KNOWLEDGE, PRACTICES AND PERCEPTIONSS OF TRACHOMA AND ITS' INFLUENCE (ASSOCIATION WITH) ON HEALTH SEEKING BEHAVIOUR OF PATIENTS IN KAJIADO CENTRAL SUB COUNTY, KAJIADO COUNTY, KENYA.

PENNINA NDUKU MUNGUTI

MASTER OF SCIENCE

(Public Health)

JOMO KENYATTA UNIVERSITY OF

AGRICULTURE AND TECHNOLOGY.

2016

Knowledge, Practices and Perceptionss of Trachoma and its' Influence (Association With) on Health Seeking Behaviour of Patients in Kajiado Central Sub County, Kajiado County, Kenya.

Pennina Nduku Munguti

A Thesis Submitted in Partial Fulfilment for the Degree of master of Science in Public Health in the Jomo Kenyatta University of Agriculture and Technology.

2016

DECLARATION

This thesis is my original work and has not been presented for a degree in any other university.

Signature……Date ……

Pennina Nduku Munguti

This thesis has been submitted for examination with our approval as university supervisors.

Signature……Date ……

Prof. Zipporah. Ng'ang'a

JKUAT, Kenya

Signature……Date ……

Mr. James Muttunga

KEMRI, Kenya.

DEDICATION

To all trachoma patients, may this thesis help provide valuable information on the underlying issues affecting you to create programmes targeting prevention and elimination of trachoma.

To my entire family especially my father the late Johnson Munguti and mother, the late Mary Munguti who took care of me, mentored, instilled a culture of discipline, hard work and focus in life.

To my dear nieces; Faith, Mercy, Carol, Susan and my nephew; Kennedy who not only supported and stood with me during the study, but inspired me to the end.

To my best friends; Muthoni, Harriet, Rosemary and Maureen who encouraged and believed in me.

ACKNOWLEDGEMENTS

I am deeply indebted to several individuals and institutions whose kind support and contribution made this study a success. This thesis would be incomplete without my appreciation to them.

I would like to especially thank my supervisors; Professor Zipporah Ng'ang'a (JKUAT) and James Muttunga (KEMRI) for their untiring support, encouragement and input in design of the study, guidance in field work and in development of this thesis.

My appreciation goes to the team of interviewers; Faith Keli, David Karanu, Joseph Kapero, Lester Moitai and Patrick Kiroyian who tirelessly conducted interviews with trachoma patients in the selected area and collected data that has informed this thesis. Special thanks to Selina Maluki and David Karanu for printing, organizing and providing technical support in data synthesis and analysis.

I am grateful to the County (former district) Medical Officer of Health (Ministry of Public Health and Sanitation) Dr. Phillip Ngere, County (former district) Ophthalmic Clinical Officer (DOCO), Mr. John Soine and Assistant County (former district) Ophthalmic Officer Mr. Simon Kimani of Kajiado Central County (former district) for their invaluable support in providing relevant information and statistics on trachoma and in allowing me to conduct the study in their area of jurisdiction.

Special thanks to African Medical and Research Foundation (AMREF) Kenya Trachoma Control Project Manager (Kenya), Mr. Francis Dikir for sharing valuable statistics and information on locations with high burden of trachoma and for introducing the research team to the County (former district) Medical Officer of Health, County (former district) Ophthalmic Clinical Officer and AMREF Kenya trachoma health monitors (who acted as research assistants) and played a key role in making this study a success.

Finally, my heartfelt appreciation goes to all the study participants whose willingness to answer the research questions and honesty made this study possible and a success. It is my hope that the findings of this research would play a primary role in the prevention and elimination of trachoma.

