

Knowledge, Attitude, Practice and Associated Factors of Trachoma Among Women at Shalla District Oromia Region, Ethiopia, 2021

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Abstract

Background: Trachoma is caused by the bacterium *Chlamydia trachomatis*, which is the commonest infectious cause of blindness in our globe. It can be transmitted by the discharge from infected eyes of individuals and transferred by fingers, eye-seeking flies or by clothes to the eyes of non-infected ones. Trachoma is one of the major health problems in Shalla Woreda Oromia Region, Ethiopia.

Methods: Data were collected from Shalla district community base Cross-sectional study design was conducted. Dependent Variables were Knowledge, attitude and practice of women. Simple random sampling technique were used to select the total of 661 participants based on their population. Study subjects are women age group greater than equal to eighteen years. A multivariable logistic regression analysis model was fitted to identify factors associated with the outcome variables.

Result: In this study, a total of 661 respondents were included, 554 (83.8%) had good knowledge, 213 (32.2%) had favorable attitude and 303 (45.8%) of respondents were had proper practice on trachoma prevention and control program. Primary level education AOR=18.83, 95% CI = 8.53-41.57 were had good knowledge than no formal education. Those individuals who had primary educational level status AOR= 20.2, 95% CI=4.91-25.06 were have favorable attitude about trachoma prevention when compared to no formal educational. Age group 35-44 years old were also significantly associated with favorable attitude than age group of people. Those individuals who had clean environmental (AOR, 16.37, 95% CI 9.8-27.38) were have proper practice about trachoma prevention than who had unclean environmental and regarding to latrine individual who had latrine (AOR, 2.36, 95% CI 1.71-3.26) were have proper practice about trachoma prevention than who had no latrine.

Conclusion: Considerable numbers of people have poor knowledge, unfavorable attitude and improper practice about trachoma infection. Educational level of respondents obtained as associated factor of both favorable knowledge and attitude. Similarly, age group of 35-44 years was factors of having favorable attitude while having clean environment was obtained as factors of proper practice. Improving educational status should be provided to increase knowledge and changing attitudes that contribute for good practices towards trachoma prevention and control among communities.

Key words: attitude; Ethiopia; knowledge; oromia region; practice; shalla district; trachoma

1. Introduction

1.1 Background

Trachoma is the most common infectious cause of blindness. Repeated episodes of infection with *Chlamydia trachomatis* in childhood lead to severe conjunctiva inflammation, scarring, and potentially blinding in-turned eyelashes to the eye ball (trichiasis or entropion) in later life[1]. Improvement in socioeconomic and living conditions, availability of antibiotics, and introduction of National Trachoma Control Program reduced the prevalence of trachoma in developed countries, but it was persisted in resource-poor settings of Asia and Africa include Ethiopia. In 2016, as per

the WHO report, trachoma is restricted to 42 countries, causing blindness/visual impairment for about 1.9 million people[2].

Infection is transmitted within ocular and nasal secretions that are passed from person to person on fingers, fomites (such as clothing) and eye-seeking flies (particularly *Musca sorbens*). In trachoma endemic communities, children are frequently infected with *Chlamydia trachomatis* due to their tendency to have close contact with others and to not keep their faces free of secretions; however, the blinding effects of repeated infection generally do not develop until adulthood and it's responsible for the visual impairment and irreversibly blind [3].

Trachoma is an ancient disease and has previously been a significant public health problem in many areas of the world including parts of Europe and North America. Today, however, trachoma is largely found in poor, rural communities in low-income countries, particularly in sub-Saharan Africa. In 1998, the WHO established the Alliance for the Global Elimination of Blinding Trachoma by 2020 (GET 2020). This promotes trachoma control through the SAFE Strategy: surgery for trichiasis, antibiotics for chlamydia trachomatis infection, facial cleanliness and environmental improvement. Where control measures have been implemented encouraging reductions in the prevalence of trachoma have been found[4]. Face washing with water and wiping with a hand might be insufficient to remove chlamydia trachomatis from the faces of children in two-thirds of cases, whereas washing with soap may be more effective for chlamydia trachomatis-positive children[5].

The multiple approach, settings-based health promotion should be continued and community engagement and leadership increased, for sustainable, behavior change for trachoma elimination. Longer term, the social determinants contributing directly to trachoma, including poorly functioning bathroom facilities and overcrowded housing, must be addressed at every level of government. These environmental improvements must be supported by health education for community-wide benefit and reduction in transmission of infection.[6].

The multi-faceted interventions for trachoma health promotion were established in the settings where people engaged in daily activity, with the aim of attaining synergistic effects and sustained population-wide behavior change. There is renewed interest in the settings-based approach to facilitate health promotion and public health action and it was anticipated that embedding trachoma related KAP in work settings may redress a previous finding that trachoma was not considered a priority in remote health services[6].

However, there are no data on knowledge, attitudes, and practices on trachoma prevention and control among rural communities in Oromia region of zones and different woredas of districts and areas with high burden of trachoma such as West Arsi Zone Shalla Woreda rural district area need to assess knowledge, attitudes, and practices of trachoma among rural communities. Therefore, this study intends to provide a broad understanding of community's level of knowledge, their attitudes and their practices towards the available services. Therefore, a strengthened health education about trichiasis, in the health institutions of the study area as well as their referral sites, should be given for the community. From this study will enable the concerned stakeholders improve the currently existing interventions towards prevention and control of the blinding disease and in effect bring down the prevalence towards elimination of the disease in the region.

