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ASSESSMENT OF FACE-CLEANLINESS AND ENVIRONMENTAL CONTROL COMPONENTS OF SAFE STRATEGY AMONG MODEL AND NON-MODEL HOUSEHOLDS: A COMPARATIVE CROSS-SECTIONAL STUDY IN SELECTED WOREDA OF LIDETA SUB-CITY, ADDIS ABABA, ETHIOPIA

BY

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ACRONYMS AND ABBREVIATIONS

CI	Confidence Interval
GET	Global Alliance for Elimination of Trachoma
HH	House Hold
HEW	Health Extension Worker
MOH	Ministry of Health
OR	Odd Ratio
PPS	Population Proportion Allocation to Size
P.I	Principal Investigator
SAFE	Surgery Antibiotics Face Washing and Environmental Control
VIP	Ventilated Improved Pit latrine
WHO	World Health Organization

Abstract

In Ethiopia SAFE strategy (2002) has been implemented in different region of the country. To adopt better practices, Improvement of the habits of face washing and environmental control among model household as well as the whole community are necessary for sustainable reduction of trachoma in Ethiopia. Therefore, the implementation practice of face washing and environmental control components of SAFE strategy among model and non-model families is important to the reduction of trachoma infection in the country.

Objective: The main objective of the study was to compare face-cleanliness and environmental control components of SAFE strategy among model and non-model households in the study area.

Method: Quantitative study method in the form of community based comparative cross sectional survey was employed. Multi-stage with systematic random sampling technique was used to select households. Amharic version structure interview questionnaire was pretested and used. The data was entered and analyzed using SPSS-version 20.descriptive analysis was done using percentage and presented using table. Binary and multivariate logistic regression was used to detect the potential difference between the groups.

Result: More models (49%) used soap to wash their face regularly compared to non-model (34%) households. The magnitude of proper face washing among model households was 36.4%, but 26.2% among the non-model group [OR, 95 % CI =0.569: (0.4, 0.81]. Model households were about three times more likely to practice face washing per day compared to non-model ones [OR, 95% CI =2.902: (2.04, 4.155)]. Eight two percent of the model households used proper solid waste container while, 64.9% in the non-model [OR, 95%CI =2.25 :(1.75, 3.65)]. Models were about two times more likely to using functional soaking pit compared to non-model households [OR, 95% CI =1.659 (1.22-2.234)]. Model households were four times more likely to participate in keeping the cleanness of the compound compare to the non-models [OR, 95%CI =4.455, (2.26 ,8.775)]; and also two times more likely to possess separate kitchen outside the living room [OR, 95% CI =2.26 (1.62, 2.99)].

Conclusion: Model households were better in face washing and environmental improvement components of SAFE strategy compared to the non-model households, and hence, the strategy of making model households has to be expanded to those who are non-model households.

Key words: Model household, Non-model household, “F” and “E” component of SAFE strategy**.**

1. INTRODUCTION

1.1 Background

Unclean faces are associated with active trachoma. Communities with dirty faces are more likely to transmit trachoma if they have active infections or get trachoma if they are not infected. Discharge from the eyes and nose attracts eye-seeking flies that can bring the infection or carry it to other people. Trachoma control programs must convey that it is desirable for community to have a clean face and should be the usual state. Trachoma persists where people live in poverty with crowded living conditions and where there is insufficient basic infrastructure for water, sanitation, and waste disposal. Unless such conditions change, trachoma will return after antibiotic treatment [1].

Trachoma is a chronic kerato conjunctivitis caused by Chlamydia trachoma. Repeated infections can cause the development of sub epithelial follicles and inflammation known as trachomatous inflammation, Follicular (TF) and Intense (TI) respectively. The presence of TF and TI denote active trachoma and mainly seen in children. After years of re-infection, scaring of the conjunctiva (TS) may occur which can cause eyelashes to turn inwards and scratch the globe (trichiasis, TT), which may eventually lead to corneal opacity (CO) and blindness [2, 3].

Visual impairment and blindness have been recognized worldwide as one of the major public health problems, especially in developing countries where most of the blind live and resources are minimal [2,3]. 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 [4]. The prevalence of blindness is 10-20 times greater in the developing countries than the developed countries. Among the countries that possess high rates of vision impairment is Ethiopia [5].

SAFE strategy with mass antibiotics distribution has been launched as one component of the national VISION 2020 program since 2002 in Ethiopia [13].There is considerable evidence that persons with clean face are less likely than others t o have active trachoma. Consequently, there is an assumption promoting hygiene may reduce trachoma [2]. Much circumstantial evidence also suggests that environmental improvement reduces the incidence of trachoma. In Ethiopia health extension program was designed to bringing behavioral change of the community through

hygiene and sanitation promotion by implementing the basic personal hygiene and environmental packages at household level.

1.2 Problem Statement

Trachoma is known to be one of the major causes of blindness in Ethiopia. However, recent evidence indicates the disease burden were lacking. According to 2007 national blindness survey in Ethiopia low vision and blindness were major public health problems in the country. The prevalence of blindness and low vision were 1.6% and 3.7%, respectively. About 87.4% of causes of blindness are avoidable. Trachoma was found to be one of the top three causes of blindness. Around 40% of children aged 1-9 had active trachoma [5]. Even if different studies show that the trend was decreasing, still the problem needs mass intervention approach in Ethiopia. Prevention of trachoma through hygiene and sanitation promotion should be seen as a community priority. To reduce the transmission of trachoma infection, programs need to frame the problem as a family health concern and present all members with relevant information, appropriate interventions, and feasible approaches to reducing the risk of infection. Specially empower and support women to meet the hygiene and environmental needs of their family are important [2].

Facial cleanliness and environmental change activities include hygiene promotion through targeted health education, school-based trachoma education, latrine construction, and water provision implementation practices and ensure equitable access to improved sanitation among all persons at risk of trachoma is very important to reduce the disease [2, 6]. In Ethiopia Promoting and bringing behavioral change on environmental sanitation and hygiene among households are the job descriptions of health extension workers [6].Therefore, health extension workers are expected to work on the F and E components of SAFE strategy and bring very significant change in environmental sanitation and personal hygiene in the community [6,7].Model families who had taken four months theoretical training and expected to have good knowledge and practices on the fifteen basic health packages. Hygiene and environmental sanitation are important parts of the fifteen health packages and SAFE strategy [6**,** 7, 8]."F" and "E "components of SAFE strategy are the most important tools to achieve sustainable reduction in transmission of trachoma among a community .Therefore, implementation practices of F and E components of

SAFE strategies among model families is important to support trachoma prevention programs in the study area and the whole in the country.

1.3 Rationale of The Study

Face washing and environmental improvement component of SAFE- strategy- is the most important instrument to achieve sustainable reduction in transmission of trachoma among community, so model families are the priority area expected to know and practice" F "and" E "component as innovator and benchmark their activities to non-models and others.

1.4 Significance of The Study

Face washing and environmental improvement component of SAFE- strategy- is the most important instrument to achieve sustainable reduction in transmission of communicable disease including trachoma among community.

Therefore the findings of this study

Provide baseline data for Ministry of health and Addis Ababa health bureau for intervention strategy.

Used for different researchers to carry out further large scale studies in the area.

Used for lideta sub- city and woreda 10 health office as well as other concerned bodies and organizations/NGO, CSOS/ to take an action based on the finding.

2. LITERATURE REVIEW

The magnitude of visual impairment, blindness and their causes have been estimated, globally by WHO [18] region from recent data. For countries without data estimates were based on newly developed model. Globally the number of people of all ages visually impaired is estimated to be 285 million, of whom 39 million are blind. People 50 years and older are 82% of all blind. The major causes of visual impairment were uncorrected refractive errors (43%) and cataract (33%); the first cause of blindness is cataract (51%). Visual impairment in 2010 is a major global health issue: the preventable causes are as high as 80% the total global burden [9].Preventable blindness with its socio-economic consequences is a public health tragedy that affects mainly developing countries of the world. About 110 million people live in endemic areas and need treatment. An additional 210 million live where trachoma is suspected endemic. An estimated 7.2 million people have an advanced stage of the disease, in which the eyelashes turn inward and scrape the cornea, a painful condition called trichiasis[10].

Trachoma is a chronic kerato conjunctivitis caused by Chlamydia trachomatis. Repeated infections can cause the development of sub epithelial follicles and inflammation known as trachomatous inflammation, Follicular (TF) and Intense (TI) respectively. The presence of TF and TI denote active trachoma and mainly seen in children. After years of re-infection, scaring of the conjunctiva (TS) may occur which can cause eyelashes to turn inwards and scratch the globe (trichiasis, TT), which may eventually lead to corneal opacity blindness [2,3].IT is the most common infectious and its Transmission is favored in poor communities, where crowding is common and access to water and sanitation inadequate[3].

Trachoma is one of the diseases which are targeted by VISION 2020 program. Although the magnitude of trachoma blindness is reducing globally, it is still the leading cause of preventable infectious blindness [11]. After using toilet is a primary barrier to interrupt faecal-oral route of disease transmission, faces and hand washing of children and mothers are major component of global trachoma prevention and control strategies [35].Now days, The WHO has established Global alliance for Elimination of Trachoma (GET2020) initiative as part of its “VISION2020” and hopes to eliminate blinding trachoma as a public health problem by the year 2020 from all member countries [11, 12].