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ABBREVIATIONS AND ACRONYMS

ACK	Anglican Churck of Kenya
AMREF	African Medical Research Foundation
CBS	Central Bureau of statistics
CDC	Centre of Disease Control
DOCO	District Ophthalmic Clinical Officer
FGD	Focused Group Discussion
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KEMRI	Kenya Medical Research Institute
MOH	Ministry of Health
SAFE	Surgery, Antibiotics, Facial and Environmental cleanliness
SPSS	Statistical Package of Social Sciences
UNICEF	United Nations Children's Fund
WHO	World Health Organization

ABSTRACT

Trachoma is an infection of the eyes caused by the bacterium *Chlamydia trachomatis*. It is caused by the recurrent, chronic infection of the ocular surface and is a leading cause of infectious blindness in the world. The disease is endemic in over 30 counties (former districts) in Kenya including Kajiado. Strategies for elimination of the disease adopted by the Ministry of Health and various stakeholders include surgery, antibiotic treatment, facial cleanliness and enviromental changes (SAFE). This study aimed at determining the knowledge, practices and perceptions of trachoma and their influence (association with) the health-seeking behaviour of patients in Kajiado central division. A descriptive cross-sectional study was conducted in Kajiado central division among 271 trachoma patients with both infectious and blinding trachoma. A total of 18 clusters registered with the ongoing AMREF Kenya trachoma control programme in the sub county (former division) were used to estimate the number of trachoma patients in each cluster and a simple random sampling done to select 7 clusters. Recruitment of trachoma patients meeting the inclusion criteria was done and consecutive sequential sampling used. Data was collected through interviews of 271 trachoma patients and 269 successfully analyzed statistically using univariate and bivariate analysis. 6 FGDs and 10 key informants were done, with information grouped and analyzed thematically. The commonly-identified signs and symptoms of trachoma among children 0-10 (36%) and 10-17 years (46%) by child care takers were redness of the eyes and watery eyes (26% and 37%) while among adult patients the presence of watery eyes (36%), followed by redness of eyes (20%) and poor eye sight (21%). Among children and adults, nearly two thirds sought treatment and care from health clinics. One fifth of care takers sought for treatment when the signs and symptoms became critical (22% and 19%) while (18% and 15%) sought for treatment after failure from traditional healers. The factors significantly associated with seeking care from health facilities were: knowledge of link between trachoma and animals (OR=2.24, P=0.036), how long it takes them to water source (OR=0.42, P=0.036), compound clean (OR=5.05, P=0.0042), times they wash face

(OR=0.25, P=0.0028), and have pit latrine (OR=0.19, P=0.036). The study findings show poor knowledge on trachoma and signs and symptoms (P=0.045). Community members preferred seeking for medical health late and poor practices towards treatment and management of the diseases. The study recommends improvement of knowledge and behavior change communication strategies to improve knowledge of the disease, causes and prevention and early health seeking effective and efficient treatment.

CHAPTER ONE

INTRODUCTION

1.1. Background Information

Trachoma is an infection of the eyes caused by the bacterium *Chlamydia trachomatis* that results in blindness after repeated infection. The disease is characterized by swelling of the eyelids, sensitivity to light and eventual scarring of the conjunctiva and cornea of the eyes and spreads easily from an infected person to an uninfected person.

Trachoma is the second largest cause of preventable blindness in the world (WHO, 2004a). The disease is common in rural settings in developing countries and rare in developed nations.The disease is categorized mainly as active/infectious which mainly affects children under the age of 10 years and blinding trachoma which affects people aged over 18years. Trachoma transmission is more among children and is easily transmitted from children to women compared to men. The risk factors related to trachoma include, low socio-economic status, inadequate supplies of water and poor knowledge and practices of good hygiene and sanitation. The disease has continued to be a public health concern especially in Kenya where it is currently endemic in over 30 districts located in poor and remote areas with limited basic services (Bedinghaus, 2009).

According to the 2009 Kenya population and national census (KNBS, 2009), Kenya has an estimated population of 38 million people, of which Kajiado county has an estimated population of 687,312 people,with Kajiado central sub-county having 69,402 people. Overall prevalence of blindness is estimated at 0.7%, with cataract contributing 43%, trachoma 19% and glaucoma 9% (Kamuriro, 2004). A national trachoma survey conducted in six counties (former districts) in Kenya by AMREF in 2009 revealed that trachoma is a public health problem in all the surveyed counties (former districts) with a mean prevalence of 23% and 3.3% for both infectious and blinding trachoma

respectively. The same report notes that Kajiado county has a prevalence of 17.4% for infectious trachoma (a drop from 28.1% in 2004) and 3.3% for blinding trachoma. This is a high prevalence rate of the affected population compared to the WHO recommended manageable levels of 10% and 1 % respectively.

