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A THESIS REPORT SUBMITTED TO THE DEPARTMENT OF HEALTH PROMOTION AND BEHAVIORAL SCIENCES, SCHOOL OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF PUBLIC HEALTH IN HEALTH PROMOTION

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The full title of theThesis	BEHAVIORAL RESPONSES FOR FACE CLEANLINESS MESSAGES TO PREVENT TRACHOMA AMONG MOTHERS HAVING CHILDREN AGE 1-9 YEARS OLD, IN FOGERA DISTRICT, SOUTH GONDAR ZONE, AMHARA REGION, NORTHWEST ETHIOPIA: AN APPLICATION OF EXTENDED PARALLEL PROCESS MODEL
Study Period	December 01 to December 30, 2022
Study area	Fogera District, Amhara

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ABSTRACT

Background: Trachoma is an eye disease caused by bacteria called Chlamydia trachomatis. This infection causes papillary and/ or follicular inflammation of the tarsal conjunctiva, which is referred to as active trachoma. Active trachoma prevalence among 1 to 9 years old children is 27.2% in Fogera district (study area). Many people still require implementation of the face cleanliness components of the SAFE strategy. Even if face cleanness is the important component to prevent trachoma, there is limited research done on this area. Therefore, the purpose of this study is to assess behavioral responses for face cleanliness messages.

Objectives: To assess behavioral responses for face cleanliness messages to prevent trachoma among mothers having children age 1 to 9 years old.

Methods: community based cross-sectional study was conducted with the guidance of extended parallel process model in Fogera District from December 01 to December 30, 2022. Multi stages sampling technique was used and 611 study participants were involved. Interviewer administered questionnaire was used to collect the data. Descriptive statistics were computed. Bivariable and multivariable logistic regression analysis were run to identify predictors of behavioral responses using SPSS V.23. Significant variables were declared by AOR at 95% confidence interval and a p-value <0.05.

Result: Among the total participants, 292 (47.8%) were in the danger control.
Residence [AOR=2.91; 95% CI:(1.44-3.86)], marital status [AOR=0.79; 95% CI:(0.667-0.939)], level of education [AOR=2.74; 95% CI:(1.546-3.65)], family size [AOR=0.57; 95% CI:(0.453-0.867)], round trip to collect water [AOR= 0.79; 95% CI:(0.423-0.878)], having information about face washing [AOR=3.79; 95% CI: (2.661-5.952)], Source of information (health facility[AOR=2.76; 95% CI:(1.645-4.965)], school[AOR=3.68; 95% CI:(1.648-7.530)], health extension workers[AOR=3.96; 95% CI:(2.928-6.752)], Women development army[AOR=2.809; 95% CI:(1.681-4.962)]), knowledge[AOR=2.065; 95% CI:(1.325-4.427)] self-esteem[AOR=1.013; 95% CI:(1.001-1.025)], self-control[AOR=1.132; 95%CI:(1.04-1.24)], and future orientation[AOR=2.16; 95% CI:(1.345-4.524)] were found to be statistically significant predictors of behavioral response.

Conclusion: Less than half of the participants were in the danger control response. Residence, marital status, level of education, family size, face washing information, source of information from health facility, health extension workers, schools and women development army, knowledge, self-esteem, self- control and future orientation were independent predictors of face cleanliness. Strategies of face cleanliness message should give high attention for perceived efficacy with consideration of perceived threat.

Key Words: Trachoma, Face Cleanliness, Behavioral Response, Extended Parallel Process Model**.**

ACRONYMS & ABBREVIATIONS

EPPM: Extended Parallel Process Model

ETB: Ethiopian Birr

HEW: Health Extension Worker

HF: Health Facility

HH: Household

KA: Kebele Administration

MOU: Memorandum of Understanding

NTD: Neglected Tropical Disease

SAFE: Surgery, Antibiotics, Facial cleanliness and Environmental improvement.

SDG: Sustainable Development Goals

TEO: Tetracycline eye ointment

TF: Trachomatous Inflammation–Follicular

TI: Trachomatous Inflammation– Intense

TS: Trachomatous Scarring

TT: Trachomatous Trichiasis

WDA: Women Development Army

WHO: World Health Organization

TABLES OF CONTENT

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

1.1. Background

Trachoma is an eye disease caused by bacteria called chlamydia trachomatis. This infection causes papillary and/ or follicular inflammation of the tarsal conjunctiva, which is referred to as active trachoma. Active trachoma is subdivided into trachomatous inflammation—follicular (TF) and trachomatous inflammation—intense (TI)[1].

Recurrent infections of the conjunctiva lead to the development of scar tissue within the conjunctiva. Because of the contraction of the scar tissue, the eyelid is turned inward allowing the eyelashes to rub against and eventually abrade the cornea (trachomatous trichiasis), eventually leading to corneal opacity and blindness. Globally, trachoma is the leading cause of blindness, affecting people who lacks access to clean water, sanitation and adequate health care[2].

In 1998, World Health Organization (WHO) was set an objective to eliminate trachoma as a blinding disease by the year 2020[3] and endorsed the implementation of the SAFE strategy (Surgery to correct trichiasis, Antibiotics to treat active infection, Facial cleanliness to prevent the transmission of bacteria and Environmental improvement by increasing use of latrines and access to safe water[4, 5].

In practice, trachoma control programs are largely focused on medical surgery and antibiotics interventions[6], whereas, face cleanliness and environmental improvement are poorly-defined interventions. The predominant goal of face cleanliness and environmental improvement interventions to break chlamydia trachomatis transmission[7].

A clean face could be defined as an absence of ocular and dry nasal discharge which is a good predictor of whether face has been washed[8].

The ministry of health (MOH) Ethiopia, recognized the burden of Neglected Tropical Diseases (NTDs) and developed a strategic plan for a period of 2021-2025 by prioritizing 12 diseases, where trachoma is put at the first line in Amhara region. Behavior change communication is the sole eradication and elimination strategy[9]. Ministry of Health Targets 798 woredas for facial cleanliness interventions like face cleanliness assessments, face washing demonstrations at HHs level and face cleanliness lessons at primary schools to eliminate trachoma[10].

Trachoma control programs are relied on health extension workers, community volunteers, primary school teachers, religious leaders, local government authorities, and local media to promote healthy behaviors that prevent trachoma[11].

Models support to describe the process of change that individuals go through those changes as they exchange information, interpret and respond to different messages. The Extended Parallel Process Model (EPPM) preferred as the model explains why fear appeals fail, incorporates fear as a central variable and specifies the relationship between threat and efficacy in prepositional forms. Generally, it consolidates other theories by arguing that the fear leads to message rejection or acceptance. Threat determines the degree or intensity of the responses, while efficacy determines the nature of responses[12].

In this study the Extended Parallel Processing Model (EPPM) was used as a guiding framework. EPPM is a communication model focusing on fear arousal and efficacy messages to activate and direct desirable behavioral responses to initiate behavioral change[13, 14]. The EPPM builds on the concept of perceived health threat (a combination of subjective perception of severity and susceptibility) and overall efficacy (a combination of perceived response efficacy and self-efficacy) that lead to message acceptance and, ultimately, desired behavior changes in the population[15, 16].

The Extended Parallel Processing Model describes how rational considerations (efficacy beliefs) and emotional reactions (fear of a health threat) combine to determine behavioral decisions. Perceived susceptibility and Perceived severity are key variables related to beliefs about the threat and the other two Response efficacy and Self-efficacy are key variables related to beliefs about efficacy[17].

The people must perceive that trachoma is severe and should think they are susceptible to Trachoma[17]. Besides, they have to believe that the recommended preventive practice is effective in controlling Trachoma and believe that they can perform it to avert the spread of the disease. When perceptions of a threat are strong and perceived levels of efficacy are high, the model predicts self-protective behavior. When perceptions of a threat are strong, but perceived levels of efficacy are low, the model predicts maladaptive denial or rejection of protective behaviors[13]. With this context, this study will conduct to assess the behavioral response for

face cleanliness message to trachoma prevention and identify predictors of behavioral response among mothers of 1-9 years old children.

1.2. Statement of the problem

Globally 2.2 billion people are living with vision impairment or blindness, of whom at least 1 billion have vision impairment that could have been prevented[18].

Trachoma is a public health problem in 44 countries or 136 million people around the world and is responsible for blindness or visual impairment of about 1.9 million people. It causes about 1.4% of all blindness worldwide and yet, blindness from trachoma is irreversible[19]. In recent estimates, about 84 million people are affected by active disease, more than 10 million people have trichiasis and 7.6 million people have been blinded[19]. The cost of disability and potential loss in productivity alone has been estimated to be in excess of $2 billion USD per year[2].

In Ethiopia women are approximately three times more likely than men to be blinded by trachoma[20]. So women are vulnerable to trachoma infection, as they are often the primary caregivers of children, and children are the primarily victim of the problem[21].

Active trachoma is common among children age 1 to 9 years old[22]. Ethiopia has the highest burden of trachoma in the world. Even though elimination was expected, the average prevalence of trachoma among children age 1 to 9 years decreased from 26.6% in 2015 to 13.3% in 2020. As of December 2020, 798 Districts were endemic for trachoma, with about 342 800 people with TT, and 72 million people live in 798 woredas where the prevalence of follicular trachoma in children aged 1–9 years was ≥ 5%. Thus, many people still require implementation of the face cleanliness components of the SAFE strategy[10].

Research has shown that active inflammatory trachoma is more common in children with unclean faces than in children with clean faces. Facial cleanliness is part of the multi-pronged approach known as the SAFE strategy to eliminate trachoma[5]. Studies have demonstrated the trachoma-protective effect of keeping children's faces free of ocular and nasal secretions[23]. Washing faces as often as needed is apparently a crucial way to keep faces clean; current educational programs focus on the importance of face washing[24].

Children harbor the bacteria that cause trachoma, and, while caring for them, women are exposed to infection more frequently than men[20]. The trachoma program began in Amhara in 2001 in

four districts of South Gondar and expanded to cover 19 districts in 2003. Following the 2007 zonal-level baseline survey, SAFE interventions were gradually scaled up to all 152 districts between 2007 and 2010[25].

The study was conducted in Fogera trachoma endemic district. Implementation of the full SAFE strategy for trachoma control in the districts started in 2003 based on trachoma prevalence baseline surveys that had identified trachoma as being a serious public health problem in the district. SAFE interventions were conducted in accordance with standards advocated by the WHO and included trachoma health education, promotion of facial hygiene, promotion of pit latrines and advocacy for water provision. All communities within the programme district were offered district-wide interventions with facial cleanliness[26].

Even though the fight against Trachoma was began in South Gondar zone and prevention intervention has been implemented for the last 22 years, Fogera district still remained under endemic with prevalence of TF 27.2% and TT 1.83% which is endemic and above the elimination threshold of WHO (TF<5% and TT<0.01% from the general population)[27]. The observational study have demonstrated and revealed that an association between poor facial cleanliness, including the presence of flies on a child's face, and trachoma [28]. It is possible that improvements in hygiene, and especially facial cleanliness, may alter the transmission dynamics of trachoma and create more favorable conditions for trachoma prevention and elimination.

Twenty two years intervention and unimproved prevalence and reduction of the infection in the study district motivated the researcher to know the level of behavioral response and the predictors of the response, for facial cleanliness messages on mothers of 1 to 9 years old children. To the knowledge of the researcher there is no study done on behavioral responses of facial cleanliness messages since the face washing component of SAFE strategy aims to maintain clean faces in the community in order to reduce eye-seeking flies and person-to-person transmission of the trachoma organism[29]. Face cleanliness component of SAFE strategies rely on human behavior and the behavior change of mothers is important to eliminate trachoma as a public health problem[30].