SAFE strategy with mass antibiotics distribution has been launched as one component of the national VISION 2020 program since 2002 in Ethiopia [13].There is considerable evidence that persons with clean face are less likely than others to have active trachoma. Consequently, there is an assumption promoting hygiene may reduce trachoma [2].Unfortunately; it has been difficult to show that facial cleanliness programs substantially reduce the prevalence of trachoma in communities. Several studies have attributed changes in the prevalence of active trachoma to such programs without adequately accounting for chance variation, seasonal effects, or secular trends. When villages with intense facial cleanliness campaigns were compared to control villages it was found that face-washing had a minimal effect on the prevalence of active trachoma after a year. It is hoped that programs lasting more than a year will have a greater effect [14].

There are compelling grounds for believing that trachoma is a disease of poverty and underdevelopment. Much circumstantial evidence suggests that environmental improvement reduces the incidence of trachoma. Evidence from a small intervention trial indicated that the transmission of trachoma could be reduced by fly control and those members of a subpopulation of the fly species [14]. In many cities of the country, waste management is poor and dumped along roadsides and into open areas, endangering health and attracting vermin [31].

Trachoma can destroy the economic well-being of entire communities, keeping families shackled within a cycle of poverty as the disease and its long-term effects pass from one generation to the next[15].The comprehensive SAFE strategy combines measures for the treatment of active infection and trichiasis (S&A) with preventive measures to reduce disease transmission (F&E) [16,17]. Implementation of the full SAFE strategy in endemic areas increases the effectiveness of trachoma prevention programs. The F and E components of SAFE [18], which reduce disease transmission, are particularly critical to achieving sustainable elimination of trachoma [11, 12]. Hand washing at critical times with soap and water removed germs and reduced diarrheal diseases by 35 % or more, also decreased prevalence of eye and skin infections [31].

Some countries in Africa become successes by applying integrated SAFE strategy. Ghana: Success story efforts by the Ghana Health Service toward implementation, monitoring, and advocacy for trachoma since 2001 led to over 3.1 million cumulative doses of Zithromax® being distributed through 2008, over 4,500 people benefitting from trichiasis surgeries, and thousands

of villages receiving health education, latrines, and improved access to water. The combination of these interventions resulted in a decreased prevalence of an active stage of trachoma known as TF from 16% in some districts at baseline to less than 5% in all endemic districts by 2009[11].

Activities are now focused on addressing the remaining need for surgeries and disease surveillance, with a target for elimination of trachoma as a public health problem in Ghana by the end of 2010.

In Ethiopia Community-based cross-sectional study was conducted in BasoLiben District from February to April 2012 among a total of 792 children screened for trachoma (of which 50.6% were girls), the overall prevalence of active trachoma was 24.1% consisting of only 17.2% [95% CI: 14.8, 20.1] TF and 6.8% TI. There were variations among children living in low land (29.3%) and in medium land (21.4%). In multivariate analysis, low monthly income (AOR = adjusted odds ratio) 2.98; 95% CI (confidence interval): 1.85-7.85), illiterate family (AOR = 5.18; 95% CI: 2.92-9.17); unclean face (AOR = 18.68; 95% CI: 1.98-175.55); access to water source (AOR = 2.01; 95% CI: 1.27-3.15); less than 20 liters of water use (AOR = 4.88; 95% CI: 1.51-15.78); not using soap for face washing (AOR = 5.84; 95% CI: 1.98-17.19); not using latrine frequently (AOR = 1.75; 95% CI: 0.01-0.42); density of flies (AOR = 3.77; 95% CI: 2.26-6.29); less knowledgeable family (AOR = 3.91; 95% CI: 2.40-6.38) and average monthly income (AOR = 2.98; 95% CI: 1.85-7.85) were found independently associated with trachoma.[19].

According to the Joint WHO and UNICEF Global Water Supply and Sanitation Assessment 2010 Report [31].The type of latrine observed was 52% private pit latrine. This is almost similar with the Ethiopia mini 34 EDHS survey in urban area is (58.4%)(32).But a few (0.6%) of them did not have their own. The main reason of not having their own latrines was lack of free space to construct and lack of finance to construct.

In Tanzania a large scale randomize trial intensive educational intervention showed that children with clean face were less likely to have severed inflammatory trachoma [20].Across-sectional study in Mexico reported that the frequency of face washing(>7 times a week) was negatively correlated with the likelihood of children having active disease[21].In Sudan compare four areas in which SAFE strategy had been implemented evaluation after 3 years showed that

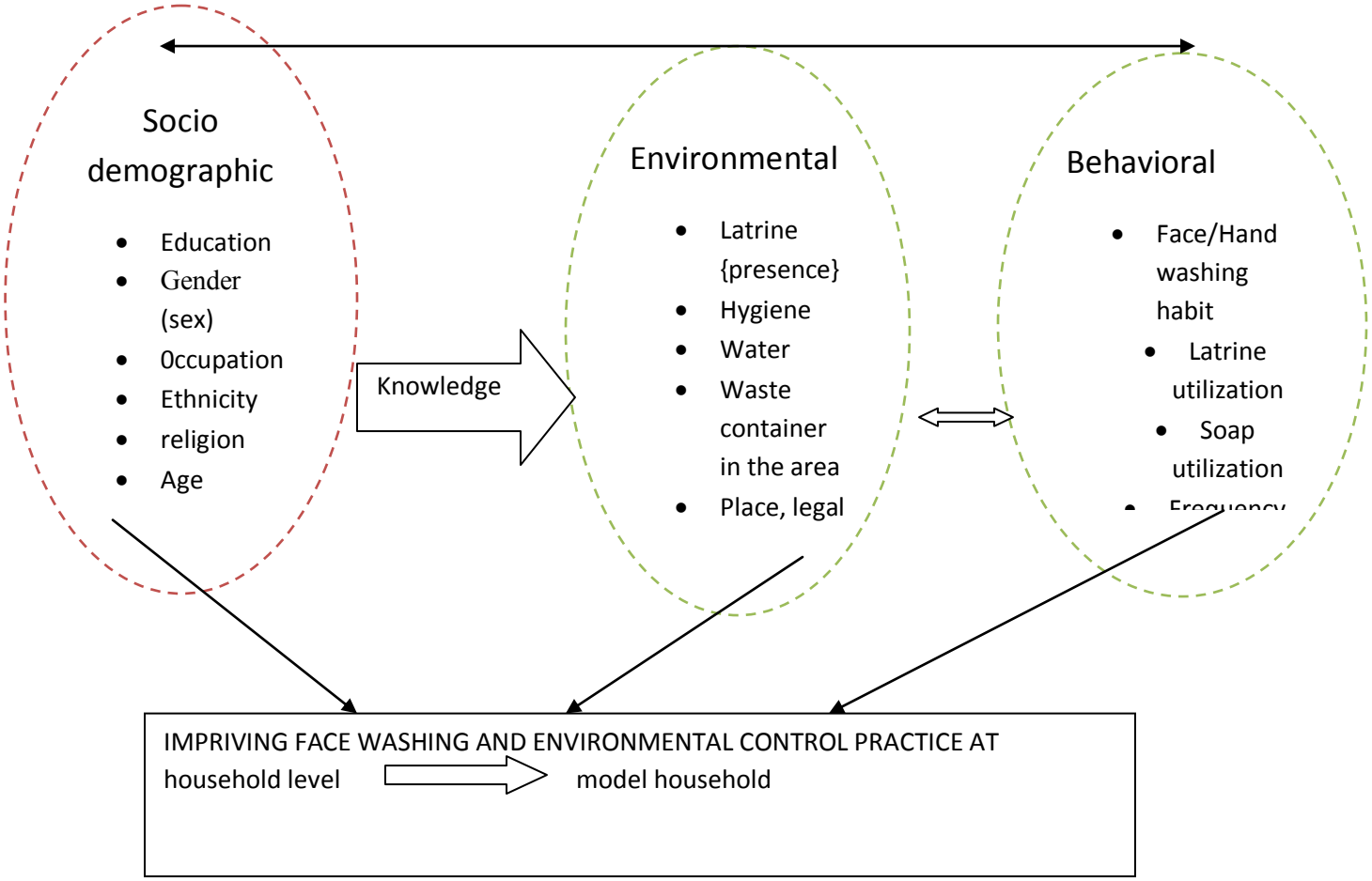
greatest reduction of active trachoma was due to antibiotic treatment and improved facial cleanliness[20].

Analytical cross-sectional trachoma surveys were conducted in four program areas across Ethiopia before and after 3 years of intervention with the SAFE strategy. A total of 8358 children 1-9 years, 4684 people above 14 and 3572 households were assessed in the follow-up evaluations using methodologies recommended by the WHO. Effects were measured by comparing follow-up proportions with baseline estimates of four key indicators. The result showed that, Coverage was 36% for trichiasis surgery, 59% for antibiotic and 57% for health-promotion services. Prevalence of trachoma trichiasis (TT) decreased from 4.6% (95% CI: 3.6% to 5.8%) down to 2.9% (CI: 2.1% to 3.9%). Prevalence of trachoma inflammation-follicular (TF) dropped from 36.7% (33.9% to 39.6%) to 18.4% (CI: 15.4% to 21.8%). The proportion of unclean faces and households not using latrines fell from 72.8% (68.9% to 76.4%) and 74.5% (69.9% to 78.7%) down to 47.0% (CI: 43% to 51%) and 51.7% (47.2% to 56.2%), respectively. All the reductions related with antibiotic (TF), face washing (clean face) and environmental (latrine) components were statistically significant except for Surgery (TT) [19].