1.2. Statement of the problem

Trachoma is a widespread disease that causes blindness in many developing countries, particularly among rural populations especially in Africa, Asia and some parts of Latin America (Mariotti *et al*., 2009). Trachoma has continued to be a worldwide public health concern and has blinded many people while putting majority at a risk of infection. The Maasai community is among the most affected population in Kenya. Transmission of trachoma is more often from an infected child to the mother or caretaker. Women are therefore at a higher risk than men as they interact more closely with the children (Munoz, 1997). A similar trend was observed during this study in Kajiado central sub-county (former division).

Considerable efforts have been made by WHO in Kenya to control the disease, the efforts include large-scale clinical treatment schemes by use of antibiotic treatment and through eye operation of the affected population. However, it has been observed that the pattern of trachoma in a community vary from severe blinding trachoma to less severe non-blinding infectious trachoma. The variation in severity is not only brought about by treatment schemes, but also by socio-economic progress, level of knowldege, behavioural practices and cultural factors that impact negatively on the society (Thylefors *et al*.,1985).

Global, regional and national efforts in elimination of trachoma have focused on the clinical aspects and treatment schemes, while there has been less focus on the underlying issues that influence (are associated with) health seeking behaviour, treatment process and contribute to the increase in the reported cases of trachoma. Kajiado county (former

district) is predominantly occupied by the Maasai community who have been greatly affected by the disease. Statistics of a survey done by AMREF in 2009 in the county (former district) indicate a prevalence of 17.4% of infectious trachoma (a drop from 28.1% noted in 2004) and 3.3 % of blinding trachoma respectively. This can be attributed to the cultural aspects and values of the Maasai community closely linked with their socio-economic status, knowledge of the risk factors related to trachoma, nature of their houses (Manyattas), their cultural attachment to livestock and poor waste and enviromental management practices which attract flies, a main vector in the transmission of the disease. There is a knowledge gap on trachoma issues and relevant solutions. Moreover, there is a gap between evidence-based solutions and what health workers actually do. Inadequate knowledge on what people know about trachoma influences the solutions found in treating the disease while, poor infrastructure and technology results in insufficient service. Relevant to all of these gaps is information, which should trickle down to all the people affected and those involved in the control (Thylefors, 1998).

1.3. Justification of the study

Global elimination of trachoma is a priority on the World Health Organization disease elimination agenda. This is through a component which aims at eliminating both infectious and avoidable blindness by the year 2020. This is not going to be a reality if only the clinical aspects of trachoma are looked into, while other underlying issues influencing (association with) the disease are overlooked. A holistic approach in addressing the problem of trachoma in the country is required for a lasting and sustainable solution.

A strategy comprising of surgery, antibiotic treatment, facial cleanliness and enviromental changes (SAFE) has been adopted by WHO, UNICEF, AMREF, Pfizer, Sight Savers International and the Ministry of Health in Kenya as a method of eliminating trachoma. Regardless of the efforts put in fighting the disease, trachoma has continued to be a public health concern in Kenya and more so among the Maasai

community in Kajiado county (Ngondi*et al*., 2008). Further to the research done on the clinical aspects of trachoma, the study provides valuable information in understanding the influence (association) of knowledge, practices and perceptionss on health seeking behaviour of trachoma patients and how this contribute and hinder the efforts in elimination of trachoma in Kajiado central sub-county (former division). The sub-county (former division) was chosen as an area of study based on the high burden and prevalence of trachoma cases, identified through AMREF trachoma control programme in the county (former district). The objective of the study was to determine knowledge, practices and perceptions of trachoma and its influence (association with) on the health seeking behaviour of the patients in Kajiado central sub-county (former division).

The research findings provide information on the gaps, underlying issues on knowledge of trachoma, community practices and perceptions on trachoma and how they influence (association with) the health seeking behaviour of the patients.

The information provided from the research is essential in promoting health and preventing trachoma by addressing key underlying issues to the cause and spread of the disease. The information achieves greater impact to programmes targeting prevention and elimination of trachoma and related blindness especially in Kajiado county (former district).