1.2 Statement of the problem

The WHO reported that trachoma was a major public health problem in most socioeconomically underdeveloped countries of the world in Africa, Central and South America, Asia, Australia, and the Middle East. Ethiopia is estimated to be the most trachoma-affected country in the world(7). As per the 2018 report of WHO weekly epidemiologic record, the number of people living in districts where active trachoma was a public health problem was 157.7 million, 88% of which in Africa and 50% of which in Ethiopia[3].

The national prevalence of active trachoma (either TF or TI) for children in the age group 1-9 year is 40.14%. Considerable regional variations are observed in the occurrence of active trachoma; the highest prevalence is in Amhara (62.6%), Oromia (41.3%), SNNP (33.2%), Tigray (26.5%), Somali (22.6%) and Gambella (19.1%). The rural prevalence of active trachoma is almost fourfold compared to the urban (42.5% rural Vs 10.7% urban). The national prevalence of trachomatous trichiasis (TT) is 3.1% with the highest prevalence in Amhara regional state (5.2%). Trachomatous trichiasis is higher in females compared to males (4.1% Vs 1.6%). Over 9 million 1-9-year-old children live with active trachoma, and 1.3 million people 15 years

and older have trachomatous trichiasis. Active Trachoma and trachomatous trichiasis are concentrated in the regions of the country with high population density, namely the Amhara, Oromia, and SNNP regional states. The prevalence of trachoma is three to four fold in rural residents and among females [8]. Trachoma is highly endemic in Oromia region, of Ethiopia, especially in Arsi, Bale and Borena Zones. Prevalence of trachomatous inflammation follicular (TF) among children aged 1-9 years in the enumeration units encompassing Arsi, Bale and Borena Zones in different woreda districts area $\geq 23.8\%$, $\geq 42.4\%$ and $\geq 38.9\%$ respectively[9].

Trachoma disease is exacerbated by various community-based practices and environmental factors. Some of the risk factors predisposing communities to the disease include; women who care for children putting them frequently in close contact with children who are the sole reservoirs of the disease-causing bacteria, water scarcity in arid and semi-arid areas where trachoma disease is mostly endemic reducing use of water for personal hygiene purposes such as facial cleanliness, utilization of sanitary facilities and indiscriminate defecation in bushes and proximity of livestock corrals to the households resulting in high fly population and the household general sanitary conditions such as poor dusting of earthen floored households acting as fomites for transmission of the disease-causing bacteria to the human eye. These predisposing factors have an impact on the prevalence and burden of trachoma disease in trachoma endemic regions [10].

The target for eliminating trachoma as a public health problem can be achieved if the SAFE strategy is properly applied. However, trachoma still remains one of the major health problems in the world. Several factors are associated with increased risk of trachoma. These include lack of water, poor personal hygiene, and environmental sanitation. Furthermore, poor knowledge, and unfavorable socio-cultural status of the community [11].

Trachoma is found in remote communities burdened with poverty, overcrowding and poor hygiene. Lack of culturally appropriate health promotion, a small trachoma workforce and lack of awareness and support for trachoma elimination in general, were early barriers. Shalla woreda is one of highest prevalence of trachoma area. For knowing of the gap of KAP of trachoma is important to preventing or reducing the prevalence of trachoma in the community and identify community perceptions on hygiene, decision maker will likely notice current practices that already reduce the transmission of infectious disease. The study on KAP provided high utility with difficult to reach participants in a program with very limited resources.

1.3 Significance of the Study

Trachoma indicating the need for enhanced interventions to ensure effective control and treatment of the eye disease to bring down the prevalence of the disease. Several studies have been done regarding the risk factors of trachoma disease in different parts of the world where trachoma is endemic. A lot more has also been documented regarding the interventions put in place to prevent and control the eye condition in communities affected by the disease. However, despite the documentation of all these information's, the prevalence of trachoma in many areas including Kajiado County remains above the World Health Organization threshold (Trachomatous Follicular <10%) for the disease to be no longer considered a public health concern in a given population. Therefore, this study tries to establish whether the communities' level of knowledge, attitudes and practices towards the available trachoma eye care services affects the use of these services provided through the interventions currently in place in the Ethiopia.

Responsibility for child care includes the washing and bathing of young children, which is usually performed by mothers, other female relatives, or young girls. Hygiene should be understood from a gender perspective. Gender informs hygiene behaviors, which place men and women at different risks. Although women are responsible for the hygiene of their children, they may not be empowered to make decisions about the allocation of household resources (e.g., money, time) for hygiene purposes. This includes access to water, soap, towels, or washcloths (if used) and the time to teach hygiene to

children. Decision-making freedom is generally even more limited in areas or times of scarcity. Gender also informs the division of labor and household tasks, which affects exposure to trachoma [12].

The three aspects of knowledge of the available eye care services, attitudes towards the services and practices of the community play a significant role in determining use of eye care services. The demand for trachoma mass treatment with Azithromycin, provision of lid surgery to correct trichomatous trichiasis, and the need to improving hygienic conditions is enormous. The findings obtained from the study area of paramount importance for health providers and program managers in planning and implementing to improve prevention and control of trachoma among communities. Moreover, it is useful to policy makers to formulate appropriate interventions for implementation of the SAFE strategy.