The quantity and the quality of water available, providing adequate sanitation facilities and adopting better hygienic practices interrupt the transmission of most faeco-oral diseases. It is anticipated that an improvement in the quality of water and its accessibility, along with sanitary excreta disposal within poor communities in developing countries will have a substantial and immediate impact on diarrheal morbidity and mortality rates [32]. Other study conducted in mojo and lume district in Ethiopia in 2012 indicated that Among 431 examined children, 54(12.53%) had trachomatous inflammation-follicular (TF) and 43(9.98%) had trachomatous inflammation-intense. Among the adults we found 12(1.68% prevalence of trachomatous trichiasis. The presence of latrine ($p=0.02$), garbage disposal system ($p=0.05$), main source of water consumption ($p=0.01$) and keeping animals in the living room were found to be significant risk factors ($p<0.001$) [22].Different studies indicated that frequent face washing and reduction of trachoma were associated [23, 24]. the Environmental factors groups including latrine availability and use, cleanliness of latrine and fly density less than 5 were significantly different between households with HEP and non-HEP[28].A study done kolfe sub-city indicated that latrine cleanness, solid and liquid waste management was still poor [34, 36].

In Ethiopia HSDP IV aims to ensure community ownership and empowerment through effective social mobilization, enhanced and sustained awareness creation, and creating conducive environment and supporting community Organizations through health extension programs [25]. Additional positive outcomes for model that involved community participation than none involved community participation [29]. There for SAFE strategy especially F and E component is expected to address by this community base service

CONCEPTUAL FRAME WORK



Hygiene promotion is effective where there is good availability of water .Hygiene promotion in the absence of water is almost meaningless. Those involved with hygiene promotion at community level should be able to set an example of good hygiene by havening a clean faces.

Environmental improvement can be enhanced by community mobilization and encouraged or fostered by a combined program of hygiene education and brining good behavioral change. Village health workers/HEP/ and member of village health development army should be involved in decision making about their village cleaning. Knowledge and behavior had significant impact on the environmental factors. Unless utilization behavior develops environmental improvement is nothing even though available at household level. The improvement of both components makes successful prevention of trachoma disease.

3. OBJECTIVES

3.1 General Objective:

To compare face-cleanliness and environmental control components of SAFE strategy among model and non-model households in woreda 10, Lideta sub- city, Addis Ababa, Ethiopia.

3.2 Specific Objective

- To compare the magnitude of implementation practices of proper **F**ace washing and **E**nvironmental control components of SAFE strategy among model and non-model families of the study area.
- To explore factors affecting the implementation practices of" F" and "E" components of SAFE strategy among model and none-model families

4. METHODS

4.1 Study Design

Quantitative study method in the form of a community based comparative cross sectional survey was under taken.

4.2 Study area and period

The study was conducted in woreda 10, Lideta sub city which is one of the 10 woreda of the sub city and the second largest next to woreda 1, Lideta sub- city. It is bounded by kirkos worda 6, Lideta woreda 8, Lafeto and Lidetaworda 1in north, east, south and west, respectively .A total population of approximately 35,000 with 17108 females and 17892 males [25].There were a total of 5 different health institutions in the woreda, with 1 health center under government ownership and 3 clinics under private and 1 laboratory diagnostic centers [25]. In general the health coverage of the woreda is 100%.

Health programs which support "F "and" E" component SAFE strategy in the study area:-

Health extension program: it is implemented starting since 2010 formerly with a total of 10 health extension workers, but now 7 and 2 super visors. According to the base line survey the total households in the study area was 5,000 and the private own latrine coverage was 65%.In the last five years 1567models were graduated on health extension program including the recent one. The rest 3,433 non-models will be graduated for the future (woreda document).

AMREF hygiene and sanitation project: started to implement from 2012.

The study was conducted from April 10-24, 2015

4.3 Source Population

The source populations were all households in woreda 10 Lideta sub-city administration.

4.4 Study Population

The study populations were model and non-model families, which would be selected by using multi-stage with systematic sampling method and those who had been present during the survey and fulfilled the inclusion criteria.

4.5 Inclusion and Exclusion Criteria

Inclusion Criteria

Group1: households who were non-model family/household

Group2: households who were model family including the recent one (2007 E.C)

Exclusion Criteria

Households who were non- model family excluded from group 2

Households who were model family excluded from group1

Households who were on training was excluded

Those are severely ill during the survey

4.6 Study variable

Independent: socio-demographic (age, sex, religion, ethnicity, occupation), knowledge, frequency of face washing, latrine utilization, soap utilization, hand washing habit, place, legal permission and waste container.

Dependant: face washing practice, improvement of environmental control/model HH

4.7 Sample Size Determination

Sample size was calculated based on the following assumptions.

For determining the magnitude of face cleanliness and environmental control study**:-** P1 proportion of face washing among Non-model families was assumed to be 50% considering the urban nature of the study area, the exposure of the HH to different medias, it was assumed to detect a difference of 15 percentage points in the model families.

$P_1 = 0.5$, P2 = 0.65,

r = allocation of ratio among groups 1:2, $n_2 = 2n_1$

$\frac{\propto}{2}$ = Confidence level (ci) =95%=1.96

β = power of the study (80%) = 0.84

$$n_1=\left(\frac{\frac{\alpha}{2}\sqrt{(1+\frac{1}{r})P(1-P)}\quad+\beta\sqrt{P1(1-P1)+P2(1-P2)/r}}{(p1-p2)}\right)2=\frac{2.83}{0.0225}=126$$

$n_2=2n_1=252$

Since comparative study and the proportion was 1:2 and the sample size was **416** houses (10% non-response rate)

To study factors:-P1 proportion of environmental control (improvement) among Non-model families was assumed to be 50% considering the nature of the study area, the exposure of different Medias. It was assumed to be detected a difference of 11 percentage point in the model families since implementation of environmental control was not as simple as face washing. Because it requires:

1. Place to construct latrine
2. Legal permission
3. Time
4. Money, material.

P_1= 0.5, P_2= 0.61

r = allocation of ratio among groups 2:1, $2n_2=n_1$

P= $(P_1+rP_2)/(1+r)=\frac{1.7}{3}=0.57$

∝/ (2) = Confidence level (ci) =95%=1.96

β = power of the study (80%) = 0.84

Then sample size was determined by using the following formula

$$n_2 = \left(\frac{\frac{\alpha}{2}\sqrt{(1+\frac{1}{r})P(1-P)} \; + \beta\sqrt{P1(1-P1)+P2(1-P2)/r}}{(p1-p2)2} \right)^2$$

$$= \left(\frac{1.96\sqrt{\left(1+\frac{1}{2}\right)0.57(1-0.57)} \quad + .84\sqrt{0.5(1-0.5) \; + .61(1-.61)/2}}{(o.5-0.61)} \right) = \frac{2.88}{0.0121} = 239 \text{ HH will be taken from}$$

group2 (models)

$$n_1 = \left(\frac{\frac{\alpha}{2}\sqrt{(3P(1-P)} \; + \beta\sqrt{P1(1-P1)+2P2(1-P2))2}}{(p1-p2)2} \right) = \frac{5.78}{0.0121} = 478 \text{ HH had taken}$$

$n_1 = 2n_2 = 2*239 = 478$

The total sample size could be **789** from both groups (10% non-response rat)

4.8 Sampling Procedures

Multistage sampling technique was employed. **First**, among the ten sub cities in Addis Ababa city administration four sub-cities namely Lideta, Addis *ketema,Gulela* and *Chirkose* was selected by purposive sampling method. The reasons why these four sub-cities were selected, the sub-cities are congested slum area; report indicated that, those are the highest poverty incident rate among the sub-cities (53%) (CSA.2010)[27], AMREF Ethiopia hygiene and sanitation pilot project is undergoing on which a part of face washing and environmental control components of SAFE. Then, *Lideta* sub-city was selected by random sampling method among the four sub-cities. Among the ten woredas found in Lideta sub city, woreda10 was selected by lottery method. Woreda10 has 7 *kebeles*(Kebele 01-07). All 7 kebeles where included and, then classified in to two groups as model and non-model HH. Each kebele has 500 HH and above based on proportional allocation to size were included from both groups. Finally, 526 and 263 households were chosen using systemic sampling method from group1 and group2 respectively. One direction was selected by spinning pen methods and frames the starting household then every 3rd household was included in survey until total number of households is achieved. In each household, head of the household was asked (interviewed). In case a selected household was closed or displaced or nor respondent to get necessary information, and visited 3 separate visits would be made before it is considered missing.