1.4. Research questions

1. What is the level of knowledge among the patients suffering from trachoma in Kajiado central sub-county (former division) and how does it influence (association with) the health seeking behaviour?
2. What are the practices among the patients suffering from trachoma in Kajiado central sub county (former division) and how do they influence (association with) health seeking behaviour?

3. What are the perceptions among the patients suffering from trachoma in Kajiado central sub-county (former division) and how do they influence (association with) health seeking behaviour?

1.5. Objectives

1.5.1. General objective

To determine the knowledge practices and perceptions of patients suffering from trachoma and its influence (association with) on the health seeking behavior of the patients in Kajiado central sub-county (former division).

1.5.2. Specific Objectives

i. To determine the knowledge of the patients suffering from trachoma and how it influences (association with) the health seeking behavior in Kajiado central sub-county (former division).
ii. To determine the practices among the patients suffering from trachoma and how they influence the health seeking behavior in Kajiado central sub-county (former division).
iii. To determine the perceptions of the patients suffering from trachoma and how they influence health seeking behavior in Kajiado central sub-county (former division).

CHAPTER TWO

LITERATURE REVIEW

2.1 Cause and transmission of trachoma

Trachoma is an infectious disease of the eye caused by bacterium C*hlamydia trachomatis,* and is the world's second-leading cause of preventable blindness. Trachoma is endemic in more than 50 countries (Burton *et al.,* 2009). WHO currently estimates that there are about 1.3 million people who have been blinded by the disease and a further 8.2 million have trichiasis (Burton *et al.,* 2009). 150 million are infected and over 500 million are at risk of getting infected. Trachoma affects the poor, rural communities mainly in Africa, Asia and the Middle East, who live in crowded living conditions with limited access to clean water, proper sanitation and quality health care (Solomon, *et al*., 2006).

Trachoma disease is primarily transmitted through contact with eye discharge from an infected person either via hands, clothing or personal effects such as towels and handkerchief or flies as the discharge is carried on the feet of flies. Factors associated with trachoma include limited water supply, the amount of water used for washing, poor disposal of waste and overcrowding. A case-control study carried out in a village in Gambia compared water use in 18 families having one or more active trachoma cases among the children with that in 16 trachoma-free families in the same village. The families with trachoma were found to use significantly less water per person per day for washing children than did the control group (Bailey *et al.*, 1999).

Trachoma infections are very closely linked to extreme poverty, active trachoma is particularly common in children under 10 years, while blinding trachoma affects adults, 18 years and above. Adult women are three times more likely to develop the blindness associated with trachoma compared to men. This is attributed in part to their close proximity with young children who are often carriers of the disease. In some rural

communities, 60% – 90 % of children are infected. Repeated exposure to the disease over a period of time eventually causes the inside of the eyelid to turn inward, a condition called trichiasis and the eyelashes to scrape and scar the cornea, this leads to the formation of corneal opacities and painful and irreversible blindness. The main symptoms of trachoma include; redness, watering and swelling of the eyes, sensitivity to light, red lumps in the eyelids, eventual eye pain, corneal scarring, visual impairment and irreversible blindness if left untreated (Munoz, 1997).

2.2 Epidemiology of trachoma

Trachoma is one of the earliest recorded eye afflictions, having been identified in Egypt as early as 15 B.C. The presence was also recorded in ancient China and Mesopotamia. Trachoma became a problem as people moved into crowded settlements or towns where hygiene was poor. The disease became a particular problem in Europe in the 19th Century, after the Egyptian campaign (1798 – 1802) and the Napoleonic Wars (1798 – 1815); trachoma was rampant in the army barracks of Europe and spread to those living in towns as troops returned home. Stringent control measures were introduced and by the early 20th Century, trachoma was essentially controlled in Europe. Despite the fact that trachoma had virtually been controlled in the industrialized world, as a result of improved sanitation and overall living conditions, it has continued to plague the developing world. This potentially blinding disease remains endemic in the poorest regions of Africa, Asia, and the Middle East and in some parts of Latin America and Australia (Thylefors *et al*., 1995).

