quite your participation at any given moment. this interview may take about 20 minutes.

AAU, Faculty of Medicine

Department of Community Health

MPH. Program

Questionnaire

The objective of the questionnaire is to assess the prevalence of trachoma among children in Ebinat and East Belesa Woreda based on their SAFE strategy activities.

Instruction to interviewer

1. Circle the appropriate answer for Multiple-Choice questions
2. Write the Space provided for open-ended question.

Part. I. Questions to be answered at the household level.

The following questions (from 101-118) focus on the selected household and shall be responded by the head of the household

No	Questions	Coding Categories	Code
101	Sex of the head of the household	1. Male 2. Female	
102	What is your religion?	1. Orthodox 2. Protestant 3. Catholic 4. Muslim 5. Others	
103	To which Ethnic group do you belong?	1. Amhara 2. Others	
104	Occupation of head of the household	1. Farmer 2. Craftsmen 3. Merchant 4. Government Employee 5. Housewife	

		6. Pensioner (retired) 7. Others: Specify	
105	Educational status of head of the household	1. Illiterate 2. He/She can write and read 3. Attended formal school	
106	If in rolled in school, highest grade completed		
107	Family size		
108	Number of children less than 10 yrs old:		
109	Number of rooms in the living house:		
110	From where mainly do your families' members get water for domestic use?	1 River 2 Unprotected spring 1. Pond 2. Unprotected well 3. Rain water 4. Protected spring 5. Protect well 6. Pipe 7. Others, specify (If your answer is more than one, indicate all)	
111	For how long do you travel to get Water for domestic use? (Two way)	1. Less than half an hour. 2. From half an hour to two hours walk 3. From 2hsr to 4hrs walk 4. Longer than 4hrs walk.	

Part II the following questions are concerning knowledge & practice towards trachoma transmission and prev

No	Questions	Code categories	Code
201	Do you know what trachoma is? (If the answer is no continue to question 207)	1 Yes 2 No	
202	Do you know blindness is occurred due to trachoma?	1. Yes 2. No 3. I don't know	
203	Is trachoma transmissible disease?	1. Yes 2. No 3. I don't know	
204	If your answer to 203 is yes, how is	1. Through flies	1.Yes 2.

	transmitted the diseases from infected person to non-infected person?	2. By contaminated fingers 3. By sharing contaminated clothes / towels 4. I don't know	1.Yes 2. 1.Yes 2.
205	What kind of method do you know to prevent transmission of Trachoma?	1. By using latrine 2. By washing the face /keeping clean face 3. Bury or burn domestic wastes (garbage's) 4. By treating cases 5. Families & cattle live separate shelters 6. By using kitchens out side living houses with windows. 7. I don't know	1.yes 2 1 Yes 2 1 Yes 2 1 Yes 2 1 Yes 2 1 Yes 2
206	Is trachoma treatable?	1. Yes 2. No 3. I don't know	
207	How much water do the family members consume per day for cooking, washing utensils and cloths and personal hygiene?	1. Less than one pot (20 liters) 2. One to two pots (20 - 40 liters) 3. Two to three pots(40-60 liters) 4. Three to four pots (60 - 80) 5. More than four pots (80 liters)	
208	Where do the family members cook?	1. In the same room with live 2. In the same house with live but in a kitchen. 3. In a kitchen 4. Out side living house kitchen 5. If others; specify	
209	Does the cooking room have window?	1. Yes 2. No	

210	What do you do your domestically produced refuse (garbage)?	1. Burn it 2. Bury 3. Dispose in the farm 4. Simply dispose it in other place	
211	If your answer to Question 210is option 4, where do you dispose it?	1. Near by living house 2. Far away from the live house. 3. In the river or stream.	
212	Do you have latrine?	1. Yes 2. No	

213	Do you have own cattle?	1. Yes 2. No	
214	If your answer to Q 213s yes, where do the cattle pass the night?	1. In the same room where family lives. 2. In the same living house the family lives but in a separate room 3. In a shelter constructed for them around the house 4. If other, specify	

Part III. Questions about the child selected for the study.

I would like to form you that, the following questions focus on individual child selected for the study and can be responded by the child him self/ her self or by a family member.