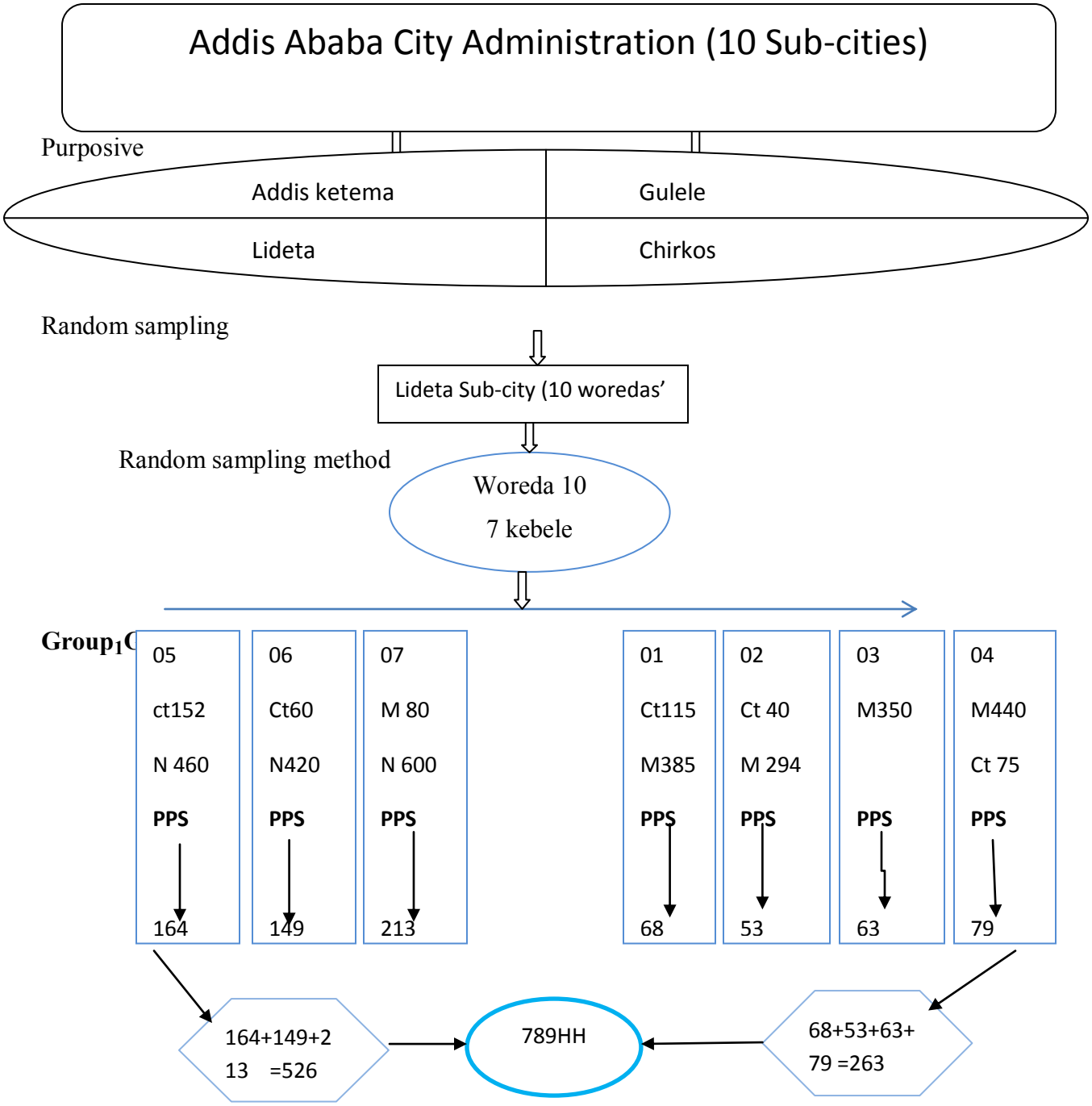


Figure 2: sampling procedure to select the study households among model and non-model household's woreda 10, Lideta sub –city, Addis Ababa city administration 2015

M=model, N=NON-Model, CT= currently on training, PAS= population allocation system

4.9 Data collection procedures

A Structured questionnaire' was developed to collect data. The questionnaire prepared to collect information from the head of model and non-model households. It was prepared in English and Amharic version. The Amharic version was used to collect data. The questionnaires'' were had questions about general socio-demographic characteristics, knowledge, practice, and households head view towards capacity health extension workers and other related factors on" F" and "E "components of SAFE strategy. Pretesting was done on five percent of the sample before the actual data collection process, and necessary adjustments was made on the overall format and content of the questionnaire based on the result of the pretest. Two survey teams were formed to collect data. Each team have had a team supervisor and two interviewers among the interviewers one was urban health extension professional that came from the survey area and others were degree holder environmental health professionals. The supervisors & interviewers were recruited from the sub city health office. A one days training for supervisors and interviewers was given by the principal investigator. A pilot study was conducted the end of the training in models and non-models that were not selected for the survey. The objective of the training was to familiarize them with the entire exercise of household data collection. This training covered the consent process, communications skills, discussion of what information each question was trying to gather, skip patterns, and clarification on duties of field staff. At the end of the training, they were expected to have the following skills:

Understand and analyze purpose of the study

The mechanisms how to get necessary information

Observational ability

Communication skill will developed

The survey target was HH models and non-models, a house to house survey was under taken and to reduce desirable biased observations were made by the supervisors.

4.10 Operational Definition

Clean face: Clean face - a person who did not have an eye discharge or nasal discharge, fly on face at the time of visit.

Clean latrine: a latrine without visible feces on the floor and around the opening and the opening should be closed or covered; disregarding foul smells.

Head of household - the mother or father, who takes care of children most of time,

Regular – Always used

Health extension worker: A civil servant female health care providers who earned clinical nursing diploma and also trained for three up to four months community health training on basic 15 health packages and is working in the Community at kebele level.

Household: Constitutes a person or a group of persons, irrespective of whether related or not who normally live together in the same housing unit or group of housing units and who have common cooking arrangements

Awareness on trachoma: if the household head knows the term trachoma and at least one sign and symptom or mode of transmission or possible source of trachoma disease.

Knowledge on trachoma disease; if the households head knows at least the score mean of knowledge questions major sign and symptom , source of the disease or mode of transmission or mode of prevention.

Not knowledgeable; someone who knows below the score mean

Model household/family: are household head that have graduated and certified by local government organs after they took adequate theoretical and practical training for four months by urban health extension workers on the 15 basic health extension packages and acquiring enough information about the packages.

Non-model household/ family: non trained household by urban health extension workers and not certified by local governmental body

Proper face washing: a person who always use soap, dry his/her face after washing with clean towel/small cloth during washing his face /**.**

Proper solid waste container: something used to collect solid waste and covered from flies and insects.

Environmental improvement: households who uses latrine, clean the compound, use proper solid and liquid waste disposal pit, prepared separated kitchen from the main residential house.

4.11 Data Analysis Procedures

Data was edited, cleaned, coded and entered into computer and analyzed using SPSS version - 20. Age, sex, education and other socio demographic variables were analyzed. Mean, standards deviation was calculated. X2 test was used for categorical data (socio demographic Characteristics, environmental factors,) Odds ratio, 95% Confidence interval binary and multivariate logistic regression were used to see the potential differences between model and non-model households.

4.12 Data Quality Management

During data collection, data was checked for its completeness, and missing information at each points by both principal investigator and data collectors themselves. For accurate collection of the data, data collectors were trained and follow up support was made by principal investigator. In addition to the above, data was rechecked during data entry into the computer software before analysis, to prevent missing of important data.

4.13 Ethical Consideration

Letter of ethical approval was obtained from the Institutional Review Board (IRB) of Addis Ababa University, college of health science school of public health, follow submission of the proposal for ethical review. After obtaining the ethical approval letter; the school of public health was wrote a letter of support to lideta sub city health office andworeda10administrators to help in running of the data collection. The purpose of the study was explained for concerned bodies. Confidentiality of information explained to the participants. At the same time; it was made clear that participation was totally based on verbal consent form which contains willingness of the participants to participate.

4.14 Dissemination Of Results

Result of the study will be disseminated to relevant organizations that can make use of the findings, including the MOH, Regional health bureaus, local health institutions and relevant non-governmental organization. The result also submitted to Addis Ababa university school of public health through three hard copy and presentation. The findings will be presented in scientific conferences and will be published to be accessible for scientific communities in general.

5. RESULT

Seven hundred sixty five household heads out of 789 eligible subjects were interviewed, from those 261(34.1%) and 504(65.9%) were model and non-model, respectively. Making an overall response rate of 97% from each group 99% from models and 96% from non-models was responded. Twenty-four households were closed and during three separate visited and considered as missing.

The background characteristics of the respondents are presented in Table 1. The Age distribution of both groups showed normal pattern with mean age of 45.51(±11.216) and 37.97 (±11.13) years whereas, the median age of 46 and 35 years among model and non-models households respectively.

Majority of the respondents in both group were females, seventy seven percent (77.8%) and fifty nine percent (59.7%) in model and non-model households respectively. Majority of the study respondents were Christian (orthodox, protestant and catholic), 68.8 % and 71.4% from models and non-model households, respectively.

Seventy nine percent of model households had ≤5 family size whereas eighty five percent of non-models had ≤5 members and 20.7 % models, 14.3% of non-models had more than 5 family members respectively. According to the study 30% models and11.9% non-models were illiterate, but 21% of models and 38.9% non-models were educated above secondary school. This showed that greater different between the two groups. When we looked at ethnicity, Amhara were the dominant in groups, 68% from models and 71% from non-models, followed Oromo, 29.5% from models and 26% from non-models. Thirty nine percent of the models were house wives while, 34.7% in the non- model part.

Table: 1 comparison of socio-demographic characteristics between model and non-model households in woreda 10, lideta sub city, Addis Ababa 2015.

variable		Model No %	Non-model No %	chi-square	**p-value**
Sex of the head of HH					
	male	58(22.2)	203 (40.3)	24.142	< 0.05*
	female	203(77.8)	301(59.7)		
Age group					
	20-24	2(0.8)	22(4)	83.959	< 0.05*
	25-29	20(7.7)	117(23.2)		
	30-34	21(8)	89(17.7)		
	35-39	48(18.4)	82(16.3)		
	40-44	32(12.3)	61(12.1)		
	45-49	32(12.3)	40(7)		
	50-54	44(16.9)	34(6.7)		
	55-59	22(8.4)	26(5.2)		
	≥60	40(15.3)	33(6.5)		
Educational status					
	Illiterate	79(30.3)	60(11.9)	69.44	< 0.05*
	Non-formal edu	35(13.4)	26(5.2)		
	Elementary	50(19.2)	96(19)		
	9-12	42(16.1)	126(25)		
	Above secondary	55(21.1)	196(38.9)		
Religion					
	Christian	178(68.2)	360(71.4)	1.089	0.58
	Muslim	77(29.5)	131(26)		
	other	6(2.3)	13(2.6)		
Ethnicity					
	Amhara	178(68.2)	360(71.4)	6.429	0.093
	Oromo	77(29.5)	131(26)		
	Tigray	6(2.3)	13(2.6)		

Occupation				
Gove employee	73(28)	141(28)	4.143	0.397
NGO	29(11.1)	79(15.7)		
Private	52(19.9)	104(20.6)		
house wife	103(39.5)	175(34.7)		
other	4(1.5)	5(1)		

Significant difference at p< 0.05(*)

Information on socio demographic characteristics known to be associated with "F" and "E") was collected from both groups. There was no statistical significant difference between the two groups when we looked ethnicity, religion, family size and occupation, but sex, age and education status were different between the two groups. As indicated on the above table seventy seven percent (77.8%) and fifty nine percent (59.7%) of females from model and non-model households were included in the study, respectively the rest were males. When we looked at education status 33% models and 11.9% non-models were illiterate, 13.4% model and 5.2% of non-models were educated elementary school, while, 21.1% of models and 38.9% of non-models were educated above secondary school. Illiterates were higher in the model group and educated above secondary were higher in the non-model group, the different were statically significant[X^2= 69.44, P=<0.05] (Table 1).