An estimated 10% of the world's population live in trachoma endemic areas and are at risk of developing trachoma (Frick *et al.,* 2003). Global loss of productivity related to impaired vision and blindness from trachoma is thought to be around $US5.3 billion annually. WHO estimates that approximately 1.3 million cases of blindness are due to trachoma and 8.2 million cases are of trichiasis. Prevalence of active disease in children

varies from 10%-40% in some African countries and 3%-10% in several Asian countries. The overall incidence is, however, unknown (Frick *et al*., 2003).

Of the 56 countries that WHO has reported to have blinding trachoma, Australia and some parts of Latin America are the only ones in developed countries, this mainly affect people who live in remote communities with inadequate water and poor sanitation.

2.3 The prevalence of trachoma disease in Africa

The geographical distribution of trachoma in Africa varies between regions. Trachoma is endemic in 33 of the 56 countries in Africa, which are mainly located in east and west sub-Saharan Africa, north Africa and a few endemic coastal countries in central Africa. Based on available data, the highest prevalence of active trachoma and trichiasis remains in the Sahel area of west Africa and Savannah areas of east and central Africa. According to data mapped in the global atlas of trachoma launched in 2011, an estimated 129.4 million people live in areas that are confirmed empirically to be trachoma endemic based on county (former district) level prevalence of TF in 1–9-year-olds greater than 5%) and a further 155 million in areas suspected to be endemic. Since the establishment in 1998 of the global elimination of trachoma by 2020 (GET2020) initiative, an increasing number of endemic countries have implemented national programmes incorporating the SAFE strategy of Surgery to correct trichiasis, Antibiotic to clear *Chlamydia trachomatis* infection, Facial cleanliness and Environmental improvement to reduce transmission. To fully realise the goals of GET2020, it is necessary to scale up to a full SAFE programme in all endemic counties (districts) in every country by 2016–2018 to maximize on impact. Some countries, especially those in Africa, lack epidemiological data on the geographical distribution of trachoma and efforts are required to complete the global trachoma map, then to keep it updated as interventions begin to take effect. This will help inform where and when to start and stop trachoma control efforts (Jennifer *et al.*, 2013).

2.4 Prevalence of trachoma disease in Kenya

Trachoma is considered the second leading cause of avoidable blindness in Kenya, accounting for 19% of the blind. The national eye care management information data from the districts and a national blindness survey conducted in the early 1980s, indicate that trachoma is still endemic in 18 out of the total 73 districts (currently merged to 47 counties) in the country. The population of the 18 most affected counties (former districts) where trachoma is endemic, is about six million. A community-based survey conducted in six of these 18 most affected counties (districts) in 2004 including; Samburu, Narok, West Pokot, Kajiado, Baringo and Meru North in the first phase of the national trachoma survey showed that: Blinding trachoma was a public health problem in all the surveyed counties (former districts). Active trachoma was a wide public health problem in four counties (former districts) namely; Samburu, Narok, West Pokot and Kajiado and only in some of the sub-locations of Baringo and Meru counties (former districts). Trachomatous follicular inflammation (TF) was a public health problem in Samburu with 35.0%, Narok 30.5%, Kajiado 28.1% and West Pokot 26.6%. Seven sub-locations in Meru North district and nine in Baringo district had prevalence of TF equal to or above 5%. Kajiado district had a higher prevalence of TF in boys 32.0% than in girls 24.0% (p-value 0.03), while in other counties (districts) the statistical difference was not significant (Karimurio *et al.*, 2006).

2.5 Practices and perception on trachoma and its influence on health seeking behavior in Kenya

According to a study done in Narok on Knowledge, practices and perception on trachoma and its control, majority of the community members interviewed had knowledge of trachoma and its transmission. The practices that contributed to transmission of infection included; failure to wash faces and bathe regularly, sharing of water basins and towels for face washing, traditional methods of trachoma treatment and dirty household environment. Due to socio-cultural perceptions, toilets were

unacceptable and use of bushes for human waste disposal was common. Poor perceptions on disease susceptibility, flies on children's faces, latrine ownership and usage and separation of human and animal dwellings also played a role in the transmission of trachoma. Fear of loss of sight during surgery was a deterrent to its uptake and a desire to be able to see and take care of domestic animals promoted surgery uptake. Majority of the community members were appreciative of mass drug administration (MDA) though side effect such as vomiting and diarrhoea were reported. Poor practices and related socio-cultural perceptions are important risk factors in sustaining trachoma infection and transmission. Community members require health education for behavior change and awareness creation about surgery, MDA and its potential side effects for elimination of trachoma in affected counties (former districts) in Kenya (Dories *et al.,* 2016).