1.4 Research Questions

- What is the level of knowledge, attitude and practices of Shalla woreda community about trachoma?
- What factors affect the knowledge and attitude of community for prevention of trachoma at Shalla district?

1.5 Conceptual framework

A conceptual framework of determinants of KAP of trachoma among women adopted and modify from literature review, and this assisted to construct the conceptual framework for this study. Figure 1 below shows the relationships of the independent variables and dependent variables that will be studied.

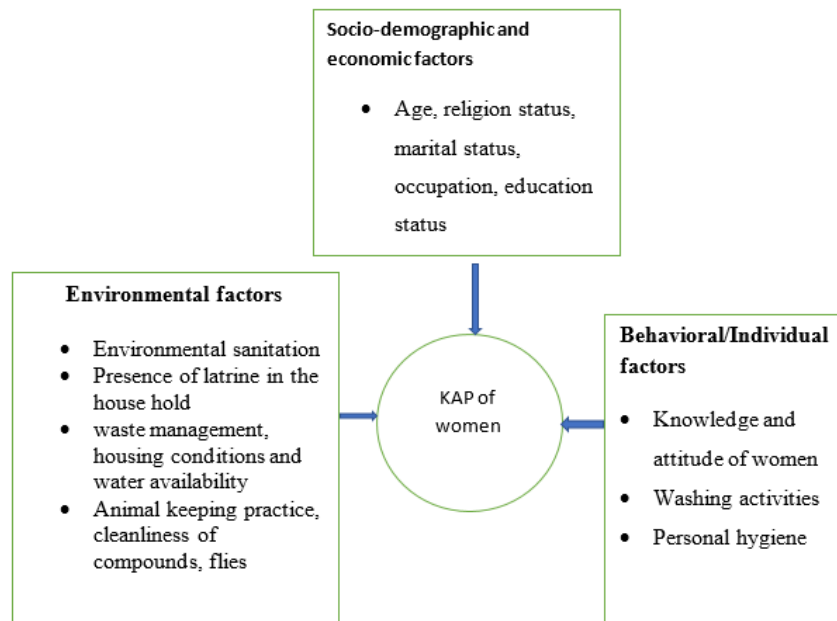


Figure 1: Conceptual framework, as developed by the researcher

3. Objectives

3.1 General Objective

The general objective of this study is to determine level of Knowledge, Attitude and Practices of trachoma and its associated factors among women in Shalla district community, Oromia regional state, Ethiopia, 2021

3.2 Specific Objectives

- To assess the level of knowledge, attitude and practice of women towards trachoma, in Shalla district, Oromia region, Ethiopia, 2021
- To identify the factors associated with the level of knowledge, attitude and practice of women towards trachoma, in Shalla district, Oromia region, Ethiopia, 20

4. Methodology

4.1 Study area

Shalla Woreda is one of the 12 districts in West Arsi Zone of Oromia National Regional State. The woreda had a total of 39 Kebeles, and all

each kebeles had three different zones. The administrative center of this woreda is Aje (21). According to the 2007 national census reported a total population for Shalla woreda of 149,804, of whom 74,930 were men and 74,874 were women; 7,680 or 5.13% of its population were urban dwellers and the majority 142,124 or 94.87% of the population were living on rural area of the woreda [21]. But as updated information of the woreda administration was used a total population of 853,545.

4.2 Study design

A community based cross-sectional study design was conducted to assess knowledge, attitudes, and practices of trachoma and associated factors among rural communities in Shalla woreda district of Oromia Region, Ethiopia.

4.3 Population

4.3.1 Source and Study population

The study population for this study was a women closed contact to children and who would be willing to take part in activity, were

interviewed. The survey was conducted by door-to-door visits and the data collector conducted interviews of willing participants. Houses would select randomly in the selected kebele. Only one individual was selected from each house based on selection by lottery method.

4.4 Inclusion and Exclusion Criteria

4.4.1 Inclusion criteria

Women from the selected a household member greater or equal to age of eighteen.

4.4.2 Exclusion criteria

A person from the selected age of less than eighteen, women who are unable to undergo interview due to serious medical or mental illness. Women with her child/children with critical ill was excluded

4.5 Sample Size and Sampling Technique

4.5.1 Sample size

The sample size was calculated by using EPI-info software with a single population proportion formula. The assumptions used were $p =$ a proportion of previous study 50 % from a study done previously in Tigray region(11) CI = 95% confidence interval, $d=$ 4% margin of error, 1.0 design effect and 10% non- response rate. It was calculated as $n =$ sample size

$$n = \frac{z^2 p(1-p)}{d^2}$$

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

$$n = 600.25 \approx 601$$

For the second objective sample size was calculated by using Epi info 7 StatCalc function considering the following assumption; a total population of 853,545 95% CI and 80% power was calculated about 246.