Therefore, this study aimed to assess the behavioral responses for face cleanliness messages to prevent trachoma and its predictors among mothers of children 1-9 years of age with the guide of EPPM to fill the aforementioned gap.

1.3. Significance of the study

This study will help government health sectors, Policymakers and non-governmental organizations for better decision-making and interventions and will serve university students, researchers and other stakeholder partners as base line information. Health promotion professionals, message developers and media persons will use this finding as baseline information for appropriate and target health risk message development. Partners working on Trachoma will be a beneficial body because the finding will help for effective prevention of Trachoma and evaluating their implemented intervention. The study will benefit mothers and their family to maintain their health and to get appropriate Trachoma prevention messages.

2. LITERATURE REVIEW

2.1. Behavioral Responses

The EPPM proposes three types of responses to fear appeal messages: danger control, fear control, and no response[31]. This section will describe the first two responses, which received wide coverage in the EPPM literature. The third route no response has been presented as a more subtle point in the EPPM articles, and its discussion will be incorporated into the analysis of the theory's propositions.

Danger control is conceptualized as a cognitive process inducing protection motivation that occurs when one believes she or he is able to effectively avert a significant and relevant threat through self-protective changes. To determine whether an individual is in danger control or in fear control, the EPPM suggests an easy calculation of a discriminating value. An individual's overall threat score is subtracted from the overall efficacy score. If the resulting number is positive, the individual is deemed to be in danger control. If the number is negative, the individual is in fear control. This discrimination value has been sometimes referred to as critical point or critical value. A better way to operationalize fear control and danger control would be to combine the traditional measure of discriminating value with the measures of fear. Thus, a small negative or positive discriminating value in combination with high fear should be indicative of danger control, and a small positive or negative score accompanied by absence of fear should indicate lack of involvement in the issue [12, 31, 32].

Although many scholars have explored the nature of health information on social media, the impact of such information on people was understudied. A number of empirical studies have also documented that fear appeal messages are effective in motivating individuals to perform certain health behaviors. The study also revealed that messages containing a high level of threat and efficacy increased women's intentions to adopt recommended practices [14].

In a study conducted in Mali on community knowledge and health behaviors to eliminate blinding trachoma in 2012 showed that the majority of respondents knew about trachoma, its root causes, its impact on health and prevention measures. A high percentage of persons who gave a positive response to knowledge and behavior questions reported hearing the trachoma messages on the radio with 60% reporting that the radio is where they learned about trachoma [33].

According to the assessment of face washing behavioral response a mixed methods cross-sectional study done in oromia showed that 52% of caregivers reported that children washed their faces two or more times a day [34]. Similarly the formative research study done in the dry season in Oromia showed that, 52% individuals were had a behavioral response of face washing practice [35]. According to the study done in East Gojjam zone of the Amhara region showed that 92% participant HHs (Caregiver mothers) had a behavioral response of washing their children face [28].

2.2. Factors affecting behavioral responses

2.2.1. Knowledge about Trachoma

According to research done at tigray about knowledge, Most (89.2%) of respondents had ever heard about trachoma. majority, 164 (84.5%), of respondents knew trachoma as a preventable disease, and 161 (83%) of respondents knew that trachoma can lead to blindness[36].

According to the cross sectional study done in Oromia on Trachoma prevention practice behavioral response among mothers with child age of under-9 years revealed that Mother knowledgeable about Trachoma prevention has more likely significant association with the behavioral response of preventive practice[37].

Another Study conducted in India portrayed by stating that improved knowledge of caregivers was associated with higher odds of better child hygienic behavioral response practices [38].

A cross sectional Study conducted in Kenya also showed that significantly low levels of knowledge about trachoma were important factors in the transmission and sustaining of Trachoma infection in the community [39].

The study done in Egypt on Effectiveness Of Health Education Program On Rural Mothers' Knowledge And Practice Regarding Blinding Trachoma Among Their Children revealed that the total score of mothers knowledge was significantly and positively correlated to the behavioral response of trachoma prevention practice [40], the study done in Ethiopia about knowledge and practice on childhood blindness among communities who found that the behavioral response of prevention practice of participants towards childhood blindness is associated with their knowledge [41].

In a study conducted in Zamfara state, Nigeria showed that knowledge of trachoma as a disease, and its prevention and the behavioral and household factors were significantly associated with active trachoma in children. knowledge of trachoma as a disease and its prevention were reported as protective behavioral response for active trachoma in children[42].

In a study conducted in Egypt, on effects of health education on mothers knowledge, the minority (5%) of the studied mothers had high level of knowledge in pre-educational program that increased to most (91.7%) of them immediately after the end of the educational program and a majority (88.3%) of them after one month of educational program with statistically significant differences. The study also concluded that the teaching program is effective in improving the knowledge and behavioral response practices of mother, it found that levels of knowledge and practices of mother's posttest were significantly higher compared to pretest [43].

The study conducted on Mothers knowledge in Egypt, Illustrates that the majority (92.7%) of the studied mothers had unsatisfactory total knowledge about blinding trachoma, on the other hand the minority (7.3%) of them had satisfactory knowledge[44].

2.2.2. Individual difference/Receivers factor

A variety of personality factors such as self-control, self-esteem, and future orientation appeared to influence the persuasion of fear appeal messages[12]. Those future-oriented persons may accept to be positively responded to fear appeal messages[45]. An individual with high self-esteem appeared to receive the fear appeal recommendations or persuaded by positive messages while low self-esteem persons were more convinced by negative messages[12]. Face washing behavioral response cross-sectional study done in oromia showed that the most stated motivators of face washing were purity (47%), comfort (28%), and not to look disgusting (13%). Most participants reported trachoma as a reason to wash their face (93%), with skin problems also noted as key reason (40%) [34]. .

Knowledge about face washing was a significant predictor of trachoma prevention practice based on a study done in rural Districts of Oromia[37]. Self-control affects the behavior of a person like information processing, selection of decision strategy, and decision implementation. Higher self-control is associated with more balanced information processing when facing threatening information which motivates a danger control[46]. Lower self-regulatory capacities predict

increased defensive processing[47]. A person with high self-control followed more to the recommended behavioral guidelines[48].

The most cited motivators of face washing were purity (47%), comfort (28%), and not to look disgusting (13%). Most participants reported trachoma as a reason to wash their face (93%), with skin problems also noted as key reason (40%).

2.2.3. Socio Demographic Factors

A socio-demographic and Economic characteristic includes age and sex, Religion, occupation of mother, educational status of mother, size of family, number of children aged 1-9 years old, marital status and place of residence, income of the family. Community based studies from Ethiopia showed age of the participant was among the factors significantly predict active trachoma in children aged 1 – 9 years old[49, 50].

Cross sectional study on Trachoma prevention practice behavioral response among mothers with child age of under-9 years in oromia showed that rural residents were 1.8 times more likely to be in good preventive practice behavioral response than urban [37].

A study from Gazegibela, Ethiopia reported that sex of the participant was independent predictor of active trachoma. Female gender was reported to have higher odds of active trachoma than male gender[51]. But sex of the child was not stated as independent predictor of active trachoma from a study conducted in Ankober[49].

In a study from Ankober, Ethiopia, maternal literacy was reported as significant predictor of the behavioral responses of prevention practice to reduce the prevalence of active trachoma in children aged 1 – 9 years old[49]. Children from illiterate mother had higher odds of having active trachoma than children from literate mother for the difference of behavioral response outcomes. Similar findings was reported from study conducted in Gonji Kollela district that educational status of the head of the household was significantly associated with protective behavioral responses of active trachoma among children aged 1 – 9 years old[52].

Community based study from Ethiopia showed that household monthly income was significantly associated with the behavioral responses of prevention to determine the prevalence of active trachoma in children aged 1 – 9 years old. Households with lower monthly income had children

with higher odds of active trachoma than those with higher monthly income due to low levels of protective behaviors [51]

Community based cross sectional study conducted in Gonji Kolella district showed that family size and number of children aged 1-9 years old in the household were reported as significant predictors of prevention practice to determine the levels of active trachoma in children [52]. Another community based cross sectional reported that being from a farming household were significantly associated with low protective behavioral response to prevent active trachoma among children aged 1-9 years old[51].

The study done in Oromia among mothers with child age of under-9 years on Trachoma prevention practice showed that Mother lives in the rural part of study population found to have more preventive practice than that live in urban part [37]. Community based cross sectional study done in other part of Ethiopia show that "Frequent of supportive supervision by health professionals, distance from the local health facility, and income level were the factors that affected latrine coverage" [53].

According to the study done in Oromia among mothers with child age of under-9 years on trachoma prevention practice showed that mother takes more time to water point in the study population were less likely has preventive behavioral response than mother takes less time [37]. In the other cross sectional study done in Kenya also stated that there were significant links between trachoma and long distance to water source [39], study in Ethiopia also support this finding by stating that childhood eye diseases is higher in household those fetch water from out-side compound than that of get water source from inside of the compound [54]. The study also done in East Gojjam zone of the Amhara showed that households that lived within a 30-minute walk round trip of a water source, had 4.58 times higher odds of washing the faces of all children in the household compared to households that lived more than a 30 minute walk round trip from a water source [28].

2.2.4. Communication Factors

Preferred Source of information

A study had shown that traditional modes of communication (community conversation, traditional songs, and role play) and knowledge transfer were preferable for poor and rural populations[55]. A study done among the Saudi population indicated that Physicians 45.6% were

the preferred source of information, followed by other health care providers 31.3%[56]. According to a qualitative study done on talking health in Southwest Ethiopia among rural mothers indicated Health Extension Workers (HEWs) and Health Development Army (HDA) were preferred sources of information[57]. A study done on seeking health information in rural contexts found that HEWs and health professionals as their most preferred and credible source for maternity information[58]. Using different sources of information can change the behavioral response as a study was done in an Ethiopian survey[59].

A cross sectional community based study on roles of HEWs in eye health promotion and blindness prevention in Kaffa zone showed that the Health Extension Workers (HEWs) serve as a sources of information. The study mentioned that majority 77.0% of the HEWs did community awareness creation through health education on sanitation, 32.7% teaching about the cause of blindness and its effect and 22.4% to inform where eye care is available [60].

Preferred Channels

A study done in Pakistan indicated that a majority of mothers preferred to get health information through television rather than by radio[61] and yet, in a study conducted in Mali on community knowledge and health behaviors to eliminate blinding trachoma in 2012 showed that a high percentage of persons who gave a positive response to knowledge and behavior questions reported hearing the trachoma messages on the radio with 60% reporting that the radio is where they learned about trachoma [33]. According to a qualitative study done in Southwest Ethiopia among rural mothers, the preferred channels were face-to-face/ interpersonal communication channels, followed by mass media and traditional and written material[57].

Message Characteristics

Health Education and promotion in different settings plays many roles in implementation of the SAFE strategy. Effective face cleanliness message trachoma prevention implementation settings include religious settings, women's groups, community meetings, health centers, primary schools and house to house. In the stated settings, facial cleanliness and hygienic messages advocated to promote clean face, face washing demonstration, latrine utilization and hand washing, to appealing and persuasive the audiences for the intended outcome [62, 63].