2.6 Factors associated with trachoma in a certain area

Low economic status, crowding, presence of flies, facial cleanliness, lack of hygiene and behavioural factors relating to water use are known to be key epidemiological determinants of trachoma. National trachoma survey conducted in Mali in 1997 showed that: Small villages had higher trachoma prevalence, especially if they had less than 500 inhabitants. This could be explained by a lower socio economic development, the lack of equipment and sanitary facilities and also greater isolation. Crowded living conditions increase the risk of trachoma. Crowding was also noted to result to increase in the number of trachomatous cases. This could be due to increased inadvertent contact with an infected person during sleep. The occupational and educational background of the head of household appeared to be a determinant. Any educational attainment of the father or of the mother had a protective effect. Family wealth was associated with lower rates of trachoma in the study. The presence of flies was one of the earliest risk factors noted. The relationship of these flies to trachoma and their role have been the subject of many investigations. Flies are physical vectors for transmission of Chlamydia trachomatis and their control may be followed by a significant reduction in trachoma

prevalence. The presence of cattle has also been associated with trachoma in some studies in Africa. It is argued that the presence of cattle in the yard might increase the density of flies and subsequently the prevalence of trachoma. Poor hygienic conditions have long been associated with the risk of trachoma. Dirtness of children's faces was strongly linked with the presence of active trachoma. Several studies have found an association between distance to the water source and the prevalence of trachoma among children. In rural Africa the availability of water seems to be more critical than the water quality in reducing trachoma prevalence. Availability of water and the related quantity of water used for hygiene practices are other parameters that have positive effects diminishing trachoma (Schemann *et al.,* 2002).

2.7 Diagnosis of trachoma

The diagnosis of trachoma is done clinically, through simplified grading using magnifiers (loupe) flash light, developed by WHO. Although an individual may complain about sticky eyes or itchy, painful eyes, often the disease is sub clinical. After repeated infections, when scarring of the conjunctiva has occurred, the patient may complain about a feeling of sand or insects in the eyes. Clinically the diagnosis of trachoma is done using magnifiers and a flashlight. According to WHO, there are five simplified grading system of trachoma namely; trachomatous inflation follicular (TF), trachomatous inflammation intense (TI), trachomatous scarring (TS), trachomatous trichiasis (TT) and corneal opacity-CO (WHO, 2004b).

2.8 Knowledge of trachoma among the patients surveyed in the world

There is poor knowledge on causes, signs, symptoms and appropriate solutions to trachoma. Studies conducted in various parts of the world show that people do not know that children are the most susceptible to infection due to their tendency to easily get dirty and that more severe symptoms of blinding trachoma effects are not often felt until adulthood (Taylor *et al.,* 2008). There is poor knowledge on the many factors that are

directly linked to the presence of trachoma including lack of water, absence of latrines, poverty in general, flies, close proximity to cattle and crowding. There is little knowledge on the common transmission routes of trachoma as presence of dirty faces in children that facilitate frequent exchange of infected ocular discharge from one child's face to another or to a caretaker and increase the rate of transmission of trachoma in a family (Taylor *et al.,* 2008).

2.9 Control and prevention efforts of trachoma in the world

Control of trachoma focuses on elimination of active symptoms through treatment with antibiotics such as azythromycin and zithromax. National governments in collaboration with numerous non-profit organizations implement trachoma control programmes using the WHO-recommended SAFE strategy (West *et al.,* 2003).

The SAFE strategy is a comprehensive public health strategy approved by WHO to treat trachoma epidemics in rural Africa and other parts of the developing world. The combination of surgery, antibiotics, facial cleanliness and environmental educational efforts, a multi-pronged approach to the disease has shown promising results in the areas where it has been applied so far. According to the centers for disease control (CDC), there is no existing national or international surveillance for trachoma which makes it hard to control and prevent the disease. Without intervention, trachoma keeps families trapped within a cycle of poverty, as the disease and its long-term effects are passed from one generation to the next (Ngondi *et al.,* 2008).