After comparing the sample size calculation from both objectives and considering 10% non-response rate, the largest sample size became **661**

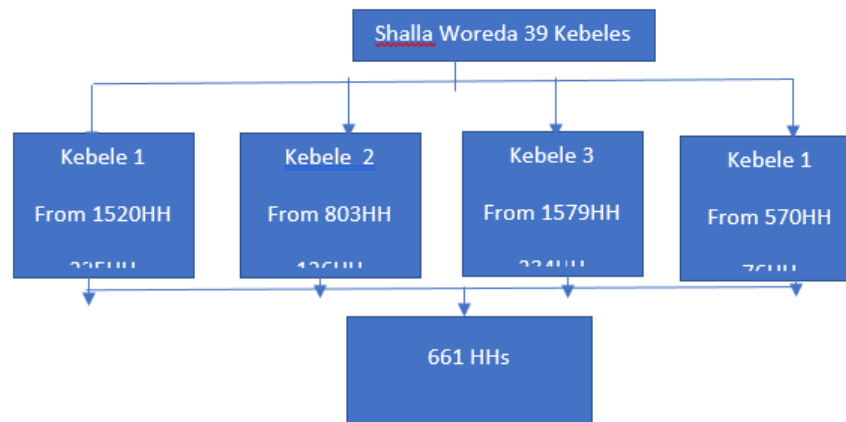


Figure 2: Schematic presentation of sampling procedure of the study participants.

4.5.2 Sampling Technique and Procedure

The study respondents kebeles in Shalla woreda district was selected by using simple random sampling by using Microsoft Excel was used to generate random numbers adding up to the required sample size from four Kebeles by giving equal chances for all kebeles in the Woreda by simple random sampling method applied in the selection of respondents within kebeles depending on their availability and willingness to participate in the study. From the selected households in their respective sub-locations and villages was used to interview the study participants. Only the women in the household member but their absence caregiver of children from household member aged eighteen years or older was interviewed. Women in the households of each kebeles were selected, the names of all the household heads of each category in each kebeles were registered separately, and representative households were selected from each of four kebeles by using systematic random sampling method. The number of respondents selected from each of a given kebeles was in proportion to the number of households categorized in to that status in that specific kebele. This is to mean that selection at level was based on Probability Proportional to Sample Size.

4.6 Study Variable

4.6.1 Dependent Variable

- Knowledge, Attitude and Practice of women

4.6.2 Independent Variables

- Socioeconomic and demographic characteristics such as: Occupation, education status
- Behavioral/Individual factors:
 - ✓ Washing activities
 - ✓ Personal hygiene
- Environmental factors
 - ✓ Environmental sanitation
 - ✓ Presence of latrine in the house hold
 - ✓ waste management, housing conditions and water availability
 - ✓ Animal keeping practice, cleanliness of compounds

4.7 Data Collection Technique

Respondents will be interviewed through an interviewer-administered questionnaire developed by the principal investigator. This tool obtained information on respondents' knowledge, attitudes and their seeking practices of the trachoma. The primary questionnaire was in the English language, then translated into Afan Oromifa separately by a local senior educator as well as by the principal investigator. The two versions were then combined and finalized with an agreement on the translated version, using local language for a better understanding by participants where needed. Data would be collected by face-to-face interviews and by observations for some practice-related questions through Open Data Kit (ODK) application using a smart phone. The data collectors were interviewed women about socio-demographic information, knowledge, attitudes, and practices on trachoma. Their responses on some practice-related questions will be verified by observational technique (availability of latrine and utilization, house compound cleanliness, having separated human and animal dwellings, and solid and liquid waste disposal methods). Enumerators who know the culture and language of that community will be selected and trained on methods of data collection and systematic approach in gathering data.

4.8. Data Quality Control and Management

During data collection, all the activities of the work will be carefully monitored and supervised. The data collectors were native to the study area. The training was given for two consecutive days by the principal investigator. The training may include an explanation of all the questions, ODK usage and practical session. Supervisor and the principal investigator were conducted intensive supervision. 5% of the sample was pretested out of study area and all necessary corrections were done accordingly before data collection. Data were cleaned & entered by the principal investigator.

4.9 Data processing and Analysis

Data were collected from a server (Google Sheet) and then entered the data by using SPSS 20 software for processing and analysis research data. Data cleaning and editing was carried out before analysis. Bivariate analysis was done to determine the associations between each independent variable and outcome variables. All associated factors with P-value less than 0.25 during bivariate analysis were entered into a multivariable logistic regression model. Odds ratio with 95% confidence intervals were used to see the strength of association between different variables. P-value and 95% confidence interval (CI) for odds ratio (OR) were used in deciding the significance of the associations. Before inclusion of independent factors, multicollinearity was checked using cutoff points variance inflation factor (VIF) <10 and normality was checked by Q-Q probability plots. Hosmer-Lemeshow goodness of fit was also checked for the model at P-value >0.05.

4.10 Ethical Considerations

Ethical approval of the study was obtained from the Pharma College of Health Science Research Ethical Review Committee before proceeding with actual data collection under reference number PCHS-558/13 on 11/14/2013. The Research Ethical Review Committee wrote the letter of approval to the West Arsi Zone Health Bureau and the formal letter was written to the Shalla District Administration Health Office. Respondents were given detailed information about intent, potential benefits and side effects, the right to continue or withdraw from the interview, and the aim of the study, and they were given consent to read it for those who could, and the interviewers read it for those who couldn't. Each respondent was informed that their data would be treated confidentially. Respondents had complete freedom to withdraw from the study or refuse to complete questionnaires at any time.