2.3. Conceptual Framework

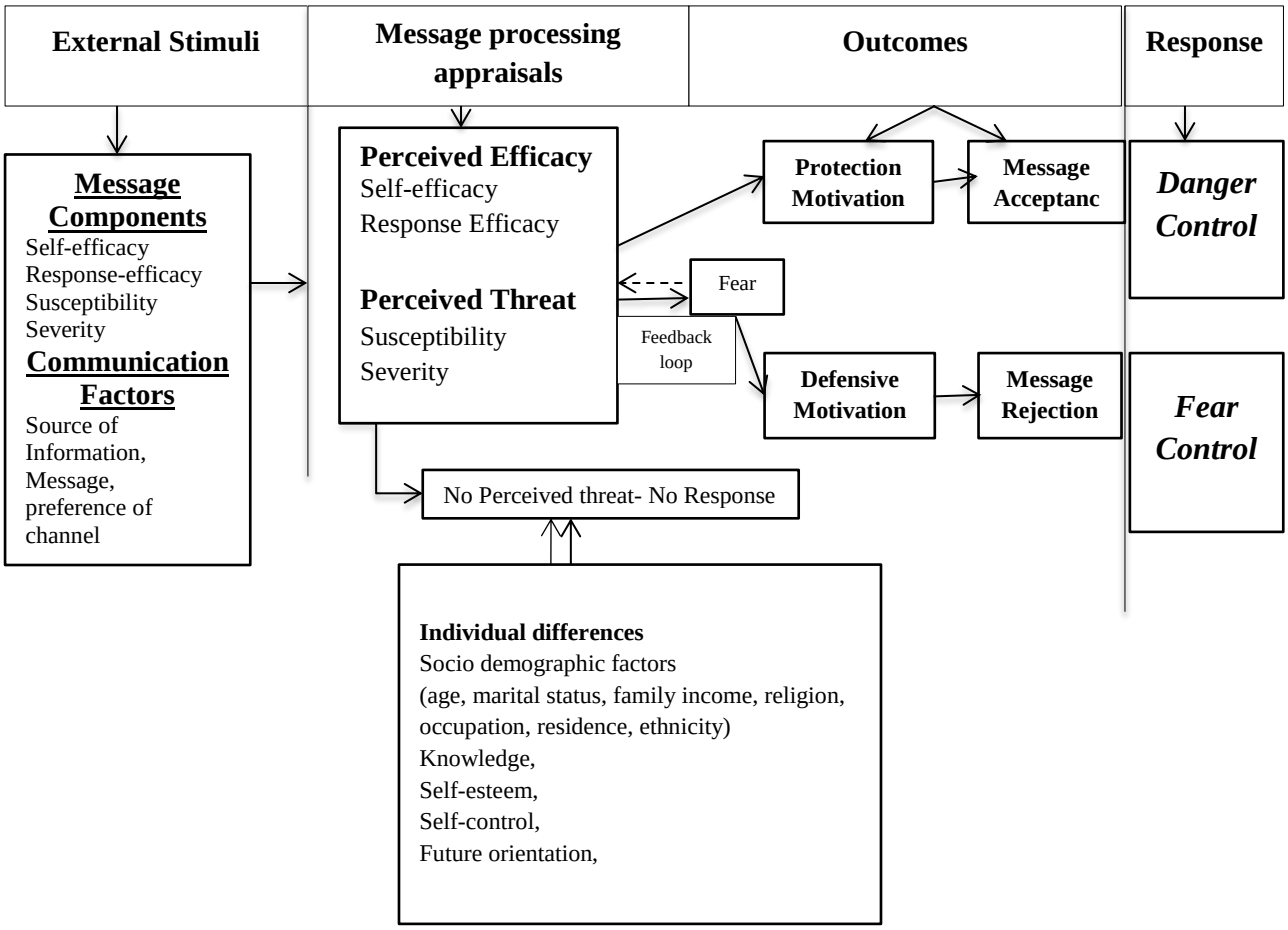

Figure 1: Conceptual framework of behavioral responses for face cleanliness messages to prevent Trachoma among Mothers of Fogera District[12]

3. OBJECTIVES

3.1. General objective

To assess behavioral responses for face cleanliness messages to prevent trachoma and its predictors among mothers having children age 1 to 9 years old, in Fogera District, Amhara Region, North West Ethiopia, 2022, by using EPPM constracts.

3.2. Specific objectives

- To determine behavioral response for face cleanliness messages to prevent trachoma among mothers having children age 1 to 9 years old, in Fogera District, Amhara, North West Ethiopia, 2022.
- To identify predictors of behavioral responses for face cleanliness messages to prevent trachoma among mothers having children age 1 to 9 years old, in Fogera District, Amhara, North West Ethiopia, 2022.

4. METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Fogera district which is identified as one of trachoma-endemic Districts in South Gondar political administration. Fogera District is located at 625 km in the Northwest direction of Addis Ababa, the capital city of Ethiopia, where it is 60 km from Bahir Dar, the capital city of Amhara National Regional State. In Fogera there are 9 government health centers and 44 health posts. The District has 32 kebeles where 30 are rural and 2 are urban Kebeles (smallest unit of administration) with 250,525 total population and 58,262 total households based on the District basic profile of 2015 EC[64]. Fogera District is implementing school trachoma program in all 103 elementary schools and has TT Surgery backlog 1,567 (8.5% of Zonal backlog) and couldn't maintain the elimination threshold after the implementation of full SAFE strategy for two decades. still remained with prevalence of TF 27.2% and TT 1.83% [27]. This study was conducted from December 01 to December 30, 2022.

4.2. Study design

Community based cross-sectional study design was applied.

4.3. Source population

All mothers having children age 1- 9 years old in Fogera District.

4.4. Study population

All selected Mothers having children aged 1-9 years old in selected kebeles of Fogera District.

4.5. Eligibility criteria

4.5.1. Inclusion criteria

Mothers who had children age 1-9 years old and who were living in the kebele for at least six months during data collection period were included in the study.

4.6. Variables

4.6.1. Dependent Variables

Behavioral Response (Danger Control and Fear Control)

4.6.2. Independent Variables

Below are the independent variables which were used in this study.

- Socio-demographic factors (age, marital status, family income, religion, occupation, residence)
- Knowledge,
- Self-esteem,
- Self-control,
- Future orientation
- Sources of information

4.7. Operational definition

Knowledge: The knowledge of the mothers was assessed by 13 knowledge questions. The scoring ranges of the questions were 0 (minimum) to 13 (maximum). For each question, the participants were given three choices: a yes item‘, or no item‘ or I do not know item‘. The yes item was given 1 value unlike the no and I don‘t know items which were given 0 values. It had a minimum value of 5 and a maximum value of 13. Higher score indicates higher knowledge. Overall scores of each individual were used to get its mean score.

Self-esteem: was mothers’ overall sense of self-worth or personal value[65]. Self-esteem was measured by 5 points Likert scale from (strongly disagree - strongly agree). After the negatively worded statements of the questionnaire were reversely coded, the score were summed for each respondent. It had a minimum value of 5 and a maximum value of 19. Higher score indicates higher self-esteem. Overall scores of each individual were used to get its mean score.

Self-control: was the ability of mothers to regulate their emotion, thoughts and behavior in the face of temptations and impulses [66]. Self-control was measured by 5 points Likert scale that ranged from (strongly disagree - strongly agree). After reverse coding of the negatively worded statements, the score was summed for each respondent. It had a minimum value of 6 and a maximum value of 20. Higher score indicates higher self-control. Overall scores of each individual were used to get its mean score.

Future orientation: was the extent to which mothers think about the future, anticipates future consequences, and plans ahead before acting [67]. Future orientation was measured by 5 points Likert scale that ranged from (strongly disagree – strongly agree). After reverse coding of the negatively worded statements, the score was summed for each respondent. It had a minimum

value of 3 and a maximum value of 15. Higher score indicates higher future orientation. Overall scores of each individual were used to get its mean score.

Perceived Severity was a belief about the severity or seriousness of trachoma on one's state of health affairs. It was measured by 5 points Likert scale (from strongly disagree - strongly agree). Since there was no negatively worded statement, so the score was summed for each respondent. It had a minimum value of 4 and a maximum value of 15. Higher score indicates higher perceived severity. Overall scores of each individual were used to get its mean score.

Perceived Susceptibility was a belief of mothers self-perception of vulnerability to trachoma. It was measured by 5 points Likert scale (from strongly disagree - strongly agree). After reverse coding of the negatively worded statements, the score was summed for each respondent. It had a minimum value of 4 and a maximum value of 15. Higher score indicates higher perceived susceptibility. Overall scores of each individual were used to get its mean score.

Self- Efficacy was a belief in one's capability to do the face washing to avert the threat (trachoma). It will be measured by 5 points Likert scale (from strongly disagree- strongly agree). After reverse coding of the negatively worded statements, the score was summed for each respondent. It had a minimum value of 4 and a maximum value of 15. Higher score indicates higher self-efficacy. Overall scores of each individual were used to get its mean score.

Response Efficacy was an acceptance (beliefs) of the effectiveness of the face cleanliness in decreasing the risk of trachoma. It was measured using 5 points Likert scale (from strongly disagree - strongly agree). Since there was no negatively worded statement, so the score was summed for each respondent. It had a minimum value of 5 and a maximum value of 15. Higher score indicates higher response efficacy. Overall scores of each individual were used to get its mean score.

Perceived threat: was a collective perceived threat and was measured by gaining the sum of both perceived severity and perceived susceptibility for each respondent. It had a minimum value of 10 and a maximum value of 29. Higher score indicates higher perceived threat. Overall scores of each individual were used to get its mean score.

Perceived Efficacy was a collective perceived efficacy and was measured by gaining the sum of both self-efficacy and response efficacy for each respondent. It had a minimum value of 11 and a

maximum value of 28. Higher score indicates higher perceived efficacy. Overall scores of each individual were used to get its mean score.

Danger control response was an intended behavioral response when mothers of 1-9 children believed that their children were at risk for health risk that was trachoma (high perceived threat) and they believe they were able to effectively avert it from occurring (high perceived efficacy), they were motivated to control the danger or threat. It was a positive score obtained by subtracting the perceived threat score from perceived efficacy score.

Fear control response was an unintended behavioral response when mothers of 1-9 children believed that they were at risk for a serious or significant threat (Trachoma) (high perceived threat), but they believed that they were unable to perform the recommended response or they believed that the recommended response to be ineffective (low perceived efficacy), then they focused on controlling their fear about the treat. It was negative score for fear control and zero score for no response obtained by subtracting the perceived threat score from perceived efficacy score [13, 68, 69].

4.8. Sample size and sampling technique

4.8.1. Sample Size Determination

The sample size was calculated using a single population proportion formula. The assumptions used for sample size calculation was:

d= the margin of error between the sample statistics and the population parameter (=0.05)

$Z\ \alpha\ /2$ = critical value at 95% confidence of certainty (=1.96)

P= 50% of the proportion (P) of the Danger control process (because there was no related researches done related to this topic to the understanding of the principal investigator) = 0.5

q = 1- p= (0.5)

$$n = \frac{z(\frac{\alpha}{2})^2.p.q}{d^2} = \frac{1.96x1.96x\ 0.5x0.5}{0.05^2} = 384$$

The final sample size after considering design effect of 1.5 and a 10% contingency of non-response rate was 634 mothers.

4.8.2. Sampling Techniques and Procedures

A multi-stage sampling technique was used to select study HHs. Fogera District was randomly selected among similar districts with similar endemic prevalence in South Gondar Zone.