Knowledge

In this section a comparison was done on household's knowledge between the model and non-model households. The proportion of household who heard of at least the word trachoma from different source of information was significantly higher in the models [99.23%] than non-model households [87.69%]. Households head got information about trachoma from four sources (health personnel, health extension worker, media and the community itself). About 45.2% and 45.6% of model and non-model households have got information about trachoma from one source of information, respectively. Thirty four percent (34%) of models and 40.6 % of non-model households were had got information from two sources. 17% of models and10.8% non-models had got information from three sources. 1.8% of models and 3.1% of non-models had got information from four major sources. Knowledge of major sign and symptom of trachoma

disease; 250(25.7%), 223(22.9%), 121(12.4%), 106(10.9%), 85(8.7%) were knew, burning, itching, photophobia, ocular discharge, foreign body sensation and red eye were mentioned as sign and symptoms of the disease by the respondents , respectively in the non-model group. Whereas models households knew, 162(26%) burning, 126(20.3%) itching, 97(15.6%) photophobia, 90(14.5%) ocular discharge, 77(12.4%) foreign body sensation, and 59(9.5%) red eye were major sign and symptom of response by respondents, but 1.1% of non-models and 1.6% of models didn't knew the, sign and symptoms of the disease.

According to the finding, the possible source of the disease knowledge of respondents were asked, 102(27.6%) said, from disease people, 16% from animal and 56.1% from dirt were mentioned in the model group, while non-models, 26.9%, 13.8% and 59.3 were from disease people, from animal and from dirt respectively .

Knowledge about mode of transmit ion of the disease, models households head, 39.3% by flies,14% by sharing towel,6.2% by sharing bed sheet,5.4% by sharing eye makeup,8.8% by close contact body and 26.3% by touching eye with un washed hand were major mode of transmit ion of trachoma disease from person to person, while non-models,46.1% by flies,9.7% by sharing towel,5.1% by sharing bed sheet,4.4% by sharing eye makeup,7% by close contact body and27% by touching eye with un washed hand were means of transmit ion of the disease.

Accordingly the result, knowledge about the mode of prevention of trachoma disease were asked; models knew, 14.3% taking medication, 47.5% keeping personal hygiene, 27% proper use of latrine and 10.6% by making the compound clean used to prevent the disease whereas, non-models, 22.1% by taking medication, 50.4% keeping personal hygiene, 16.3% proper use of latrine and 11.1% by making the compound clean were mentioned by respondents.

The combined score mean was calculated [mean score = 7], 29% of models were knew grater or equal to the score mean and considered as knowledgeable whereas non-models were 14%.

Table 2: **comparison of knowledge on trachoma among model and non-model household head in woreda 10 lideta sub city, Addis Ababa 2015**

variable	Responses	Model HH # (	(Non-model #
Sign and symptom	burning	162(26.1%)	250(25.7%)
	itching	126(20.3%)	223(22.9%)
	photophobia	97(15.6%)	176(18.1%)
	Ocular discharge	90(14.5%)	121(12.4%)
	Foreign body sensation	77(12.4%)	106(10.9%)
	Red eye	59(9.5%)	85(8.7%)
	No sign and symptom	10(1.6%)	11(1.1%)
Possible source of trachoma disease	From disease people	102(27.6%)	144(26.9%)
	From animals/dug, dirt/	60(16.3%)	74(13.8%)
	From dirt	207(56.1%)	318(59.3%)
Mode of transmission	By flies	202(39.3%)	342(46.1%)
	By sharing towel	72(14%)	72(9.7%)
	By sharing bed sheet	32(6.2%)	38(5.1%)
	By sharing eye makeup	28(5.4%)	33(4.4%)
	By close contact body	45(8.8%)	52(7%)
	By touch eye with un washed hand	135(26.3%)	205(27.6%)
Mode of prevention the disease	Taking medication/drug	58(14.3%)	129(22.1%)
	Keeping personal hygiene	193(47.5%)	294(50.4)
	Proper use of latrine	112(27.6)	95(16.3%)
	Making the compound clean	43(10.6)	65(11.1%)

As indicated the table: 2 multiple response was considered.

Access to water and face washing practice

Water makes up more than two thirds of human body weight, and without water, we would die in a few days**.** Safe and adequate water is very important for human life. Accordingly the respondents, piped water were source of water for the models and the non-model households. The report revealed that 58.2% of HH used 15 to 40 liters, 17.2% used less than 15 liters while, 47.8% and 12.9% of non-models used 15 to 40 liter and less than 15 liter respectively.

About ninety nine percent (99.6%) of model households were wash their faces daily where as non-models were 97.2% of them washed their faces daily accordingly the assessment. Frequency (see Table 3) the study revealed that, 93.9% models and 92.1% of non models used soap to wash. Among these 49.4% of models and 34% of non-models used soap regularly to wash their face. Five percent (5.7%) models and 8.9% of non-models were not used soap due to different reasons; about 88% of models and 75 % of non models households were unable to purchase soap, 10% models and 20 % of non-models ignorance of the important of using soaps were the reasons. According to the finding 93 % of models and 90.3 % of non-models households were had clear facial observation, (p=0.303) no statically significant difference between model and non-model households.

Table 3: Comparison of face washing and water use practice between models and non-models house hold head in Lideta Sub city, Addis Ababa 2015

variable		model	Non-model	COR 95% CI
Daily Face washing practice				
	yes	260(99.6)	490(97.2)	1.00
	no	1(0.4)	14(2.8)	0.135[0.018-1.02]
frequency of face washing				
	>twice	88(33.7)	75(14.9)	**2.91[2.04-4.155]***
	≤twice	173(66.3)	429(85.1)	1.00
Facial observation				
	Ocular discharge	10(3.8)	26(5.20)	0.717[.34-1.51]
	Flies on the eye	10(3.8)	23(4.6)	.568[.240-1.341]
	Clear	244(93.5)	455(90.3)	1.00
Daily water consumption(liter)				
	<15 L	45(17.2)	65(12.9)	**2.14[1.33-3.438]***
	15-40 L	152(58.2	241(47.8)	**1.95[1.379-2.76]***
	>40 L	64(24.5	198(39.3)	1.00
HH head use soap to wash face				
	always	129(49.40)	174(34.5)	**2.24[1.18-4.16]***
	Some times	117(44.8)	285(56.5)	.554[0.66-2.29]
	never	15(5.7)	45(8.9)	1.00
Dry face with clean towel after washing				
	always	95(36.4)	132(26.2)	1.00
	Some times	97(37.2)	237(47.0)	**.569[0.399-0.8]***
	never	69(26.4)	135(26.8)	0.7[0.48-1.05]
Source of water	**safe**	261(100)	504(100)	
	unsafe	0(0)	0(0)	

Information's which was related to face washing practice were collected between the models and the non –model households, such as daily face washing practice, facial observation/cleanliness/source of water had no statically significant different. Thirty six percent (36.4%) of models and 26.2% of non-models were properly washed using soap and dry their face after washing with clean towel. Thirty seven percent (37%) of models and 47% non-models said that they used clean towel "sometimes" after washing [OR, 95% CI=0.56(0.399, 0.81)].

The frequency of face washing practice more than twice a day accounted 33.7 % higher than that of 14.9% of non-model household. They had statically significant [OR, 95% CI=2.91 :(2.040, 4.15)]. And also household used soap regularly among the models 49% were while, 34.5% in the non- model part. Had different between the models and the non –models and statically significant [OR, 95% =2.24 :(1.18, 4.16)]. Daily water consumption also differ among the study groups.24% and 39.2% of models and non-model households were used above 40 litters water per/ day respectively. On other hand 17.2% and 12.9% model and non-model households used less than 15 liters per/day respectively. Sixty seven (67%) of models and non-models believe that their water source was clean. No, difference detect between the groups. They took different measurements to make it clean and to be ready for use, such as boiling 22.2%, wuhagare 7.7%, filtration 10.0%and 39.9 % of the household had taken combined measurement actions in the model group .whereas, non-models, boiling ,21.6%,wuhagare17.1%,filtiration 13.9% and 3.8 % non-models had taken combined actions to make the water clean. But 21.5 % models and 43.7% of non-model households didn't take any action in any occasion to make the water clean.