4.12 Operational Definition

- **Knowledge:** is a familiarity, awareness, or understanding of trachoma, such as disease transmission, prevention, or control methods.
- **Attitude:** a feeling or way of thinking about trachoma that affects a person's behavior positively or negatively.
- **Practice:** - the activity of doing about trachoma prevention again and again in order to become better at it.
- **Household:** consists of one or several persons who live in the same dwelling and share meals or financial source

5. Result

5.1 Socio-demographic Characteristics of Study Participants

A total of 661 participants were included in the study. Of this number, 109 (16.5%) were aged 18-24 years, 281 (42.5%) were aged 25-34 years, 205 (31%) were aged 35-44 years and 66 (10%) were aged 45-54 years. The mean age of the respondents was 32.53 with a standard deviation of 8.527. Most of the participants 610 (92.2%) were married and live together with their husband, 48 (7.3%) were widows and the remaining 3 (0.5%) were unmarried. Almost all 655 (99.1%) of the study participants the main occupation of their family was farming and while the rest 6 (0.9%) were merchant. The level of education was also assessed in this population and it was found out that up to 375 (56.7%) had no formal education. There were 178 (26.9%) and 108 (16.3%) with primary and secondary education level respectively. All of the participants in study were Muslim in their religion.

Variables		Numbers	Percent
Age	18-24Years	109	16.5
	25-34 Years	281	42.5
	35-44 Years	205	31
	45-54 Years	66	10
Marital Status	Married and living together	602	91.1
	Widowed	51	7.7
	Single	8	1.2
Educational status of respondent	No formal education	375	56.7
	Primary level education (1-8)	178	26.9
	Secondary level education (9-12)	108	16.3
Occupation	Farmer	645	97.6
	Merchant	16	2.4
Religion	Muslim	661	100

Table 1: Socio-demographic characteristics of study participants on knowledge, attitudes, and practices on trachoma in West Arsi Shalla woreda of Oromia Region, Ethiopia, 2021 (N=661).

5.2 Knowledge on Trachoma Prevention and Control

Most 537 (81.2%) of respondents had ever heard about trachoma and knew that trachoma can be transmitted from person to person 470 (71.1%) and answered correctly that trachoma can be transmitted by dirty fingers 480 (72.6%), flies 474 (71.7%), and by using contaminated towel 458 (60.3%). The majority, 463 (70.0%), of respondents knew trachoma as a preventable disease, 490 (74.1%) of respondents knew that trachoma can lead to blindness and 484 (73.2%) of participants knew trachoma can be prevented by keeping personal hygiene. Majority, 465 (70.3%) and 468 (70.8%) of

participants knew trachoma can be prevented by using latrine and by improving environmental sanitation respectively.

Those whose knowledge with mean value and below were categorized into poor knowledge while whose knowledge with more than mean value were grouped into good knowledge. The mean score of respondents on knowledge was 7.25 with 3.42 standard deviations (SD). 435 (65.8%) of respondents were scored above the mean score and classified as having good knowledge on trachoma infection (**Table 2**).

Variables	Category	Number	Percent
Heard about trachoma disease	No	124	18.8
	Yes	537	81.2
Knew trachoma can be transmitted from person to person	No	191	28.9
	Yes	470	71.1
Knew trachoma can be transmitted by contaminated fingers	No	181	27.6
	Yes	480	72.6
Knew trachoma can be transmitted by flies	No	187	28.3
	Yes	474	71.7
Knew trachoma can be transmitted by contaminated towels	No	203	30.7
	Yes	458	60.3
Knew trachoma can lead to blindness	No	171	25.9
	Yes	490	74.1
Knew trachoma as preventable disease	No	198	30.0
	Yes	463	70.0
Knew trachoma can be prevented by keeping personal hygiene	No	177	26.8
	Yes	484	73.2
Knew trachoma can be prevented by improving environmental sanitation	No	193	29.2
	Yes	468	70.8
Knew trachoma can be prevented by using latrine	No	196	29.2
	Yes	465	70.3
Score of knowledge on trachoma	Poor	226	34.2
	Good	435	65.8

Table 2: Knowledge of study participants on trachoma in West Arisi Zone Shalla Woreda of Oromia Region, Ethiopia, 2021 (N=661).

5.3 Attitudes on Trachoma Prevention and Control

Three hundred five (46.1%) of participants are strongly agreed availability of adequate water is important for trachoma prevention, and 287 (43.4%) of respondents are strongly agreed personal hygiene is important for prevention and control of trachoma. Respondents 208 (42.8%) and 275 (41.6%) are strongly agree with using separate animal dwelling and latrine utilization is important for trachoma prevention respectively and 268 (40.5%) of participants are strongly agreed with taking mass drug administration (MDA) is important to prevent and control trachoma. However, 179 (27.1%) and 116 (17.5%) of the participants are agreed and neutral with eye glass is

important to trachoma treatment and prevention respectively and also 181 (27.4%) and 92 (13.9%) of participants were agreed and neutral with trachoma transmitted by hereditary respectively.

Those whose attitude with mean value and below were categorized into unfavorable attitude while whose attitude with more than mean value were grouped into favorable attitude. The mean score of respondents on attitude was 25.28 with 9.86 standard deviation (SD) 384 (58.1%) of respondents were scored above the mean score and classified as having favorable attitude on trachoma infection (**Table 3**).