Fogera District has 32 (30 rural and 2 urban) kebeles. In the first stage, 10 Kebeles were selected from 32 Kebeles using a lottery method by considering the rule of thumb 30% coverage of representative of the study population. 1 Kebele from urban and 9 kebeles from rural were selected to ensure representativeness. All together 634 HHs were selected using systematic random sampling technique. The number of HHs from each Kebele was determined proportionally. The total number of study population was 7,185 from the source population. Based on the number of study population and sample size required from each Kebele, the interval between the HHs was calculated which was 11. Then, the first HH was selected by lottery method from 1 to 11 serial numbers of the sampling frame. Then, after getting the 1^{st} sample separately for each Kebele, the remaining mothers were selected at each 11^{th} interval to get a total of 634 study participants. Only one mother of the youngest child was selected as a study sample from each HH. In the case of non-response after the repeated visit, (two times), the mothers were considered as non-response. [See fig. 2.]

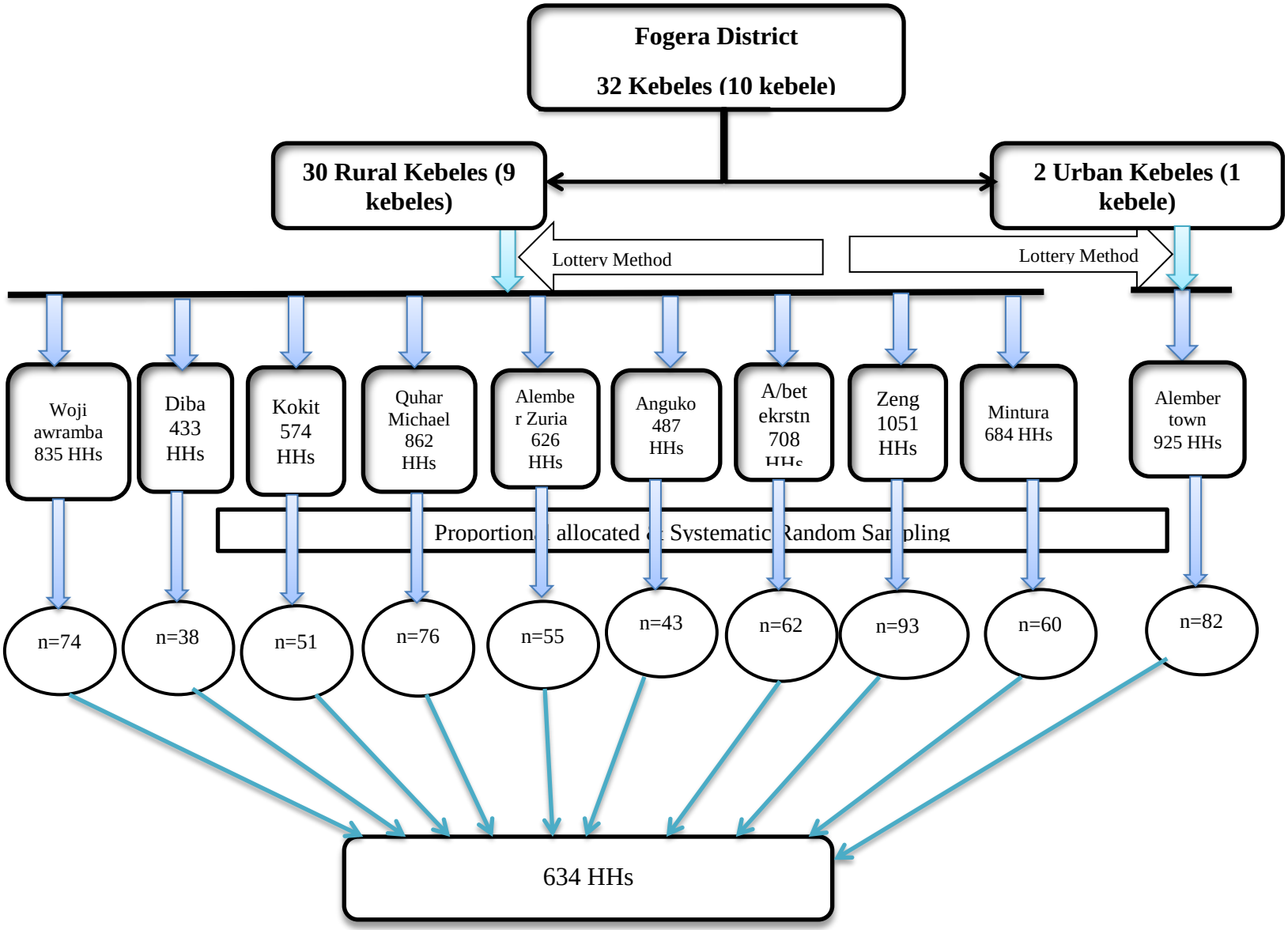

Figure 2: Schematic presentation of sampling procedures

4.9. Data collection method and instrument

A valid and reliable data collection tool was adapted and modified from related studies which were developed based on Extended Parallel Process Model (EPPM). The perception part was developed based on the risk behavior diagnosis scale (RBDs) approach, adapted to the context of Trachoma. The risk behavior diagnosis scale (RBDs) was a Likert scale tool that allows rapid assessment of participants beliefs and behavioral responses to health threats showing that either each individual is in danger control or fear control category[12, 31, 70, 71].

The questionnaire was developed in four parts: the first was Socio-demographic with 13 items, the second was about communication factor having 3 items; the third part with 24 items, was individual difference and the last part, with 12 items, was on a perception of the participants (perceived threat and perceived efficacy). The format of the tool was created using Epicollect5, a mobile data-gathering platform. The data was collected through a face-to-face interviewer administered questionnaire. The questionnaire was developed in English then translated in to Amharic (local language) then translated back to English to ensure consistency. There was one supervisor besides the principal investigator trained on integrated eye care worker (IECW) and 4 data collectors (Nurses). One days of training was given to data collectors and supervisor on the data collection tools, details of interview techniques, approaching, respecting of the participants and about confidentiality issues and the overall understanding the study objectives. The logistics and administration issues were coordinated by the principal investigator. All precautions of COVID 19 prevention strategies were considered.

4.10. Data management and analysis

After data was collected, the completed questionnaire was downloaded from epicollect5 and saved as excel then the data was exported to a Statistical Package for Social Science (SPSS) version 23.0 for analysis. Univariable and Bivariable analysis was used based on the nature of the data to meet the described objectives. Descriptive statistics was used to describe the percentage and number of distribution of respondents by each variable. Descriptive summary measures such as mean and median were used and the results were presented using texts, tables and graphs. Prior to logistic regression analysis, the assumption was checked and the data also checked and qualified for logistic regression analysis.

Bivariable and multivariable logistic regression analyses were done to identify predictors of behavioral responses. Independent variables with a P-value <0.25 in the bivariate analysis entered into the multivariable logistic regression for controlled the possible effect of confounders using the forward likelihood variable selection method.

Goodness of fit of the final models was checked using Hosmer and Lemeshow test of goodness of fit for behavioral response and hence, in final model, a p-value <0.05 was considered as statistically significant. Significant independent variables were declared by adjusted odds ratio (AOR) at 95% confidence interval.

4.11. Data quality assurance

As part of quality assurance, the questionnaire was prepared in English language, translated to Amharic and re translated back to English by another person. To make sure that the questionnaire was appropriate and understandable; it was pre-tested on 5% of sample size before the actual collection date in the kebele not included in the study. To assure the quality of the data, ensure clarity, wordings, understandability, logical sequence, and skip patterns of the questions. Finding and experience from the pretest was utilized in modifying the data collection tool and the average time required for the interview was 20 minutes. On the other hand training was given for supervisor and data collectors for one day. During data collection, the supervisor and principal investigator were randomly check sample questionnaires for its completeness, consistent and rigorous. Regular supervision was given during data collection period regularly to enhance Completeness and consistency of data and appropriate feedback was given to the interviewers timely. Completeness and consistency was checked by supervisors on a daily basis. The reliability test after the final data collection was checked for acceptable internal consistency with a Cronbach alpha of greater than 0.7.

4.12. Ethical considerations

Ethical clearance was obtained from the institutional review board of Bahirdar University, College of Medicine and Health Sciences with ethical review board (IRB): meeting number; Expedit/2022, protocol number; 549/2022, and assigned number; 003 and support letter was obtained from Bahirdar University College of Medicine and Health Sciences Chief Academic & Research Director with Reference No; 14944/2015 and Amhara Public Health Institute with reference No; APHI 03/1634, South Gondar Zone Health Department, Fogera District and

Selected kebele administrations. For participants of the study, consent pages were read for each respondent and verbal informed consent was assured. For study participants who were less than 18 years, both consent from guardians and assent was underlined, but in this study the age mentioned was not found. The data collectors were elaborate all the necessary information that study subjects may need to know about the study and participation were voluntary.

5. RESULTS

5.1. Socio-Demographic Characteristics

This study was conducted among 611 participants with a response rate of 96.4%. From the total participant, 530(86.7%) were from rural area and 482 (78.9%) were Orthodox. The mean age of the participants was 37.9 years, ±SD 4.6 with range of 23 to 50 years. Concerning participants' educational status 228(37.3%) were can't read & write while only 41 (6.7%) were High school and above. (See table 1)

Table 1. Socio-demographic Characteristics of Mothers Having Children Aged 1-9 years in Fogera District, South Gondar Zone, Amhara Region, Northwest Ethiopia, 2022. (N=611)

Variables	Category	No	%
Place of residence	Rural	530	86.7
	Urban	81	13.3
Mothers age group in years	35 and below	164	26.8
	36-40	275	45.0
	Above 40	172	28.2
Mothers religion	Orthodox	482	78.9
	Muslim	116	19.0
	Others*	13	2.1
Mothers marital status	Married	532	87.1
	Divorced	52	8.5
	Widowed	27	4.4
Mothers type of occupation	Housewife	426	69.72
	Farmer	142	23.24
	Merchant	31	5.07
	Others**	12	1.97
Mothers level of Education	Can't read & write	228	37.3
	Write and read	165	27.0
	Elementary	177	29.0
	High school and above	41	6.7
Average monthly income	3300 and below	282	46.2
	Above 3300	329	53.8
Do you have radio/television?	No	394	64.5
	Yes	217	35.5
Do you have Latrine?	Yes	362	59.2

	No	249	40.8	*:
Round trip to collect water from its source (minutes)	Below 30’	494	80.9	
	30’ and above	117	19.1	

Protestant, Adventist

**: Private/NGO, government workers, students

5.2. Communication factors

Almost all of the participants 611 (100.0%) were ever heard about trachoma. Among the total participants 468 (76.6%) were heard about face cleanliness and 196 (32.1%) were heard about latrine utilization. Regarding, the source of information about face cleanliness to prevent trachoma 474 (77.6%) were health extension worker. See table 2.

Table 2: Distribution of Mothers Communication Factors on heard about trachoma, preferred source of information, preferred channels and types of message appeals in Fogera District, South Gondar Zone, Amhara Region, Northwest Ethiopia, 2022 (n=611)

Items	Yes	
	Number	%
Information heard about trachoma		
Have you ever heard health information about trachoma?	611	100.0
Causes of trachoma	262	42.9
Transmission of trachoma	273	44.7
Latrine use	196	32.1
Face washing/cleanliness	468	76.6
Antibiotics treatment	320	52.4
Trachomatous Trichiasis surgery	209	34.2
Sources of Information		
Trachoma volunteers	175	28.6
Health Facility	254	41.6
School	277	45.3
Health Extension Worker	474	77.6
Women Development Army (WDA)	289	47.3
Religious Institution	142	23.2
Mass Media (Radio, TV etc)	51	8.3
Spouse	90	14.7

5.3. Knowledge related to Trachoma

The overall knowledge of Mothers about trachoma was 411(67.3%). (Figure 3).