Environmental conditions

According to the response, seventy five percent(75.5%) model household head and seventy eight percent (78.8 %) of non-model household respondent had their own private latrine, while 24.5% and 21.2 % had no their own private latrine in model and non-model households respectively but using communal latrine. Almost all of the latrine type was simple pit, 95% from models and 98% of non-model households, the rest were ventilated improve pit. At the time of the study, 81/261 (31.o %) households in the models and 155/504(30.8%) households in the non-model part, have had latrines that were clean, the rest were not clean. 24.5% and 21.2% had not been using their own private latrine in the models and non-models respectively. Reasons given for not having latrine in the model households were 53.12% did not have place to construct ,32.8% lack of legal permission , and the rest 14% did not money and time, while, 51.14% of non-model household said they did not have place,38.31% lack of legal permission , the rest were not have money and time . Eighty two percent(82.4%) and sixty four (64.9 %) used proper solid waste disposal systems/container with lid or cover/ in models and non-model households respectively, while 50.2 % of models and 37.9% of non-model households had functional soaking pit or other liquid waste disposal system. 59% of households in the model part had cooking rooms (kitchen) outside their living rooms while ,39.5% of non-model had cooking rooms (kitchen) outside their living rooms. 26.1% of models and 31.2% of non-models had no separated animal room.

Table:4 Comparison of practices with environmental factors between models and non-model house hold head in woreda 10, Lideta, sub city, Addis Ababa

variable	model	Non-model	COR 95%CI
House hold head used private latrine	197(75.5)	397(78.7)	0.83 [0.582-1.182]
Yes	64(24.5)	107(21.4)	1.00
no			
Hand washing after toilet			
Yes	251(96.2)	445(94.4)	**3.328[1.673-6.621]***
no	10(3.8)	59(11.7)	1.00
Latrine cleanness	81(31.0)	155(30.8)	1.248[0.853-1.826]
Yes			
no	116(44.4)	242(48.0)	1.00
Solid waste container used			
yes	215(82.40)	327(64.9)	**2.53[1.75-3.65]***
no	46(17.6)	17 7(35.1)	**1.00**
functional Liquid Soaking pit used	131(50.2)	191(37.9)	**1.65[1.22-2.234]***
yes	130(49.8)	313(62.1)	1.00
no			
Cleanness of the compound clean	251(96.2)	428(84.9)	**4.45[2.26-8.775]***
Not clean	10(3.80)	76(15.07)	1.00
Location of cooking room			
Outside living room	154(59.0)	199(39.5)	**2.206[1.627-2.991]***
Inside living room	107(41)	305(60.5)	1.00
Place animals shield			
separated	70(50.7)	54(25.6)	**2.99[2.044-4.66]***
not Separated	68(49.3)	157(74.4)	1.00

P< 0.25 is considered as statically significant (table: 4). the above practice (table; 4) had showed that household used latrine and latrine cleanness had no different between model and non –model households, even it was had a certain difference. It is statically in significant [OR, 95%CI=0.83: (0.582, 1.182), OR, 95%= 1.248 :(0.853, 1.826)] others had different between the models and the non-models group and their difference also statically significant.

Independent bivariete analysis were done to detect the difference between models and non-models households, Daily Face washing practice ,Frequency of face washing practice more than twice, Water consumption>40Lt,HH using soap to wash ,Hand washing practice after toilet ,Using solid waste disposal pit with lid or cover ,Using functional liquid socking pit, Clean the compound ,Location of cooking room ,Separated room for animal ,model households more likely practice, the activities than non-model households.

After adjusting for selected factors multivariate logistic regression analysis were done to detect potential difference in practice between model and non-model households. The models case adjusted for sex, age and educational status

Socio-demographic characteristics in both groups were not associated with face washing practice

Knowledge about trachoma disease: the model households head are 3.79 times more knowledgeable than non-model households head [AOR, 95% CI=3.79]

Frequency of face washing: model household heads that are washed their face greater than twice per day are about three times more likely to practice of those non-model households head(AOR=2.78).

HH used soap to wash face: model HH who are used soap always are 4.3 times more likely than non-model HH head [AOR, 95% CI=4.3(2.06, 8.7)].

Proper solid waste container used: model HH heads that are used proper solid waste disposal pit are 2.45 times more likely to use compare to non-model HH heads.[AOR,95CI =2.45; (1.57,3.79)].

Functional liquid soaking pit used: model HH are 1.59 times more likely to use functional liquid soaking pit compare to non-model households head[AOR, 95% CI=1.59(1.1,2.31].

Table: 5 Comparison of practice of face washing, socio-demographic and environmental factors between model and non-model household's woreda 10, Lideta sub-city, Addia Ababa, 2015

variable	Model	Non-model	COR 95%CI	AOR,95%CI
knowledge				
knowledgeable	76(29)	62(14)	2.54[1.74-3.7]*	**3.79[2.4-5.97]***
Not-knowledgeable	183(70.9)	380(85.9)	1.00	
Frequency of face washing				
> twice	88(33.7)	75(14.9)	2.91[2.04-4.16]*	**2.78[1.8-4.3]***
≤ twice	173(66.3)	429(85.1)	1.00	
Daily water consumption				
< 15 litter	45(17.20)	65(12.9)	2.14[1.33-3.43]*	**2.46[1.45-4.2]***
15-40 liter	152(58.2)	241(47.8)	1.95[1.38-2.76]*	**2.24[1.5-3.3]***
>40 liter	64(24.5)	198(39.3)	1.00	
HH used soap to wash face				
always	129(49.4)	174(34.5)	2.24[1.18-4.16]*	**4.3[2.06-8.7]***
Some times	117(44.8)	285(56.5)	0.55[.66-2.29]	2.1[1.0-4.33]
never	15(5.7)	45(8.9)	1.00	
Hand washing practice after toilet				
yes	251(96.2)	445(94.4)	3.33[1.7-6.62]*	**3.08[1.44-6.5]***
no	10(3.8)	59(11.7)	1.00	
Solid waste container used				
yes	215(82.40)	327(64.9)	2.53[1.75-3.65]*	**2.45[1.6-3.79]***
no	46(17.6)	177(35.1)	1.00	
Functional liquid soaking pit used				
yes	131(50.2)	191(37.9)	1.65(1.22-2.2)*	**1.59[1.1-2.31]***
no	130(49.8)	313(62.1)	1.00	
Cleanness of the compound				
clean	251(96.2)	428(84.9)	4.45[2.26-8.77]*	**3.85[1.7-8.7]*.**
Not clean	10(3.80)	76(15.07)	1.00	

6. DISCUSSION

This comparison study in models and non-model households provided important information on community based SAFE strategy specially "F "and "E" component practices. The study revealed, there were statistical significant differences between the model and non-model households' sex, age, and education status. This study found, more females were involved in the model household training program than males. This could be females; spent more time in the house with their child and may be good opportunity for them to involved the program and become the model, they may be need support, males nature of work, while we saw the age distribution more elders involved in the model group than the non-model group, whereas the younger's were fewer, the possible reason, may be the elders organized themselves with one to twenty five (1:25) network by health extension workers and they got information about the importance of the program.

The study found that no-of illiterates were more in the model group, but literates were higher in the non-model group. The possible reason could be since model training is conducted house to house, most time elders and house wives will get opportunity to train the package or might be didn't believe the skill of health extension workers to train them.

This study found, Model households were had better knowledge about trachoma disease compared to non-model households and the difference was significant [AOR, 95%CI=3.79(2.41, 5.97)]. This might be model households have had different exposed factors such as, frequent training, technical support and follow up of health extension workers at household level, distribution of IEC/BCC materials, intense training, participation in community conversation and their discussion with their members about their village heath issues. In non-model households, these activities were not fully practiced, except health education at churches, meetings with health development army, and at health Institutions by health workers, media, which give additional chance to model households. This finding is in line with other studies that showed additional positive outcomes for the model that involved community participation [28]. This also supported by relationships among community leaders, health workers and supervisors, as well as the supervision evaluation process resulted to improved outcome [29]. The previous study done at kolfe sub city also showed that households without knowledge of the package, advantage of implementing the package in the prevention of communicable disease has 72.8% less likely to implement comparing to knowledgeable household respondents [33].

This study revealed that 100% households had access to improved water sources(piped) in both groups however, the findings of Ethiopian min Demographic and Health Survey of 2014 showed 56% of the urban community (national level) accessed to improved sources[32]. This may be Addis Ababa is the capital city of the country and the city government special concern strategy on safe water to prevent parasitic disease associated with un clean water . In this study seventeen percent (17%) of the models and 12.9% of non-model households of the daily water consumption was less than 15 litters. The amount of daily water consumption of households were far below that WHO recommended figure, the recommended minimum daily amount of water per person is 27 liters that is necessary for a significantly improved level of hygiene[30].

In this study found, facial observation had no statically significant difference between the groups. The possible reason, could be the urbane nature of the study area, hygiene and sanitation promotion project of AMRF play role as equal to both groups, but when we looked at frequency of face washing practice more than twice per day: model households, were about three times more likely to practice compared to the non-model households [OR,95% CI =2.91: (2.040,4.15)] The possible reason might be, planned health education, IEC/BCC/material distribution one to five (1:5) network interaction between model households, practical observation of activities at household level, community evaluation about local health issue were always checked by health extension workers and continuous support of them to model household might be favored to models to bring behavioral change, this kind of activities is not considerable in non-model households. This study was more likely research done In Tanzania, a large scale randomize trial intensive educational intervention showed that children with clean face were less likely to have severed inflammatory trachoma [19].Across-sectional study in Mexico reported that the frequency of face washing(>7 times a week) was negatively correlated with the likelihood of children having active disease[20].In Sudan compare four areas in which SAFE strategy had been implemented evaluation after 3 years showed that greatest reduction of active trachoma was due to antibiotic treatment and improved facial cleanliness[19]. Analytical cross-sectional trachoma surveys were conducted in four program areas across Ethiopia before and after 3 years of intervention with the SAFE strategy also support this idea [22, 23].