Variables	Category	Frequency	Percent
Availability of adequate water is important for trachoma prevention and control	Strongly disagree	104	15.7
	disagree	74	11.2
	Neutral	52	7.9
	Agree	126	19.1
	Strongly agree	305	46.1
Personal hygiene is important for trachoma prevention	Strongly disagree	105	15.9
	disagree	78	11.8
	Neutral	56	8.5
	Agree	135	20.4
	Strongly agree	287	43.4

Using separate animal dwelling is important for trachoma prevention	Strongly disagree	100	15.1
	disagree	77	11.6
	Neutral	64	9.7
	Agree	135	20.7
	Strongly agree	283	42.8
Latrine utilization is important for trachoma prevention	Strongly disagree	102	15.4
	disagree	93	14.1
	Neutral	60	9.1
	Agree	131	19.8
	Strongly agree	275	41.6
Trachoma was not treated by wearing eye glass	Strongly disagree	102	15.4
	disagree	77	11.6
	Neutral	116	17.5
	Agree	111	16.8
	Strongly agree	255	38.6
Trachoma was not transmitted by hereditary	Strongly disagree	97	14.7
	disagree	84	12.7
	Neutral	92	13.9
	Agree	120	18.2
	Strongly agree	268	40.5
Taking mass drug administration is important to prevent and control trachoma	Strongly disagree	97	14.7
	disagree	84	12.7
	Neutral	92	13.9
	Agree	120	18.2
	Strongly agree	268	40.5
Score of Attitude on trachoma	Favorable	384	58.1
	Unfavorable	277	41.9

Table 3: Attitudes of study participants on trachoma in West Arisi Zone Shalla Woreda of Oromia Region, Ethiopia, 2021 (N=661).

5.4 Practices on Trachoma Prevention and Control.

518 (78.4%), of respondents took mass drug administration and 504 (76.2%) of participants had separated human and animal dwellings. Most of the participants 518 (78.4%) had used of soap during keeping personal hygiene of their children and 516 (78.1%) participants were utilizing of adequate water for bathing. However, of the total 661 participants, only 308 (46.6%) were had proper solid waste disposal management, 404 (61.1%) were had proper liquid waste disposal management, 497 (75.2%) were had clean house

compound and 264 (39.9%) were had their own latrine and utilized properly. Those respondents whose practice below mean practice score value was categorized with improper practice and those whose practice level with mean value and above were categorized with proper practice.

The mean score of respondents on practice was 5.34 with 2.13 standard deviation (SD). 358 (54.2%) of respondents were scored above the mean score and classified as having proper practice on trachoma prevention and control program. (Table 4)

No	Variables		Status of knowledge		COR 95%CI	AOR of 95%CI	P-value
			Poor %	Good %			
1	Age	18-24	41 (37.6)	68 (62.4)	1.35(0.67-2.76)	1.22(0.66-2.28)	0.528
		25-34	107 (38.1)	174 (61.9)	1.35(0.73-2.52)	1.20(0.695-2.07)	0.515
		35-44	50 (24.4)	155 (75.6)	3.22(1.66-6.27)	2.28(1.28-4.09)	0.005*
		45-54	28 (42.4)	38 (57.6)	1	1	1
2	Educational status	No formal	185 (53.6)	160 (46.4)	5.52(3.59-8.48)	3.44(1.47-8.03)	0.0001*
		Primary	34 (17.4)	161 (82.6)	19.54 (8.78-43.46)	18.83(8.53-41.57)	0.004*
		Secondary	7 (5.8)	114 (94.2)	1	1	1

Table 4: Practice of community towards trachoma prevention and control in West Arisi Zone Shalla Woreda of Oromia Region, Ethiopia, 2021 (N=661).

Variables		Number	Percent
Took mass drug administration for prevention of trachoma	No	143	21.6
	Yes	518	78.4
Utilization of adequate water for bathing	No	145	21.9
	Yes	516	78.1
Having separated human and animal dwellings	No	157	23.8
	Yes	504	76.2
Keeping of personal hygiene of children	No	143	21.6
	Yes	518	78.4
Having proper solid waste disposal management	No	353	53.4
	Yes	308	46.6
Having proper liquid waste disposal management	No	257	38.9
	Yes	404	61.1
Having clean house compound	No	164	24.8
	Yes	497	75.2
Having own latrine and utilization	No	397	60.1
	Yes	264	39.9
Score of Practice on trachoma	Proper practice	358	54.2
	Unproper practice	303	45.8

5.5 Factors Associated with Knowledge of Study Participants

In logistic regression analysis, educational status and age group were significantly associated with knowledge status of the participants. Study subjects who had primary 161 (82.6%) and secondary education 114 (94.2%)

of them have good knowledge when compared to no formal educational level. Regarding to age group 35-44 was 155 (75.6%) had more knowledge on trachoma than other age groups. Study subjects who had primary education level (AOR=18.83, 95% CI 8.53-41.57) were having good knowledge than those have no formal education level (AOR=3.44, 95% CI 1.47-8.03) (**Table 6**)

No	Variables		Status of knowledge		COR 95%CI	AOR of 95%CI	P-value
			Poor %	Good %			
1	Age	18-24	41 (37.6)	68 (62.4)	1.35(0.67-2.76)	1.22(0.66-2.28)	0.528
		25-34	107 (38.1)	174 (61.9)	1.35(0.73-2.52)	1.20(0.695-2.07)	0.515
		35-44	50 (24.4)	155 (75.6)	3.22(1.66-6.27)	2.28(1.28-4.09)	0.005*
		45-54	28 (42.4)	38 (57.6)	1	1	1
2	Educational status	No formal	185 (53.6)	160 (46.4)	5.52(3.59-8.48)	3.44(1.47-8.03)	0.0001*
		Primary	34 (17.4)	161 (82.6)	19.54 (8.78-43.46)	18.83(8.53-41.57)	0.004*
		Secondary	7 (5.8)	114 (94.2)	1	1	1

Table 6: Logistic Regression Analysis of selected variables with Knowledge of Study Participants Toward Trachoma in, West Arisi Zone Shalla District of Oromia Region, Ethiopia, 2021 (N=661).