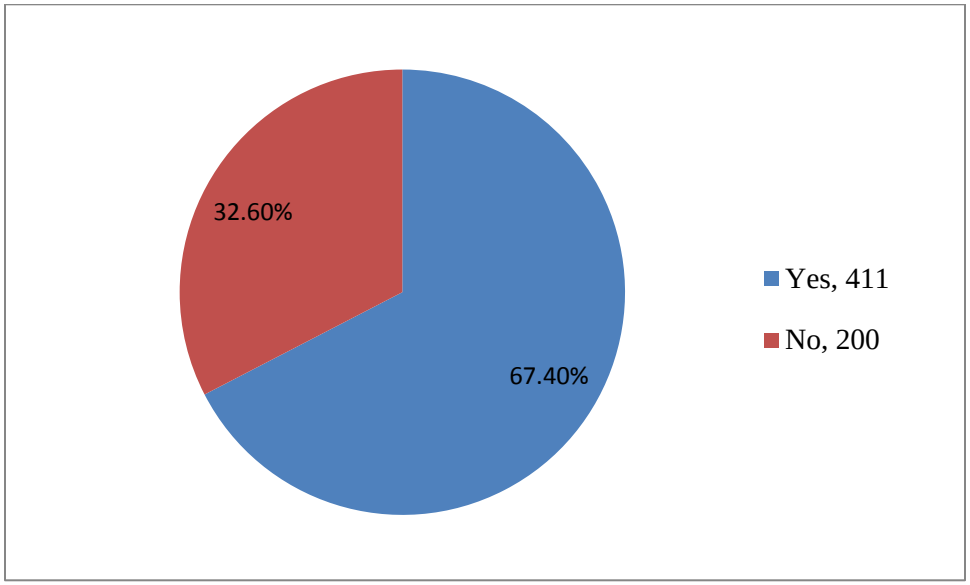

Figure 3 Knowledge of mothers related to Trachoma, January, 2023.

5.4. Constructs of EPPM

The mean score with SD of perceived severity, perceived susceptibility, self-efficacy, response efficacy of the participant was 10.20(2.241), 10.77(2.381), 10.55(2.475), and 10.49(2.12) respectively (Table 3).

Table 3: Descriptive statistics of knowledge, Self-esteem, Self-control, Future orientation, Perceived threat and Perceived efficacy of Mothers in Fogera District, South Gondar Zone, Amhara Region, Northwest Ethiopia, 2022 (n=611).

	# of Items	Min	Max	Median	Mean	SD	Range	Cronbach α
Knowledge	13	5	13	9.00	8.76	1.709	8	
Self Esteem	4	5	19	12.00	12.47	3.535	14	0.704
Self-Control	4	6	20	13.00	12.66	3.003	14	0.798
Future Orientation	3	3	15	10.00	9.75	2.912	12	0.771
Perceived Severity	3	4	15	10.00	10.20	2.241	11	0.786
Perceived Susceptibility	3	4	15	11.00	10.77	2.381	11	0.848
Self-Efficacy	3	4	15	10.00	10.55	2.475	11	0.706
Response Efficacy	3	5	15	11.00	10.49	2.12	10	0.722
Perceived threat		10	29	21.00	20.97	3.285	19	
Perceived efficacy		11	28	21.00	21.03	3.262	17	

5.5. Audience segmentation

The segmentation of participants was classified using the mean. Above the mean was considered high level and below the mean was used as low level of threat and efficacy. Among the total participants 136 (26.35%) were under high threat and high efficacy and 131 (21.44%) participants were under high efficacy and low threat.

Table 4Table Effects of threat by efficacy interaction to produce danger control and fear control responses (N=611)

Perceived Threat	**Perceived Efficacy**		**Total**
	High Efficacy	**Low Efficacy**	
High Threat	161	260	268
Low Threat	131	59	343
Total	**292**	**319**	**611**

5.6. Behavioral Response for Face cleanliness messages to prevent Trachoma

Among all participants, 292 (47.8%) (43.9-52.0) were in the danger control whereas 319 (52.2%) were in the category of fear control of the behavioral response for face cleanliness messages to prevent trachoma (Figure 4).

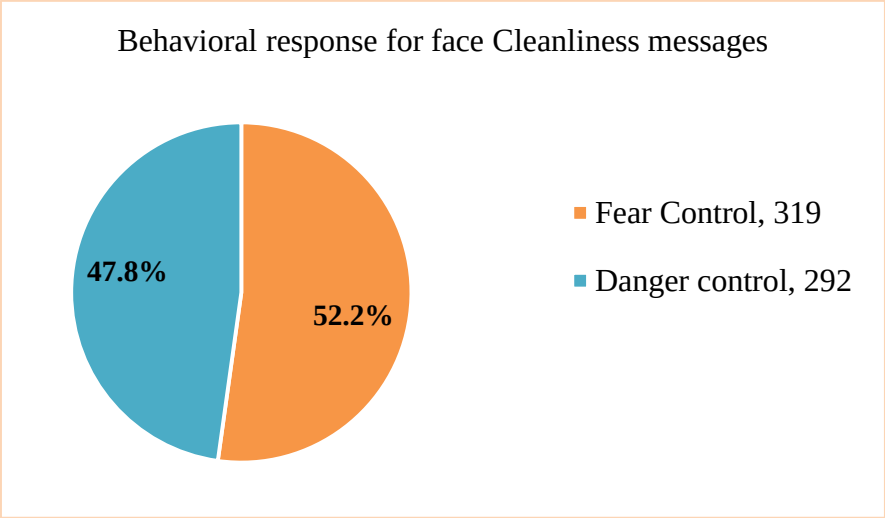

Figure 4 Behavioral response for Face Cleanliness Messages to prevent trachoma, January, 2023

5.7. Factors associated with Behavioral response

Among the variables entered into bi-variable logistic regression analysis, residence, age, religion, marital status, type of occupation, level of education, family size, average monthly income, latrine ownership, time of round trip to collect water, information heard about face cleanliness, sources of information (health facility, school, health extension worker, religious institution, WDA), knowledge, self-esteem, self-control and future orientation were a p-value of less than 0.25 and entered into the multivariable logistic regression analysis.

In multivariable logistic regression analysis residence, marital status, level of education, family size, time of round trip to collect water, information heard about face cleanliness, sources of information (health facility, school, health extension worker, WDA), knowledge, self-esteem, self-control and future orientation were statistically significant predictors of behavioral response for face cleanliness messages to prevent trachoma when adjusted to other factors to control the confounding factors with 95% confidence interval.

The odds of being in the danger control category for face cleanliness were 2.91 times more likely among residents who were urban than rural [AOR= 2.91; 95% CI: (1.44-3.86)]. The odds of being in the danger control category for face cleanliness were 21% less likely among mothers who were divorced [AOR= 0.79; 95% CI: (0.667-0.939)].

The odds of being in the danger control category for face cleanliness were 2.74 times more likely among participants whose level of education were high school and above [AOR= 2.74; 95% CI: (1.546 -3.65)].

As the family size increased by 1, the odds of being in the danger control category for face cleanliness were less likely by 43% [AOR= 0.57; 95% CI: (0.453 -0.867)].

The odds of being in the danger control category for face cleanliness were 21% less likely among participants who waste ≥30 minutes to collect water in round trip from its source[AOR= 0.79; 95% CI: (0.423 -0.878)].

The odds of being in the danger control category for face cleanliness were 3.79 times more likely among participants who have information about face washing than their counter part [AOR= 3.79; 95% CI: (2.661 -5.952)].

The odds of being in the danger control category for face cleanliness was more likely among mothers who chose health facility as the preferred source of information by 2.76 times than their

counterpart [AOR= 2.76; 95% CI: (1.645 -4.965)]. The odds of being in the danger control category for face cleanliness was more likely among mothers who chose school as the preferred source of information by 3.68 times than their counterpart [AOR= 3.68; 95% CI: (1.648 -7.530)]. The odds of being in the danger control category for face cleanliness was more likely among mothers who chose health extension worker as the preferred source of information by 3.96 times than their counterpart [AOR= 3.96; 95% CI: (2.928 -6.752)].

As a unit increase in knowledge sum score, the odds of being in the danger control category of behavioral response for face cleanliness were 2.065 times more likely [AOR=2.065; 95% CI: (1.325 – 4.427)]. As a unit increase in future orientation sum score, the odds of being in the danger control category of behavioral response for face cleanliness were 2.16 times more likely [AOR=2.16; 95% CI: (1.345 – 4.524)].

The final model explains 83.2% predictions of the outcome variable (behavioral response) with a goodness of fit of the model (x2/df = 31.04/34, p-value = 0.6133).

Table 5: Multivariable Binary Logistic Regression Analysis of Factors on Behavioral Response for Face Cleanliness Messages to Prevent Trachoma in Fogera District, South Gondar Zone, Amhara Region, Northwest Ethiopia, 2022 (n=611).

Variables	Category	Behavioral response		Crude OR (95% CI)	AOR (95% CI)	p-value
		Fear Control	Danger Control			
Place of Residence	Rural	272(44.5)	258(42.2)	1	1	
	Urban	47 (7.7)	34(5.6)	1.31(1.08-2.18)	2.906(1.44-3.86)	0.006*
Mothers age group (in years)	≤35 years	89 (14.6)	75 (12.3)	2.11(1.25-3.53)	2.495 (0.549, 4.654)	0.221
	36-40 years	146(23.9)	129(21.1)	0.31(0.25-2.253)	1.645 (0.959, 3.812)	0.231
	>40 years	84 (13.7)	88 (14.4)	1	1	
Mother Religion	Orthodox	266(43.5)	216(35.4)	0.928(0.776,1.11)	0.995(0.991,1.124)	0.223
	Muslim	60 (9.8)	56 (9.2)	0.871(0.605,1.254)	0.993(0.679,1.343)	0.710
	Others**	8 (1.3)	5 (10.9)	1	1	
Marital status	Married	297(48.6)	235(38.5)	1	1	
	Divorced	27 (4.4)	25 (4.1)	0.54(0.453,1.021)	0.791(0.667,0.939)	0.007*
	Widowed	10 (1.6)	17 (2.8)	1.364(0.787,2.364)	0.926(0.537,1.595)	0.782
Type of	Housewife	253(41.4)	173(28.3)	1	1	

occupation	Farmer	62 (10.1)	80 (13.1)	0.868(0.624,1.208)	1.290(0.926,1.798)	0.132
	Merchant	15 (2.5)	16 (2.6)	0.722(0.354,1.474)	0.527(0.065,1.157)	0.213
	Others***	4 (0.7)	8 (1.3)	0.98 (0.812, 1.187)	0.964(0.846,1.730)	0.071
Mother level of Education	Can't write & read	112(18.3)	116(19.0)	1	1	
	Write and read	92(15.1)	73(11.9)	0.793(0.584,1.079)	0.916(0.706,1.188)	0.186
	Elementary	89(14.6)	88(14.4)	0.989(0.736,1.328)	0.813(0.598,1.105)	0.602
	High school and above	26(4.3)	15(2.5)	1.737(0.658,3.54)	2.735(1.546,3.65)	0.015*
Family size				0.768(0.456,1.520)	0.572(0.453,0.867)	0.024*
Do you have Latrine?	No	133(21.8)	116(19.0)	1	1	
	Yes	201(32.9)	161(26.4)	0.967(0.787,1.489)	0.801(0.651,1.586)	0.062
Round trip to collect water from its source	Below 30'	260(42.6)	234(38.3)	1	1	
	30' and above	59(9.7)	58 (9.5)	0.789(0.423,1.341)	0.791(0.423-0.878)	0.014*
Information heard about face washing	No	73(11.9)	70(11.5)	1	1	
	Yes	261(42.7)	207(33.9)	0.857(0.715,1.028)	3.793(2.661,5.952	0.013*
Preferred source of Information is						
The sources of information about trachoma is health Facility	No	203(33.2)	154(25.2)	1	1	
	Yes	131(21.4)	123(20.1)	3.91(3.711,6.464)	2.759(1.645,4.965)	0.001*
The sources of information about trachoma is School	No	189(30.9)	145(23.7)	1	1	
	Yes	145(23.7)	132(21.6)	2.872(1.688,6.104)	3.675(1.648,7.530)	0.016*
The sources of information about trachoma is Health Extension Worker	No	81 (13.3)	56 (9.2)	1	1	
	Yes	253(41.4)	221(36.2)	7.4(0.556,8.092)	3.964(2.928, 6.752)	0.034*
The sources of information about trachoma is Religious Institution	No	260(42.6)	209(34.2)	1	1	
	Yes	74 (12.1)	68 (11.1)	1.219(0.876,1.696)	0.804(0.673,2.648)	0.091
The sources of information about trachoma is WDAs	No	169(27.7)	153(25.0)	1	1	
	Yes	150(24.5)	139(22.7)	0.915(0.771,1.087)	2.809(1.681,4.962)	0.016*