In Ethiopia Promote and bring behavioral change on environmental sanitation and hygiene are among the job descriptions of health extension workers [5].in this study found, 75.5% of models and 78.8% of non-model households had their own private latrine, the rest used communal latrine, the reason given not having the latrine was, luck of free space / place/ to construct, and difficult to get legal permission from local authority were the major reasons in both groups .the rest have had no money and time .it is similar to 34 mini EDHS " in urbane the main reason of not having their own latrines was lack of free space to construct and lack of finance to construct"[32] .At the time of the study found, model and non-model households have had almost equal latrines that were clean. According to the result, difference had not been detected between the groups. The possible reason perhaps, subjectivity of the data collectors and the health extension workers direct observation at model household level may be low. Contradicted result was found research done at Tigery, Ethiopia, the Environmental factors groups including latrine availability and use, cleanliness of latrine and fly density less than 5 were significantly different between households with HEP and non-HEP[27].

Under this study, Hand washing practice after toilet were significantly higher in model households than non-model households [OR, 95% CI=3.328: (1.623- 6.62)]. The possible reason could be planed health education for models by health extension workers. Findings are in line with other studies that showed additional positive outcomes for the model that involved community participation [28].

It is known that accumulation of garbage around residence (in backyard) could attract flies will be a risk factor for trachoma. In this study found, more models households used proper solid waste disposal pit compared to non-model HH. There was a significant difference between model and non-model household [OR, 95% CI=2.53: (1.752, 3.652)]. Models are 2.53 times more likely to use proper disposal pit than non-model households. The possible reason could be, continuous and planned health education was being given to model households and practice environmental hygiene assessment of health extension workers to model households were contribute. This activity was not practice in non-model households. Other study done in kolfe sub- city shows, that 61.1% of the households had and used proper solid waste disposal pit which was lower compared to the present study [33}. Study done in Mekelle [24] shows those households, (66%) used solid waste disposal methods.

In Ethiopia Promote and bring behavioral change on environmental sanitation and hygiene are among the job descriptions of health extension workers [5].This study found that, model HH are 1.65 times more likely to used Functional liquid waste soaking pit or any other liquid waste disposal system compare to non-model HH. It was significantly difference between the group [OR, 955 CI=1.65: (1.221, 2.221)]. More models participate on cleaning the compound than non-models [OR, 95% CI=4.457: (2.64, 8.775)]. This could be the result of intensive training for models and one to five network interaction about local health issue. Study done in kolfe sub – city showed that 64% of households head used liquid waste disposal pit which is higher compared to present study [33].

Possess separate kitchen from the main residential houses is a vital role to prevent food contamination and the health of the household members, this study revealed that more model household prepare food with in the kitchen or in the separated cooking room, compared to non-model house hold [OR, 95% CI=2.206: (1.627, 2.991)].this indicate significant difference between the group, had better practice in the model group. These could be: the result of intensive training for models/health extension packages/ than non-models. It was lower compared to research done at Kolfe sub city which was 68% of the household prepare food with in the kitchen which is separated from main residential house [33].

The study revealed, among those families who have animals in their compound, the model households prepared more separate room for animal than the non-models and the difference between the group was statically significant [OR ,95% CI= 3.088:(2.044,4.66)]. The possible reason could be the implementation of health extension packages at model HH through the help of health extension workers.

7. Strength and Limitation of the Study

7.1 Strength

The study uses comparison based on objective finding

This study can serve as baseline for future study

7.2 Limitation

Social desirable bias due to lack of direct observation of face washing

Limited similar studies for comparison purpose could be considered constraint factor, No local peer reviewed articles; knowledge and Experiences are limited.

Since the research was done only one woreda, may be lack of representativeness to the sub-city and the whole Addis Ababa city households.

Not using qualitative method

8. CONCLUSIONS

Knowledge about the disease trachoma, sign and symptom, possible source, mode of transmission and mode of prevention was low in both groups.

The magnitude of proper face washing was 36.4% and 26.2% from models and non-models respectively.

The study revealed that, 24.5% of models and 21.2% of non-models households had no private latrine. The reason was: 53.12% models did not have free place to construct the latrine, 32.8% lack of legal permission, the rest were didn't have money and time. It is also similar to the non-model.

Solid and liquid waste management practice was higher in model family than non-model

Model training has significant role to improve face washing and environmental improvement practice.

9. RECOMMENDATION

Woreda 10 health office should involve all segment of the population to model training and male's adequate involvement should be mandatory for sustainability of the program.

Ldeta sub-city and woreda ten health offices should be strengthen Hygiene promotion, IEC/BCC activity.

Lideta sub-city health office should consider further sensitization and training is necessary to enhance the awareness of political leaders, supervisors and health development army, to create community concern and sustainability of the program.

Addis Ababa city Administration should be strengthen the starting renewal process to solve the communities latrine problem.

Supportive supervision should be strengthening from the city to the woreda and also at community level.

The strategy of making model has to be expanded

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Annex 1 English Questionnaire

INFORMED CONSENT

Hello. My name is_____ and I am part of a team of people who

Are carrying out a survey to "Compare face washing and environmental control components of SAFE strategy between model and non-model households in woreda 10, lideta, sub-city,AddisAbaba, Ethiopia.

(Show a letter of approval from AU).We would very much appreciate your participation in this survey. I would like to ask you some questions and it will take about 20 minutes. Your answers will remain confidential, and we will not be taking down your name or address, so your answers will be anonymous. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

At this time, do you want to ask me anything about the survey?May I begin the interview now?

Start time____: _ End time____: _ Date_____/____/_____

Respondent agrees to be

Interviewed..... respondent does not agree to be

Interviewed.....

Cluster no_____

House no_____

Name of data collector_____

Name of supervisors _____

S.no	Question	Answer	Code
1	Sex	1. Male 2. female	101
2	Age in years		102
3	What is your educational status	1.Illiterate 2.Non formal education 3.Elementary 4.Secondary 5.Above secondary	103
4	What is your occupation	1.Governmental employee 2.NGO 3.private 4.Other\ specify	104
5	What religion do you follow	1.Christian 2.Muslim 3.Others	105
6	To which ethnic group do you belong	1.Amharh 2.Oromo 3.Tigray 4.. Others/specify	106
7	your family size	_____	107
8	When did you graduate as model family	1.----------(DD/MM/YY) 2. *I*'m not model	108
9	your monthly income	1. <500 ETB 2. 500 – 1500 ETB 3. 1501 – 3500 ETB 4. 3500-5000 ETB 5. >5000 ETB	109
II .Knowledge about Trachoma			
1	Have you ever informed about trachoma	1. Yes 2. No	111
2	If you say" 1" for Q # 1 from which source do you hear?	1.Health personnel 2.HEW 3.Media/radio, TV 4.From peers, Community 5.Others/Specify	112
3	What are the sign & symptoms of trachoma disease	1.No Sign and Symptom 2.Burning 3.Itching 4.Photophobia 5.Ocular discharge	113

		6.Foreign body sensation 7. Red eye 8.I don't know	
4	Where people have got trachoma from?	1.From diseased people 2.From animals 3.From dirt 4.Others/specify	114
5	How trachoma is transmitted from person to person	1.By flies 2.By sharing towels 3.By sharing bed sheets 4.By sharing eye makeup 5.By close contact of body 6.By touching your eyes by unwashed hands 7.I don't know	115
6	How do we prevent trachoma	1.Taking medicine/drugs 2. Keeping personal hygiene 3.Proper use of latrine 4.Making the compound clean 5.I don't know	116
III. Practice on Face washing and Environmental control			
1	Do you wash your face regularly	1. Yes 2. no	117
2	How many times do you wash per day	1.Once 2.Twice 3.More than twice 4.Don't know	118
3	Do you use soap when you are washing your face?	1.yes, regularly/always 2.yes, some times 3. never	119
4	If you say Q3"# 3" what is the reason?	1.Unavailability/ unable to purchase the soap 2.Ignorance of the importance of using	1201

		soap 3. I don't know 4.any other mention----------	
5	Do you dry your face after washing with towel?	1.yes, regularly 2.yes some times 3. never	121
6	Facial observation	1.ocular discharge 2.flies on the face 3.clear 4.other/ specify	122
7	What do your family do to avoid trachoma	1.surgery for trachiasis 2.face washing 3.environmental hygiene 4.proper use of latrine/toilet 5.I don't know	123
8	source of water for your family	1.pipe 2.well 3.other /specify_____	124
9	0n average how many liter of water do your family use per day	1.<15 liter 2.15-40 liters 3.> 40 liters	125
10	Do you think your water is clean?	1.yes 2.no	126
11	If you get the water un safe, what measures will you going to take?	1.boiling 2.using wuha agar 3.filtration 4.no measures taken	127
12	Do you have latrine/ toilet in your compound/private/?	1. Yes 2. no → skip to Q 16And B	128
13	Who use the latrine	1. only family members 2. with neighboring family 3. with community	129

14	Types of latrine(observation) ?	1. Simple pit 2. VIP latrine 3. Other/specify	130
15	Are there fresh feces on the latrine/recent sign of use of latrine?	1. Yes 2. No	131
16	Is the latrine clean (go and see?	1. Yes 2. No	132
16A	what is the reason not to have a latrine?	1. I have no place 2. No money, time 3.legalpermission is difficult 4. Lack of knowledge 5. No importance	133
16B	Where do you defecate?	1. open field 2. by payment in hotels ,restaurant 3. communal latrine 4. other/specify/	134
17	Do you have the habit to wash your hand s after toilet?	1. yes 2. no	135
18	Is there a container with lid or cover to dispose solid wastes?	1. yes 2. no	136
19	Is there functional soaking pit or other waste disposal system?	1. yes 2. no	137
20	Location of cooking room	1.Outside living room 2.Inside living room	138
21	Place animals shield (if there is animal	1.Not separated 2.Separated 3.no animals	139
22	do you clean the compound every 15 days ?	1. Yes 2. no	140