5.6 Factors Associated with Attitude of Study Participants

In logistic regression analysis educational status and age of respondents were significantly associated with attitude of the study subjects toward trachoma infection. Those individuals who had primary educational level status

(AOR=20.2, 95% CI 4.91-25.06) were have favorable attitude about trachoma prevention when compared to no formal educational level (AOR=11.09, 95% CI 9.15-44.6) and regarding to age, age group 35-44 years old (AOR= 12.174, 95%CI: 6.31-23.49) were positively significantly association with favorable attitude than other age group of people. (Table7)

No	Variables		Attitude knowledge		COR of 95%CI	AOR of 95%CI	P-value
			Unfavorable %	Favorable %			
1	Age	18-24	77 (70.6)	32 (29.4)	0.48 (0.22-1.03)	0.64 (0.34-1.22)	0.058
		25-34	137 (48.8)	144 (51.2)	1.76(0.95-3.29)	1.62(0.94-2.80)	0.074
		35-44	23 (11.2)	182 (88.8)	18.23(8.74-38.06)	12.174(6.31-23.49)	0.0001*
		45-54	40 (60.6)	26 (39.4)	1	1	
2	Educational status	No formal	191 (55.4)	154 (44.6)	2.84(1.84-4.36)	11.09 (9.15-44.6)	0.0001*
		Primary	79 (40.5)	116 (59.5)	39.13(16.58-92.34)	20.2 (4.91-25.06)	0.0001*
		Secondary	7 (5.8)	114 (94.2)	1	1	

Table 7: Logistic Regression Analysis of selected variables with Attitude of Study Participants on Trachoma in, West Arisi Zone Shalla District of Oromia Region, Ethiopia, 2021 (N=661).

5.7 Factors Associated with Practice of Study Participants

In logistic regression analysis educational status, environmental cleanliness and latrine usage of respondents were significantly associated with practice of the study subjects toward trachoma infection. Those individuals who had no formal educational status (AOR=8.88, 95% CI 5.32 -14.84) were more

than eight times as likely have improper practice about trachoma prevention when compared to others educational level. Those individuals who had clean environmental (AOR, 16.37, 95% CI 9.8-27.38) were have proper practice about trachoma prevention than who had unclean environmental practice participant and regarding to latrine individual who had latrine (AOR, 2.36, 95% CI 1.71-3.26) were have proper practice about trachoma prevention than who had no latrine participant. (Table 8)

No	Variables		Status of Practice		COR of 95%CI	AOR of 95%CI	P-value
			Unproper %	Proper%			
1	Educational status	No formal	229 (66.4)	116 (33.6)	5.43(3.68-8.0)	8.88 (5.32-14.84)	0.0001*
		Primary	52 (26.7)	143 (73.3)	8.88(5.32-14.840)	1.65(0.93-2.87)	0.085
		Secondary	22 (18.2)	99 (81.8)	1	1	
2	Compound cleanliness	unclean	145 (88.4)	19(11.6)	1	1	
		clean	158 (31.8)	339 (68.2)	18.21(10.7-30.97)	16.37(9.8-27.38)	0.0001*
3	Latrine Usage	No	215 (54.2)	182 (4.8)	1	1	
		Yes	88 (33.3)	176 (66.7)	2.86(1.95-4.21)	2.36(1.71-3.26)	0.0001*

Table 8: Logistic Regression Analysis of selected variables with practice of Study Participants Toward Trachoma in, West Arisi Zone Shalla District of Oromia Region, Ethiopia, 2021 (N=661).

6. Discussion

This study assessed knowledge, attitudes, and practices on trachoma in Shalla districts West Arsi Zone of Oromia Region, Ethiopia. Furthermore, good knowledge was significantly associated with good practices towards trachoma prevention and control. In this study, 88.7% of respondents had ever heard about trachoma. This result was almost the same with the studies conducted in Northern Ethiopia (89.2%), Southern Ethiopia (92.6%), and Bangladesh (86%) and Indigenous Northern Territory communities (88%). However, it is higher than the report in Kenya (65.7%) of participants had heard about trachoma [22]. The discrepancy could be due to the differences in social mobilization activities in different sites and studies methods. The current study shows that 78.7 % of respondents knew trachoma can be transmitted from person to person. The respondents mentioned that trachoma can be transmitted by contaminated fingers, flies, and contaminated towels. Similar studies from Kenya and Ethiopia reported that the most reported mode of trachoma transmission was contact with that the majority (84.5%) of respondents knew trachoma as preventable disease [6, 10, 11]. The participants responded that trachoma can be prevented by using latrine, improve environmental sanitation, not using common towel, and washing hand and face with soap. Having knowledge on washing face, not sharing towels, and environmental sanitation was important on prevention of trachoma infection respondents correctly answered the cause of trachoma.