Knowledge	1.012(0.97,1.055)	2.065(1. 325,4.427)	0.009*
Self-esteem	1.019(0.97,1.07)	1.013(1.001,1.025)	0.035*
Self-control	0.964(0.913,1.017)	1.132(1.04,1.24)	0.045*
Future Orientation	1.001(0.948,1.056)	2.161(1.345,4.524)	0.0037*

*statistically significant at $\alpha = 0.05$, **Protestant, Adventist, *** students, Government employee, private/NGO, COR; Crude Odds Ratio, AOR; Adjusted Odds Ratio

6. DISCUSSION

Extended parallel process model was guiding this study to assess the behavioral response for face cleanliness messages to prevent trachoma among mothers who had children of age 1 to 9 years old. The findings of this study indicated that 47.8% of participants were in the danger control behavioral response of face cleanliness, whereas, 52.2% were in the fear control response. However, this study was lower than the study done in oromia on assessment of face washing behavioral response showed that 52% of caregiver mothers washed their children face [34]. The discrepancy might be due to perceived threat, and perceived efficacy levels. High perceived efficacy with high perceived threat and high-perceived efficacy with low perceived threat leads to danger control and in the other direction high perceived threat with low perceived efficacy leads to a fear control response [12, 31]. This finding was also lower than the study conducted in oromia on house hold caregivers (52% behavioral response of face washing) [35], and lower than the study done in East gojam with a behavioral response of 92% face washing practice of all children in the HHs [28]. The difference might be due to the difference in mothers' intention to adopt the recommended behavior. As chen L YX: Using EPPM to evaluate the effectiveness of fear appeal messages stated that messages containing a high level of threat and efficacy increase women's intentions to adopt recommended practices [14], but here majority of 52.2% of mothers didn't intend to adopt the recommended practice. The reason for below 50% danger control response might be a small positive or negative discriminating value score accompanied by absence of fear that indicate the lack of involvement in the behavioral responses of face cleanliness[12, 31, 32]. The other reason for low danger control could be that, it might be the educational status of mothers that the majority 37.5% were can't read and write, since higher educational status leads to the acceptance of the message.

Another reason for low level of danger control response might be the absence of well-designed fear appeal messages, since well-designed fear appeal messages can motivate people, and mothers might be exposed to these messages only once, which may not change the behavior of mothers directly. However, the effectiveness of fear appeal messages might be realized by multiple interactions with the information instead of one exposure to the information[72].

Urban residents were positive predictors of behavioral response. In this study urban residents were more likely to be in danger control than rural residents. This finding is contradicting to the study

done in Oromia [37]. The difference might be the deployment of Health Extension Workers (HEWs). In this finding two HEWs were deployed for each urban, but the later study showed as there was lack of HEWs in urban than rural. In this study urban becomes positive predictor might be due to factors of frequent of supportive supervision by HEWs and distance from the health post. The other reason might be the urban were had access of information through social media compared to rural.

Divorced marital status was negatively associated with danger control. In this study divorced mothers were less likely to be in danger control than married mothers. The reason might be due to married mothers may receive assistance from their spouse and sharing of responsibilities.

High school and above level of education was the positive predictor of behavioral response. In this study educational status of high school and above was more likely than can't read and write. This study was similar with the study done in Ankober, Ethiopia[49] and with the study conducted in Gonji Kollela district, Amhara [52]. This might be that the more educated mothers may seek more information and have the access of media exposure.

Family size was negatively associated with behavioral responses. This finding was similar with the study conducted in Gonji Kolella [52]. The reason for this finding was that, Trachoma is the disease of easily communicable among residents in poor housing condition and crowdedness of people sharing a living room.

More than 30 minutes round trip to collect water was negatively associated with the behavioral response of danger control. In this study the participants who travel more and equal to 30 minutes to collect water from its source was less likely to be in danger control. This finding is similar with the study done in East Gojjam zone of the Amhara [28]. The reason might be the time it takes and the saving of water instead of using water, since save water means save time.

Having information about face washing was the positive predictor of danger control. In this study having information about face washing was more likely than their counter part. Health education and promotion in different settings plays a good role to produce the intended outcome especially for behavioral change[62, 63].

Health Facilities and Health extension workers for the preferred source of information had a positive significant association with the danger control behavioral response. In this study mothers who chose health facility and health extension workers as a preferred sources of information were

more likely to be in danger control than their counter part. This was similar with the qualitative study done on talking health in Southwest Ethiopia among rural mothers indicated Health Extension Workers (HEWs) were preferred sources of information[57]. This might be seeking health information found that HEWs as their most preferred and credible source for maternity information[58], and the exchange information between mothers and health extension workers were trusted and the belief their personal information were not disclosed and the belief that health extension workers were the experts of health and are females.

Women Development Armies (WDAs) as a source of information were a positive predictors of danger control. This study explained that sources of information from WDAs were more likely to be in danger control than their counter part. The reason might be the easily accessibility of WDAs by their neighbor mothers and the trust they build.

Knowledge of the mothers had a positive association with the behavioral response of danger control. In this study a unit increase in knowledge was more likely to be in danger control category. This finding was similar with the study done in oromia (cross sectional)[37], and India (cross sectional) [38]. Having knowledge about the perceived threat and perceived efficacy motivate mothers to accept the message and leads to the danger control outcome.

Self-esteem, self-control and future orientation showed a positive association with the behavioral response. In this study, a unit increase in self-esteem, self-control and future orientation sum score were more likely to be in the danger control category. Partly, this might be also due to higher perceived efficacy levels, mothers with higher knowledge, self-esteem, self-control and futurity levels will have higher self-efficacy levels. This is also in line with the idea of the EPPM[12].

7. STRENGTHS AND LIMITATIONS OF THE STUDY

The strengths for this study was the usage of epicollect5 data collection software which helps to collect with smart cell phone and it was very easy to use and fast to collect.

The limitation of this study was a cross sectional study in which it was not possible to identify the causality of the effect, lack of previous research studies on the related topic using EPPM and the study couldn't answer the reason why mothers are in danger control.

8. CONCLUSIONS

In conclusion low levels (47.8 %) of the participants were in the danger control response, and yet, the majorities 52.2% were in fear control category. This portrayed that majority of participants had higher perceived threat (perceived severity and perceived susceptibility) than perceived efficacy (self-efficacy and response efficacy).

Residence, marital status, level of education, family size, monthly income, time of round trip to collect water, face washing information, source of information from health facility, health extension workers, schools and women development army, knowledge, self-esteem, self- control and future orientation were independent predictors of face cleanliness. Messages for face cleanliness strategy should better give high attention for perceived efficacy with consideration of perceived threat hence this might be meet the communication objectives of the health package messages for mothers.

9. RECOMMENDATIONS

Based on the findings of the study the following recommendations were suggested

For Regional Health Bureau;

- Enforce regional water and energy bureau for constructions of water points that reduces the mothers' round trip water collection time.
- Develop strategies that improve the health literacy of mothers through different channels.
- Support the adult education program of education bureau
- Avail the health facilities nearest to the HHs that can serve as a source of information.
- Develop, pretest and distribute face cleanliness risk communication messages to trachoma endemic districts.

For District Health Office;

- Encourage health extension workers to manage the utilization and sustainability of water schemes in coordination with water authority sector.
- Run the program of health literacy of mothers to improve their knowledge
- Support the adult education program at kebele level to facilitate the involvement of mothers
- Supervise HEWs to stay at the health post and create accessibility of services to mothers including being information sources.
- Construct new health facilities to the remote rural mothers nearest to them

For researchers;

- Better to do qualitative studies which this study didn't answer and resonate the result.

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11.ANNEXES

11.1. ANNEX I: INFORMATION SHEET AND STATEMENT OF CONSENT

INFORMATION SHEET

Introduction: Hello, my name is ----------. I am working as data collector for study being conducted in this area by Mr. Natnael Muche, who is studying his master's degree in Health Promotion at Bair Dar University, College of medical & Health Sciences in Health Promotion and Behavioral Sciences Department. I kindly request you to offer me your attention to explain you about the study and being selected as the study participant.

Study Title: "Behavioral Response for Face cleanliness Messages to prevent Trachoma among Mothers having children age 1-9 years old, Fogera District, South Gondar Zone, Amhara, Ethiopia, an application of Extended Parallel Process Model, 2022 G.C"

Purpose: This study is intended to assess behavioral responses for face cleanliness messages to prevent Trachoma among mothers having children age 1 to 9 years old in Fogera District, Ethiopia. Therefore, information obtained from this study may be used by Amhara Regional Health Bureau, Ministry of Health, MOH, and Partners of the Government supporting the trachoma prevention program, researchers and Zonal and District health Offices.

Procedure and duration: First of all, you were selected by random method. I will administer a questionnaire to fill pertinent data about behavioral responses for face cleanliness messages for better decision-making and interventions. It takes about 15-25 minutes, so I kindly request you to give me your time to fill this questionnaire.

Risks: The risks of being participating in this study are very minimal, but only taking few minutes from your time. Other than this the study will not cause any physical or psychological harm.

Benefit: There would not be any direct payment for participating in this study. But findings from this research may reveal important for planners and community at large.

Confidentiality: The information that you provide will be confidential. No information that will identify you. The findings of the study will be general for the study population and will not reflect anything particular of individual persons. The questionnaire will be coded to exclude showing names; no references will be made in oral or written reports that could link participants to research.

Rights: Participation in this study is fully voluntary. You have right to declare to participate in this study or right not to participate from the beginning, or stop at any time after starting participation. However, I hope you will answer the questions, which will benefit the community and concerning bodies for the control of trachoma.

Contact address: If there are any questions or enquires any time about the study, please contact and speak to principal investigator.

Name: Natnael Muche, Address: Phone +251913933432, Email: natnaelisnow@gmail.com

STATEMENT OF CONSENT

I have read (was read to me) the participant information sheet. I have clearly understood the purpose of the research, the procedure, risks and benefits, issues of confidentiality, rights of participating and contact address for any queries. I have given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with verbal.