Name of the selected Child _____

House hold code No | | | | |

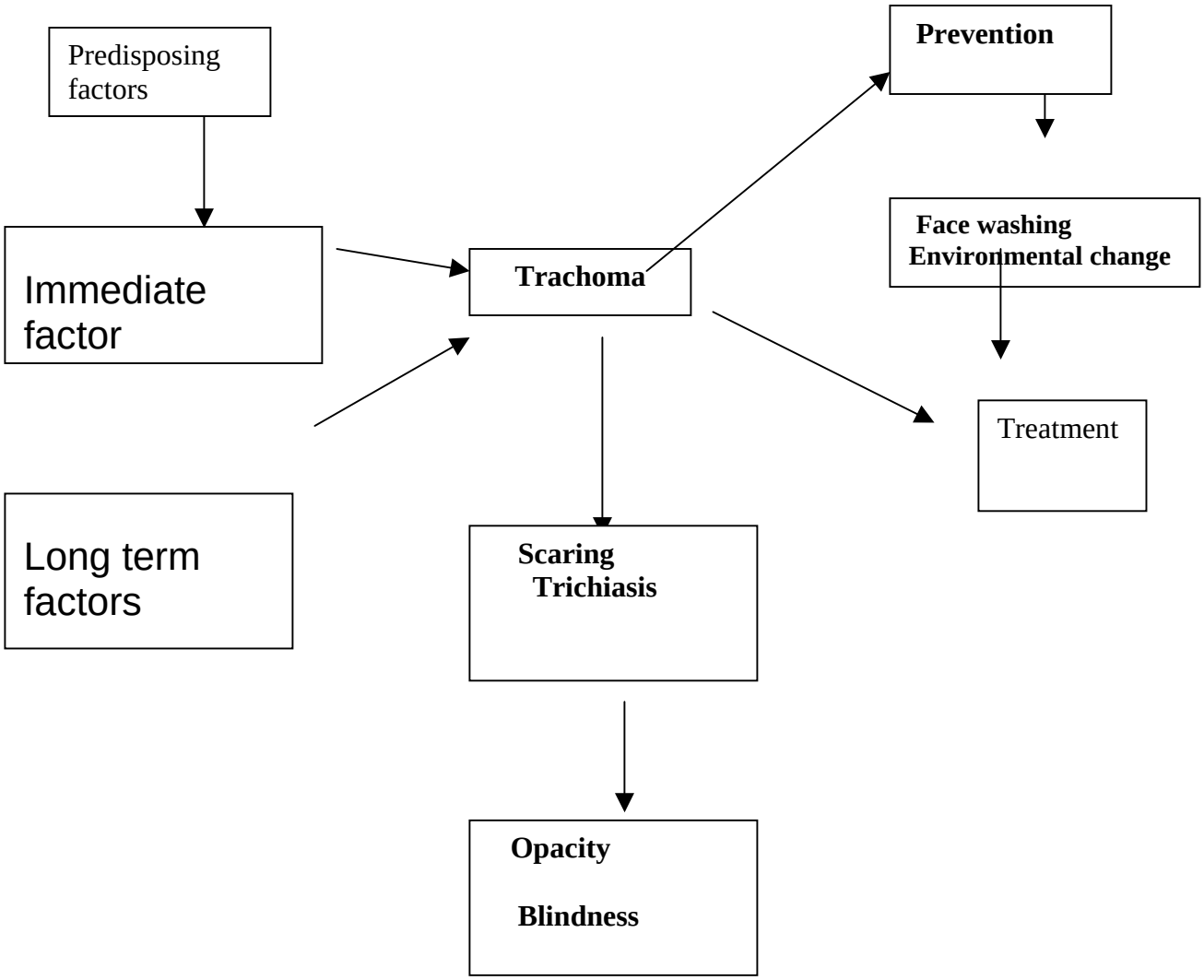
Child ID | | | | | **No.**

No	Questions	Coding Categories	Code
301	Age of the selected child in years:		
302	Sex of the selected child	1. Male 2. Female	
303	Educational status of the selected child.	1. Too young to go to school (pre school child) 2. Illiterate 3. Dropped out of school (discontinued) 4. Attending school 5. Others	
304	If the selected child is in school or drop out of school, what is the highest grad completed?		
305	How often does the selected child was His/her face?	1. Two or more times per day. 2. Once daily 3. Two- six times per week 4. Once weekly 5. Stays unwashed for longer than a week.	
306	Child face condition	1. Clean face 2. Unclean face	
307	Does the selected child use soap when washing his/her face?	1. Yes 2. No	
308	Result of the Eye examination for active trachoma	1. Yes 2. No	
309	If Q 308 Yes, specify the stage of trachoma	----------	

This is the end of our questionnaire. Thank you very much for taking time to answer these questions. We appreciate your help.

Interviewer signature _____Date _____

Conceptual frame work



Declaration

The thesis my original work and has not been presented for a degree in any other university and that all sources of materials used for the thesis have been duly acknowledged.

Name Alemayehu Mesfin

Signature

Place: Department of community of health, Medical faculty, Addis Ababa University

Date of submission April 25/2005.

This thesis has been submitted for examination with my approval as university advisor

Name Gail Davey (MBB Chir, MSc MD)

Signature