Regarding attitudes of respondents in the current study, the majority the total of, 84.4% of respondents strongly agree and agreed that taking mass drug administration is important to prevent and control trachoma and 78.4% of the respondents took mass drug administration. This result is almost comparable with the other reports from Amhara and Tigray regions, and the coverage of mass drug administration ranged from 76.8% to 93.3%[16,22]. On the other hand, 55.8% and 18.3% of respondents strongly agreed and agreed that trachoma can be prevented by utilizing latrine respectively. However, only 39.9% of households were utilizing a latrine. The finding on latrine utilization was almost the same as previous studies in Tigray region, Ethiopia (37.1%) [11].

Regarding to practice of respondents in this study, the majority 78.4%, of respondents took mass drug administration, and 76.2% of households had

separated human and animal dwellings, 39.9% were utilizing a latrine and 75.2% had clean house compounds. Out of 358 (54.2%) of the study participants had a proper practice toward trachoma infection. This result is almost similar but some result was different due to the differences in social mobilization activities in different sites and studies methods with the study conducted in Northern Ethiopia Tigray the majority 88.1%, of respondents took mass drug administration, and 76.8% of households had separated human and animal dwellings. However, only 37.1% were utilizing a latrine and 30.4% had clean house compounds. Out of (35.6%) of respondents were classified as having good practices towards trachoma prevention and control [11].

This study showed that education of the respondents was significantly associated with knowledge of the women about trachoma. Those study subjects had no formal education level 46.4 % was had poor knowledge on trachoma than primary 82.6% and secondary 94.2% of educational level. This is almost with the study in Arbaminh Southern Ethiopia, whose had no educational level 66% had poor knowledge than other primary 84% and secondary educational level 88%[18]. The current study revealed that mothers who have good knowledge on trachoma was significantly associated with good practices on trachoma prevention and control. This is supported by a study from Kenya, reported that knowledge was significantly associated with trachoma prevention and control practices[10]. Increasing knowledge of trachoma transmission and prevention (e.g., *F&E*-related preventive behaviors) is important to improve practices of trachoma prevention and control[23]. This might be due to the reason that if someone knew benefit of personal hygiene and environmental sanitation, women could practice to prevent and control trachoma[12].

This study showed that education of the respondents was significantly associated with attitude and practice on trachoma. Those study subjects who had no formal education educational level had likely to have unfavorable attitude and unproper practice on trachoma prevention program when compared to their counterparts, respectively. This result is consistent with a study done in Kenya in which a significant proportion of individuals who had no formal or primary education had inadequate knowledge, attitude and practice regarding trachoma[10]. The possible explanation of this finding would be the fact that people who a higher educational background had had

better for getting adequate knowledge, attitude and apply proper practice for prevention and control program of trachoma.

8. Conclusion and Recommendation

8.1 Conclusion

In this study implies that areas with high burden of trachoma need to improve communities' knowledge, attitudes, and practices on trachoma prevention and control in order to eliminate trachoma as a public health problem. Improving educational status should be provided for rural community increase good knowledge and changing their attitude that contribute to behavioral changing and increase good practices towards trachoma prevention and control among communities.

8.2 Recommendation

Therefore, based on this study findings, recommend that

- The government and other concerned bodies shall undertake increase number of educator and schools in rural communities for successful implementation of trachoma prevent and eliminate as a public health problem from the country
- The MOH, RHB, ZHD, Woreda health office and non-government organization with health policy makers indifferent level should give more attention for the component of SAFE strategy on trachoma control activities at school students and rural community level
- Further detailed studies are required to investigate the KAP and its association factors of trachoma
- Health institutions in collaborating with different administrators should work on addressing information about trachoma in rural area

7. Data Availability

The data used to support the findings of this study are available and can be accessed from the primary author on reasonable request.

8. Funding statement

This research was conducted without the financial support from other organizations or funding agency and it was covered by the authors.

9. Additional Points

Limitation of the study

This study has several limitations. First, this study followed a cross-sectional study design. Therefore, causal inferences may not be established and compared with face-to-face interviews. There might be missed some factors that could influence knowledge, attitudes, and practices that were not considered in the model. I used a limited number of questions to measure the level of knowledge, attitude, and practice. Thus, additional assessments would be important, using all aspects of KAP towards trachoma, to determine the actual extent of KAP in the general population. Additionally, the unstandardized and inadequate assessment of knowledge, attitudes and practices towards trachoma should be developed via focus group discussion and in-depth interviews and constructed as multi-dimensional measures.

7.2 Strength of the study

In terms of strengths, to begin with, this study consisted of face-to-face interviews by trained data collectors that ensure completeness and validity of data collection. Furthermore, face-to-face interviews remove ambiguities among the general population and are helpful in describing the purposes of research activities. However, data collection was carried out by trained and diligent data collectors, and was cross-checked for completeness and

thoroughness by the PI and this study has very important findings for strengthening the prevention and control of trachoma in the study area and areas with similar set up.

10. Conflicts of the interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

11. Author Contribution

The authors contributed significantly to the work of this study and the correspondent participated in its drafting, revision/review. All authors agree to be responsible for the content of the work. The agreement was made with the journal to which the article was sent for publication.

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