Name of data collector _____

Date _____/_____/2022

1. Questioner Code_____

2. Kebele _____

11.2. ANNEX II: QUESTIONAIRE

Bahir Dar University College of Medicine and health Science School of Public Health Department of Health Promotion and Behavioral Sciences

Questionnaire: to assess the behavioral responses for face cleanliness messages to prevent trachoma: based on EPPM, among Women having child age 1-9 year old, Fogera District, South Gondar, Amhara, Ethiopia.

PART 1 Socio demographic Data

CODE	Questions	ANSWER
101	What is your age?	_____years
102	What is your place of residence?	1. Urban 2. Rural
103	What is your religion?	1. Orthodox 2. Muslim 3. Protestant 4. Others
104	What is your marital status?	1. Single 2. Married 3. Divorced 4. Widowed
105	What is your occupational?	1. Student 2. Housewife 3. Farmer 4. Government 5. Merchant 6. Private| NGOs 7. Others specify _____
106	What is your level of Education?	1. Can't write and read 2. write and read 3. Elementary 4. High school and preparatory 5. College and above
107	What is your ethnicity?	A. Amhara B. Oromo C. Tigrie D. Others specify _____
108	What is your family Size?	_____
109	How many children age 1-9 do you	_____

	have?	
110	How much is your family average monthly income (in ETB)?	_____
111	Do you have radio/television?	A. Yes B. No
112	Do you have Latrine?	A. Yes B. No
113	What is the round trip to collect water from its source?	1. <30 minutes 2. >30 minutes

Part 2 Communication Factor

The following statements are about your source of information and preference of Trachoma message, source, and channel Please give your answer according to the statements (Yes or No).

CODE	QUESTIONS		Yes	No
201	Have you ever heard health information about trachoma?			
202	What information about trachoma did you hear?	A. Causes of trachoma		
		B. Transmission of trachoma		
		C. Latrine construction and use		
		D. Face washing		
		E. Antibiotics treatment		
		F. Trachomatous Trichiasis surgery		
		G. Others		
203	Source/s of Information? (more than one answer is possible)	A. Trachoma volunteers		
		B. Health Facility		
		C. School		
		D. Health Extension Worker		
		E. Women Development Army (WDA)		
		F. Religious Institution		

		G. Mass Media (Radio, TV etc)		
		H. Spouse		
		I. Other specify…		

PART 3 Knowledge, Self-esteem, Self-control, and Future orientations

The following are statements about individual characteristics, Please give your answer according to your agreement to the statements according to the scale.

Please give your honest opinion.

3.1	**Knowledge related to Trachoma**	**Yes**	**No**	**I don't know**
301	Do you know that trachoma can transmit from person to person			
302	Do you know that trachoma can transmit by contaminated fingers			
303	Do you know that trachoma can transmit by flies			
304	Do you know that trachoma can transmit by contaminated towels			
305	Do you know that trachoma is preventable disease			
306	Do you know that trachoma can lead to blindness			
307	Do you know that trachoma can be prevented by washing hands with soap			
308	Do you know that trachoma can be prevented by washing face			
309	Do you know that trachoma can be prevented by using latrine			
310	Do you know that trachoma can be prevented by improving environmental sanitation			
311	Do you know that trachoma can be prevented by not using common towel			
312	Do trachoma drugs like Zithromax, TEO prevent the transmission of trachoma?			
313	Do TT surgery prevent blindness?			

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly agree

Code	Items	1	2	3	4	5
3.2	**Self- Esteem**					
314	You believe that you have satisfied by yourself.					
315	You think that you have good qualities.					
316	Sometimes, you think that you are not good at all					
317	You wish that if you were somebody else					
3.3	**Self-Control**					
318	You think carefully about all your choices.					
319	You do whatever feels good at the moment					
320	Sometimes you like breaking rules.					
321	You don't even think it you just do it					
3.4	**Future Orientation**					
322	You enjoy for today because for tomorrow you may die					
323	You try not to think about your future.					
324	you try to save money for other days rather than spent it as soon as you get it					

PART 4 Perceptions about Trachoma

The following Statements are about your perception of trachoma and the prevention method. Please give your answer according to your agreement to the statements according to the scale.

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Code	Item	1	2	3	4	5
	Perceived Threat					
4.1	**Perceived Severity**					
401	You believe that trachoma is severe disease					
402	You believe that trachoma causes blindness					
403	You believe that blindness due to trachoma is irreversible.					
4.2	**Perceived Susceptibility**					
404	Your child/children are at risk for getting trachoma.					
405	You believe that your child/children will not get infected with trachoma disease.					
406	It is possible that your child/children will have trachoma.					
	Perceived Efficacy					
4.3	**Self-Efficacy**					
407	You are able to wash your children face to prevent Trachoma since it is convenient.					
408	Washing your child/children face is not easy to you to prevent					

	trachoma					
409	You are able to wash your child/children face to prevent getting Trachoma.					
4.4	**Response Efficacy**					
410	Face washing works in preventing Trachoma					
411	Washing face is effective in preventing trachoma.					
412	If you wash your child/children face, he/she is/they are/ less likely to get Trachoma.					

THANK YOU FOR YOUR KIND PARTICIPATION

Amharic version questionnaire

ቅጥያ

<u>የ ይዘት ቅጽ እና የ ስምምነ ት ወል</u>

ጠፍ ይስጥልኝ ስሜ----------ይባላል፡ ፡ አቶ ናትናኤል ሜጨከባህርዳር ዩኒቨርሲቲ ጠፍ ት/ት ክፍል በሚሰራውጥናት ላይ አባል ነኝ፡ ፡ አቶ ናትናኤል ሜጨአሁን በባህረዳር ዩኒቨረሲቲ በጠፍ ሚበልጸግ ትምህርት 2ኛ ድግሪወን እየተሚረ ሲሆን ጥናቱ የሚያተኩረውልጆች ያሏቸዉእናቶች ትራኮማን በመከላከል ለፊት ንጽህና ትምህርት ያላቸዉን ተግባራዊ ምላሽ እና ተዛሚጅነ ት ያላቸዉን ነገሮች ለማጥናት ነው፡ ፡ በጥናቱ በመሳተፍዎ ከልብ አመሰግናለሁ፡ ፡ ከላይ እንደተጠቀሰዉትራኮማን በመከላከል ለፊት ንጽህና ትምህርት ያላቸዉን ተግባራዊ ምላሽ እና ተዛሚጅነ ት ያለወትን ሀሳብ እጠይቀወታለሁ፡ ፡ እርስዎ የሚሰጡት ትክክለኛ መረጃ ለወረዳ፤ ለዞን እና ለሀገር አቀፍ ትራኮማን ለመከላከል አላማያገለግላል፡ ፡ ቃለ-መጠይቁ ከ15 እስከ 25 ደቂቃሊወስድ ይችላል፡ ፡ የሚሰጡት ማንኛውም መረጃ ምስጠራዊነቱ የተጠበቀ ነው፡ ፡ በጥናቱ መሳተፍ የጎላ ችግር የለውም ለቃለ-መጠይቁ ከሚወስዱት ጊዜ ባለፈ፤ ነገርግን የርስዎ በጥናቱ መሳተፍ ትራኮማን ለመከላከልና የመከላከያ ትምህርቶችን ለመቃኘትና ለማሻሻል ጠቃሚነው፡ ፡ በጥናቱ በመሳተፈዎ የሚገኙት ቀጥተኛ ጥቅምም ሆነ ጉዳት የለወም፤ በጥናቱ መሳተፍ በፈቃደኝነት ላይ የተመሰረተ ነውከጥያቄዎቹ የተወሰነወን ወይም ሙሉ በሙሉ ያለመመለስ መበት አለዎት፤ ነገር ግን የርስዎ መሳተፍ እጅግ አስፈላጊ ስለሆነ እንደሚተፉ ተስፋ አለኝ፡ ፡ የበለጠ መረጃ ካስፈለገዎት በሚከተሉት አድራሻ ጥናቱን የሚያካሂደውሰውአድራሻ ማጠቀምይችላሉ፡ ፡

ለመሳተፍ ፈቃደኛ ነዎት? 1. አዎ 2. የለም

ቃለ መጠይቅ አድራጊ

ስም…… ቀን …….

የ ጥናቱ ዋና ባለቤት አድራሻ፡

ስም፡- ናትናኤል ሜጨ

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የ መጠይቁ ኮድ _____

ቀበሌ _____

II አሚርኛ መጠይቅ

ባህርዳር ዩኒቨርሲቲ ህክምና ጠፍ ሳይንስ ኮሌጅ የህብረተሰብ ጠፍ ትምህርት ቤት የጠፍ ሜዘልፀግና የስነ -ባህሪ ትምህርት ክፍል

የፎገራ ወረዳ ልጆች ያሏቸዉእናቶች ስለ ፊት ንጽህና ሜልዕክቶች ትራኮማን ለመከላከል ያላቸወን የባህሪ ምላሽ የሜዳስስ ጥናት ነዉ፡ ፡

ክፍል አንድ፡ ማህበራዊ እና የስነ - ህዝብ ሚጃዎች		
ተ.ቁ	**ጥያቄዎች**	**መልስ**
101	ዕድሜዎት	_____
102	የ መኖሪያ አድራሻ	1. ከተማቀበሌ 2. ገጠር ቀበሌ
103	ሐይማኖት	1. ኦርቶዶክስ 2. ሙስሊም 3. ፕሮቴስታንት 5.ሌላ ካለ ይግለጹ…….
104	የ ትዳር ሁኔታ	1. ያላገባ/ች 2. ያገባ/ች 3. የ ተፈታ/ች 4. የ ሞተበት/ባት

105	የ ስ ራ ሁ ኔ ታ	1 ተ ማ ሪ 2 የ ቤ ት እ ማ ቤ ት 3 ገ በ ሬ 4 መ ን ግ ስ ት ሰ ራ ተ ኛ 5 ነ ጋ ዴ 6 የ ግ ል/መ ን ግ ስ ታ ዊ ያ ል ሆ ኑ ድ ር ጅ ቶ ች 7 ሌ ላ ካ ለ ይ ግ ለ ጹ…….
106	የ ት ም ህ ር ት ደ ረ ጃ	1 ማ ን በ ብ ና መ ፋ ፍ የ ማ ት ች ል|የ ሚ ይ ች ል 2. ማ ን በ ብ ና መ ፋ ፍ 3. የ መ ጀ መ ሪ ያ ደ ረ ጃ 4. የ ሁ ለ ተ ኛ ደ ረ ጃ ት ም ህ ር ት ቤ ት እ ና መ ሰ ና ዶ 5. ኮ ሌ ጅ እ ና ከ ዚ ያ በ ላ ይ
107	ብ ሔ ር	ሀ . አ ማ ራ ለ . ኦ ሮ ሞ ሐ. ት ግ ሬ መ. ሌ ሎ ች ይ ገ ለ ጽ_____
108	የ ቤ ተ ሰ ብ አ ባ ላ ት ብ ዛ ት	_____
109	ዕ ድ ሜ ዋ ቸ ዉ ከ 1 እ ስ ከ 9 ዓ መ ት ል ጆ ች ብ ዛ ት	_____
110	አ ማ ካ ኝ የ ወ ር ገ ቢ (በ ብ ር)	_____

111	አገልግሎት የሚሰጥ ሬዲዮ/ቴሌቪዥን እቤትዎ አለ	1.አዎ 2.የለም
112	አገልግሎት የሚሰጥ መፀዳጃ ቤት አለዎት	1.አዎ 2.የለም
113	ለንፅህና ማጠቢያ የሚመል ውኃ ለመቅዳት ደርሶ መልስ ስንት ሰዓት ይወስዳል?	1. ከ30 ደቂቃ በታች 2. ከ30 ደቂቃ በላይ