የአማርኛ መጠይቆች

ይህመጠይቅየሚጠየቀዉለአባዎራ/እማወራዎችሲሆንየመጠየቁዋናዓላማምለጥናትናምርምርሲሆንይህምየትራኮማ/የአይንማእ ዝ/በሽታንለመከላከልየግልንፅህናንመጠበቅ፣የአካባቢናየመኖሪያሁኔታንማሻሻልያለዉንአስተዋፅኦለማዎቅነዉ::

መጠየቁ በፈቃደኝነት የሚሞላሲሆን ትክክለኛ ምላሽመስጠት ተገቢ ይሆናልበማንኛዉም ስዓትመጠየቁን ማቆምይችላሉ::

ጥያቄዉንመጀመርእችላለሁ

አዎ፣ቀጥሉ_____አይቻልም_____(አመሰግናለሁ)

ፊርማ_____ቀን_____

የተቆጣጣሪፊርማ_____ቀን_____

1. የመረጃዎችመለያ፣

1.1 የተቆጣጣሪስም_____

1.2 ሴሪያልቁጥር_____

1.3 የቤትቁጥር_____

1.4 ክላስተርቁጥር_____

1.5 የመረጃሰብሳቢዉስም_____

መሠረታዊናማህበራዊጉዳይንበተመለከተ

ተ.ቁ	ጥያቄ	መልስ	መለያ
1	እድሜ	----------በአመት	
2	ፆታ	1. ወንድ 2. ሴት	
3	የትምህርትደረጃ	1. ያልተማረ 2. የመሠረተትምህርት 3. የመጀመሪያደረጃ 4. ከፍተኛናሁለተኛደረጃ	

		5. መሰናዶናከዚያበላይ
4	የስራሁኔታ	1. የመንግስት
		2. መንግስታዊያልሆነድርጅት
		3. ከግልድርጅትየተቀጠረ
		4. ሌላ/ይግለፁ_____
5	ሃይማኖት	1. ክርስቲያን
		2. ሙስሊም
		3. ሌላካለግለጽ_____
6	ብሔር	1. አማራ
		2. ኦሮሞ
		3. ትግራይ
		4. ሌላግለፅ_
7	የቤተሰብአባላትብዛት	_____
8	ሞዴልቤተሰብሆነህ/ሆነሽየተመረቅሽ/ህመቼነው?	----------(ቀን/ወር/ዓ.ም)
9	የወርሃዊገቢመጠን	1. ከ500ብርበታች
		2. ከ500 – 1500ብር
		3. ከ1500 – 3500
		4. 3500 -5000
		5. ከ5000ብርበላይ

የትራኮማን/የአይነማዕዝን/በሽታበተመለከተስላላቸውእውቀትመመዘኛ		
1	ስለትራኮማ/የአይነማዕዝን/ በሽታሰምተህ/ሽታውቃለህ/ሽ?	1. አዎ 2. አይደለም
2	ለጥያቄቁጥር 1 መልስዎአዎከሆነየሰማኸው/ሽውከማንወይምከምንነው?(ከአንድበላይመምረጥይቻላል)	1. ከጤናባለሙያ 2. ከጤናኤክስቴንሽንሰራተኛ 3. ከሚዲያ(ራዲዮ፣ቲቪ) 4. ከጓደኛናከማህበረሰቡ 5. ሌላካለግለጽ----------
3	የትራኮማበሽታየሚያሣያቸውየህመምምልክቶችምንድንናቸ(ከአንድበላይመምረጥይቻላል)	1. ምንምምልክትየለውም 2. አይንንየማቃጠልስሜት 3. አይንንማሳከክ 4. በፀሐይለማየትመቸገር 5. ከአይንውስጥፈሣሽመውጣት 6. አይንላይየአይንጉድፍመኖር 7. የአይንመቅላት
4	ሰዎችበትራኮማበሽታእንዴትይያዛሉ(ከአንድበላይመምረጥ)	1. በበሽታውከታመመሰውጋርበመነካካት 2. ከእንስሳትጋርባለንክኪ 3. ከቆሸሹነገሮች 4. ሌላካለግለጽ----------
5	የትራኮማበሽታከሰውወደሰውሚተላለፈውበምንአማካኝነትነው (ከአንድበላይመምረጥይቻላል)	1. በዝንቦችአማካኝነት 2. ፎጣበጋራበመጠቀም

		3. የአልጋልብሳችንበጋራበመጠቀም
		4. የአይንኮስሞቲክስንበጋራበመጠቀም
		5. በአካላትንክኪአማካኝነት
		6. በቆሻሻእጅአይንበሚነካበትጊዜ
		7. አላውቅም
6	የትራኮማ በሽታንእንዴትነው መከላከል የሚቻለው	1. መድሃኒትበመውሰድ
		2. የግልንፅህናንበመጠበቅ
		3. መፀዳጃቤቶችንበአግባቡበመጠቀም
		4. የመኖሪያግቢንበማፅዳት
		5. አላውቅም

ተግባራትንለመመዘንየተዘጋጀጥየቄ		
1	ሁልጊዜፊትህን/ሽንትታጠባለህ/ሽ	1. አዎ 2. አይ
2	በቀንስንትጊዜትታጠባለህ/ሽ	1. አንድጊዜ 2. ሁለትጊዜ
		3. ከሁለትጊዜበላይ 4. አላውቅም
3	ፊትህን/ሽንስትታጠብ/ቢሣሙና	1. አዎሁልጊዜ
4	ትጠቀማለህ/ሽ	2. አልፎአልፎ
	ለጥያቄቁጥር 3 መልስዎበፍፀምተጠቅሜአላውቅምከሆነምክንያቱም ንድነው	3. በፍፁምተጠቅሜአላውቅም
		1. ሣሙናመግዛትስላልቻልኩ
		2. የሣሙናጥቅምስላልታየኝ
		3. አላውቅም
5	ከታጠብክ/ሽበኋላስበንፁህፎጣፊትህን/ሽንታደርቃለህ/ሽ	

1. አዎሁልጊዜ
2. አልፎአልፎ
3. በፍፁምተጠቅሜአላውቅም

6	Ye fiteytahunata (milketa)	1. ከአይንፈሳሽይወጣል 2. ፊትላይዝንቦችአሉ 3. ንፁህነው 4. ሌላግለፅ----------
7	የትራኮማበሽታንለማስወገድእርስዎናቤተሰብዎምንታ ደርጋላችሁ	1. የአይንቀዶጥገናእናስራለን 2. ፊትመታጠብ 3. የአይንንፅህናመጠበቅ 4. መፀዳጃቤትንበአግባቡመጠቀም 5. አላውቅም
8	የምትጠቀሙትውሃምንጩምንድነው	1. የቧንቧውሃ
9	ቤተሰብዎበአማካይበቀንስንትሊትርውሃይጠቀማሉ	2. የጋራ 3. ሌላካለግለፅ---------- 1. ከ15 ሊትርበታች 2. ከ15 – 40 ሊትር 3. ከ40 ሊትርበላይ
10		

የምትጠቀሙበትውሃንጹህነውብለውያምናሉ

1.አዎ

2.የለም

11	የምትጠቀሙትውሃየቆሸሸነውብለውካመኑንፁህአድርጉለመጠቀምምንታደርጋላችሁ	1. ማፍላት 2. ውሃአጋርእንጠቀማለን 3. የማጥለልስራይሰራል 4. ምንምአናደርገውም
12	በግቢውስጥመፀዳጃቤትአለህ/ሺ	1. አዎ 2. የለኝምወደጥያቄ ~~16~~A”
13	መፀዳጃቤቱንየሚጠቀምበትማነው	1. የቤተሰብአባላትብቻ 2. ከጐረቤትጋር 3. ማህበረሰቡ 4. የሚጠቀምየለም
14	የመፀዳጃቤቱአይነት (ምልከታ)	1. ሲምፕልፒት 2. ኢምፕሩቭድፒትላትሪን 3. ሌላ/ይግለጹ
15	መፀዳጃቤትላይዕርጥብቆሻሻይታያል	1. አዎ 2. የለም
16	መፀዳጃቤቱንፀህነው (ምልከታ)	1. አዎ 2. አይደለም

16A	መፀዳጃቤትየሌለህ/ሽለምንድነው	1. መጸዳጃቤትለመሥራትቦታስለሌለኝ 2. መጸዳጃቤትለመስራትገንዘብናጊዜስለሌለኝ 3. ፍቃድለማግኘትአስቸጋሪበመሆኑ 4. ስለመጸዳጃቤትምንነትእውቀትየለኝም 5. ጥቅምየለውም
16B	የትነውየምትፀዳዱት	1. ሜዳላይ 2. ሆቴሎችላይከፍያበመክፈል 3. ሌላግለጽ ----------
17	ከመፀዳጃቤትመልስእጅህንየመታጠብልምድአለህ/ሽ	1. አዎ 2. የለም
18	የደረቅቆሻሻማጠራቀሚያትጠቀማላችሁ	ነ.አዎ 2.የለም
19	ከዳንያለዉየፍሳሽማስረጊያትጠቀማላችሁ	ነ.አዎ 2.የለም
20	የምግብማብሰያቦታ (ኩሽና)	1. ከመኖሪያቤትውጭ 2. ከመኖሪያቤትውስጥ
21	የእንሰሳትመጠለያ (ካለ)	1. የተለዩአይደለም 2. የተለየነው 3. የለም
22	ግቢህንታፀዳለህ/ሽ	1. አዎ 2. አላፀዳም