ክፍል 2 የመግባቢያ (የግንኙነት) ሁኔታ

የሚከተሉት መለጫዎች ስለ ሚጃ ምንጭዎ እና ስለ ትራኮማመልእክት ፣ ምንጭእና የሚተላለፊያ መንገዶች ያላችሁን ምርጫየ ተመላከተ ነው፡ ፡ እባክዎን አዎ ወይምየለምበሚለት ይሚልሱ፡ ፡

ተራ.ቁ	**ጥያቄዎች**		**አዎ**	**የለም**
201	ስለ ትራኮማሰምተዉያዉቃሉ?			
202	ስለትራኮማምን ሚጃዎችን ሰሞ	ሀ.የትራኮማመንስኤዎችን		
		ለ.የትራኮማመተላለፊያ መንገዶችን		
		ሐ. መፀዳጃ ቤት ሚሰራትና ማጠቀም		
		መ. ፊትን መታጠበ		
		ሠ. መድሐኒት ማጠቀም		
		ረ.የዓይን ቆብፀጉር መቀልበስን በቀዶ ህክምና ማከተካከል		
		ሰ. ሌሎች----------		
203	ተመራጭየ ሚጃ ምንጭ (ከአንድበላይ መልስ መምረጥ ይቻላል)	ሀ.የትራኮማበጎ ፈቃደኛ		
		ለ.የጠፍ ተቋም		
		ሐ. ትምህርት ቤት		
		መ. ጠፍ ኤከስቴንሽን ባለሙያ		

		ሠ. የ ሴቶች የ ልማት ቡድን		
		ረ. ሚዲያ (ራዲሆን፣ ቴሌቪዥን)		
		ሰ. የ ሃይማኖት ተቋም		
		ሸ. የ ትዳር አጋር		
		ቀ. ሌላ ካለ ይግለጹ ……		

ክፍል 3 ልዩ ልዩ ሚዝንዎች

ከትራኮማጋር የ ተዛመደ እወቀት እና ልምድ፣ በራስ መተማመን ፣ ራስን መቆጣጠር እና የ ወደፊቱ አቅጣጫዎች የ ተመለከተ ጥያቄዎች ናቸው፡ ፡ ከዚህ በታች ባለውሚዝን መሠረት ይሚልሱ ፡ ፡

3.1	**ከትራኮማጋር የ ተዛመደ የ እወቀት ጥያቄዎች**			
ተ.ቁ	**ጥያቄዎች**	**አዎ**	**የ ለ ም**	**አላወቅም**
301	ትራኮማበሽታ ከሰዉወደ ሰዉተላላፊ በሽታ ነ ዉ?			
302	ትራኮማበትራኮማባክቴሪያ በተበከሉ እጆች ይተላለፋል?			
303	ትራኮማበአይን ናፋቂ ዝንቦች አማካኝነ ት ከሰዉወደ ሰዉይተላለፋል?			
304	ትራኮማበትራኮማባክቴሪያ በተበከሉ የ ፊት መጥረጊያ ፎጣዎች ይተላለፋል?			
305	ትራኮማን ልንከላከለዉየ ምንችለዉበሽታ ነ ዉ?			
306	ትራኮማአይነ ስወርነ ትን ሊያስከትል ይችላል?			
307	ትራኮማን እጅን በሳማ በሙታጠበ መከላከል ይቻላል?			
308	ትራኮማፊትን በሙታጠበ መከላከል ይቻላል?			
309	ትራኮማን መቀዳጃ ቤት በማጠቀምልንከላከለዉእንችላለን?			
310	የ አካባቢን ንጽህና በማጠበቅ ትራኮማን ልንከላከለዉእንችላለን?			

311	በጋራ የፊት መጥረጊያ ፎጣዎችን ባለማጠቀም ትራኮማን መከላከል ይቻላል?			
312	የ ትራኮማ መድሐኒቶችንና የ ዓይን ጠበታ የ ትራኮማ ስርጭትን ይከላከላል?			
313	ወደ ወስጥኛዉ የ ዓይናችን ክፍል የ ተቀለበሰን ፀጉር (በ ተለምዶ የ ዓይን ጸጉር መበቀል) ቀዶ ህክምና ማከራት ዓይነ ስዉርነትን ይከላከላል?			

1= በጣም አልስማማም 2= አልስማማም 3= ገለልተኛ 4= እስማማለሁ 5= በጣም እስማማለሁ

ተ.ቁ	ጥያቄዎች	1	2	3	4	5
3.2	**በራስ መተማመን**					
314	በራስዎ እንደረኩ ያምናሉ					
315	ጥሩ ማንነቶች ወይም ባህሪያቶች እንዳለዎት ያምናሉ					
316	አንዳንዴ ጥሩ አይደለሁም ብለዉ ያስባሉ					
317	ሌላ ሰዉ ብሆን ብለዉ ይመኛሉ					
3.3	**ራስን መቆጣጠር**					
318	የ ሚሞጥቃዉን ሁሉ በጥንቃቄ ያስባሉ					
319	በጊዜዉጥሩ የ ሚሰልዎትን ሁሉ ያደርጋሉ					
320	አንዳንድ ጊዜ መመሪያዎችን መጣስ ይወዳሉ					
321	ምን ሳያስቡ ዝም ብለዉ ይሰራሉ					
3.4	**የ ወደፊት አቅጣጫ**					
322	ዛሬን ይደሰታሉ ነገ ልሞቱ እችላለሁ በሚል ምክንያት					
323	ስለ ወደፊቱ ላለማሰብ ይሞክራሉ					
324	ገንዘብን እንዳነጭ ወዲያዉ ከማጥፋት ለሌሎች ቀናቶች ብለዉ ለማጠራቀም ይሞክራሉ					

ክፍል 4 ስለ ትራኮማ ግንዛቤ (አረዳድ)

የሚከተሉትን ጥያቄዎች ስለ ትራኮማያለዎትን ግንዛቤ (የተረዳበት) እና የፊት ንጽህና አጠባበቅ ዘዴን የሚመለከቱ ናቸው፡ ፡ ከዚህ በታች ባለው መዝን መሥረት ያለዎትን ስምምነት ይሚልሱ፡ ፡ እባክዎን ትክክለኛ መልስዎን ይስጡ፡ ፡

1= በጣም አልስማማም፣ 2= አልስማማም፣ 3= ገለልተኛ፣ 4= እስማማለሁ፣ 5= በጣም እስማማለሁ

ተ.ቁ	ጥያቄዎች	1	2	3	4	5
	ተጋላጭነት					
4.1	**የትራኮማመጠን ክብደት**					
401	የትራኮማበሽታ መጮፎ/ከባድ በሽታነዉየሚል እምነት አለዎት፡ ፡					
402	ትራኮማለአይነስወርነት የሚዳርግ በሽታነዉየሚል እምነት አለዎት፡ ፡					
403	በትራኮማበሽታየሚመጣዓይነስወርነት የሚይመላስ ዓይነስወርነት ነዉየሚል እምነት አለዎት፡ ፡					
4.2	**የትራኮማተጋላጭነት**					
404	ልጅዎ/ልጆችዎ ለትራኮማበሽታ ተጋላጭነ ዉ/ናት/ናቸዉ፡ ፡					
405	ልጅዎ/ልጆችዎ በትራኮማበሽታ እንደሚይያዙ ያምናሉ፡ ፡					
406	ልጅዎ/ልጆችዎ ትራኮማበሽታ ሊኖርባቸዉይችላል፡ ፡					
	የመከላከያ ዘዴየተረጋገጠዉጤታማነት					
4.3	**የራስ ዉጤታማነት**					
407	ትራኮማበሽታን ለመከላከል ፊትን መታጠበ ምቹ ስለሆነ የልጅዎን ፊትን መታጠበ ይችላሉ፡ ፡					
408	ትራኮማበሽታን ለመከላከል የልጅዎን ፊትን ማጠበ ለእርስዎ ቀላል አይደለም፡ ፡					
409	ትራኮማበሽታን ለመከላከል የልጅዎን/ልጆችዎን ፊት ማጠበ ብቃት አለዎት፡ ፡					
4.4	**የመከላከያ ዘዴዉጤታማነት**					
410	ፊትን መታጠበ ትራኮማን ለመከላከል ይጠቅማል፡ ፡					
411	ፊትን መታጠበ ትራኮማበሽታን በመከላከል ዉጤታማነዉ፡ ፡					
412	የልጅዎን/የልጆችዎን ፊት የሚያጥቡ ከሆነ በትራኮማበሽታየመያዝ ዕድሉ/ዕድሏ/ዕድላቸዉአነስተኛ ነዉ፡ ፡					

DECLARATION SHEET

I the undersigned, Health promotion and behavioral sciences student declared that this Thesis is my original work in partial fulfillment of the requirement for Health promotion and Behavioral science, has never been presented in this or any other University. All the resources and materials used for this Thesis, has been fully acknowledged.

Principal Investigator

Name: Natnael Muche

Signature: _____

Date: 10/02/2023

Advisors;

Name: Yosef Wassihun

Signature: _____ Mr. Yosef

Date: _____

Name: Habtamu Wondiye

Signature: _____

Date: 10/02/2023

Internal Examiner

Name: Tadele Fentabil

Signature: _____

Date: 03/06/2015

Ethical Review Board (IRB) letters

ባሕር ዳር ዩኒቨርሲቲ
ሕክምና እና ጤና ሳይንስ ኮሌጅ
የሰነ - ምግባር ገምጋሚ ቦርድ
ባሕር ዳር፣ኢትዮጵያ

Bahir Dar University
College of Medicine and Health Sciences
Institutional Review Board
Bahir Dar, Ethiopia

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Facebook: College of Medicine and Health Sciences, Bahir Dar University, Ethiopia

IRB's Decision

Meeting No.: Expedit/2022 **Date: October 24, 2022**
Protocol number: 549/2022 **assigned No: 003**

Protocol Titile : - Behavioral Responses for face cleanliness messages to Prevent Trachoma Among Mothers Having Children Age 1-9 Years old, in Fogera District, South Gondar Zone, Amhara Region, Northwest Ethiopia: an Application of Extended Parallel Process Model	
Principal investigator:	Natnael Muche
Co-investigators	1. Yosef Wassihun 2. Habitamu Wondiye
Institute:	College of Medicine and Health Sciences, Bahir Dar University
Elements Reviewed (CMHS/IRB 01 - 008)	✓ **Attached** ☐ Not attached
Review of Revised Application ☐ **Yes** ✓ No	Date of Previous review:
Decision of the meeting: ✓ **Approved** ☐ Approved with Recommendation ☐ Resubmission ☐ Disapproved	

Elements approved:
1. Protocol Version No.: **01**
2. Protocol Version Date **October 24, 2022**
3. Informed Consent Version: **01**
4. Informed Consent Version Date: **October 24, 2022**

Obligations of the PI:
- ✓ Comply with Standard National and International Ethical Guidelines
- ✓ All Amendments and Changes made in the Protocol and Consent Needs IRB Approval
- ✓ Report SAE within 10 days of the event
- ✓ End of the study, including manuscript and thesis works should be reported to IRB

To NRERC ✓ ☐

Institutional Review Board (IRB) Approval: Period from **24/10/2022** to **24/03/2023**

Follow-up Report Expected in:
3months_____ 6months__✓__ 9months_____ One Year_____

Chairperson, IRB: Mulusew Andualem (PhD)

Signature _____ Date: October 24, 2022