Trachoma can be treated with antibiotics and prevented with adequate hygiene education and community awareness of social cultural practices that contribute to its spread. Improvement in environmental and cultural practices such as modifications in water use, fly control, latrine use, health education and reduced proximity to domesticated animals have all been proposed to reduce transmission. These changes, however, pose numerous challenges for implementation. Environmental, socio-economic and cultural aspects

impact negatively on the transmission of ocular infection through lack of facial cleanliness. Particular attention is required to reduce environmental, socio-economic and cultural factors that increase transmission of trachoma (Emerson *et al*., 2004).

2.10 Challenges in prevention and elimination of trachoma in the world

Trachoma is a disease of the poor, underprivileged and socio-economically disadvantaged communities. Investing in trachoma may sometimes mean compromising in other development aspects. In many countries where trachoma is endemic, there exist regional conflicts, civil wars and widespread corruption. Scarce resources are being spent on arms and servicing of debts (Pashtoon *et al.*, 2004). These countries often lack the political commitment needed to fight the disease. In addition, there is a lack of commitment by international donors in provision of funds to combat the disease and other underlying challenges. WHO vision of the global elimination of trachoma by 2020 and efforts of the international trachoma initiative and other non-governmental organizations give hope on the fight against trachoma. Eliminating the disease is, however, faced by many challenges such as establishing surveillance for endemic trachoma, determining when mass treatment with antibiotics is necessary, determining the importance and effectiveness of improved hygiene and sanitation, identifying underlying socio-economic and cultural factors preventing a resurgence of the endemic disease, monitoring for adverse effects of mass treatment with antibiotics, improving surgical outcomes, diagnosis of active trachoma disease, monitoring the emergence of antibiotic resistant Chlaymadia trachomatis and improving our understanding of the transmission and reservoirs (Dawson, 1975).

A study on global burden of trachoma and economics of the disease show high interest because of the refinement of a strategy to control trachomatous blindness, with an ongoing global effort to eliminate trachoma by the year 2020, with azithromycin donation programme that is a component of trachoma control programmes in several countries. Results show that, trichiasis without visual impairment may result in an

economic burden comparable to trachomatous low vision and blindness and that the monetary burden of trachoma may be 50% higher than conservative published figures. Within some regions, more productive economies are associated with less national blindness from trachoma and the ability to achieve a positive net benefit of trachoma control largely depends on the cost per dose of antibiotic and the effectiveness of socio-economic, cultural and environmental factors (Frick *et al*., 2003).

2.11 Women and Trachoma

Gender roles, especially the traditional ones still upheld in many developing countries provide reason why there are more blind women than men. Trachoma is a significant cause of blindness in the poorest and remote rural areas in Africa and South Asia and is more common in women than men. Women and older girls tend to be the main child care providers and as such, are far more prone to be infected by trachoma carried by young children. Surveys carried out in trachoma endemic areas show 86% of cases of trichiasis (the stage of the disease that leads to blindness) are women (Courtright, 2002). This trend is common among the pastoralist's people who have a strong attachment to their livestock and who have a problem in cleaning their environment. Most pastoralist homes are dominated by flies, which are the main transmitters of trachoma (Courtright *et al.,* 2002), Women are usually three times more infected by trachoma than men (Grassly, 2008).

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study Area

The study was conducted in Kajiado central sub county (former division) in Kajiado county (former district). The area has a total population of 85,846 (69,402 rural and 16,444 urban). Kajiado county (former district) is predominantly occupied by the Maasai community who are pastoralists in nature, it is highly characterized by plains, volcanic hills and valleys and has sub counties (former divisions), namely Loitoktok, Magadi, Mashuru, Namanga, Isinya, Ngong and Central (Kenya National Bereau of statistics, 2009). Kajiado central sub county (former division) was chosen as the main area of study based on the high burden and prevalence of trachoma reported by studies previously conducted in the area. The study team focused on 7 administrative villages (referred as clusters in the study), randomly selected from an overall list of 18 affected villages (clusters) registered in the sub county (former division) under AMREF trachoma control programme. These villages (clusters) included; Enkaroni, Ortarikati, Emuktani, Kiroyian, Oltanai, Paranai and Oletepesi.

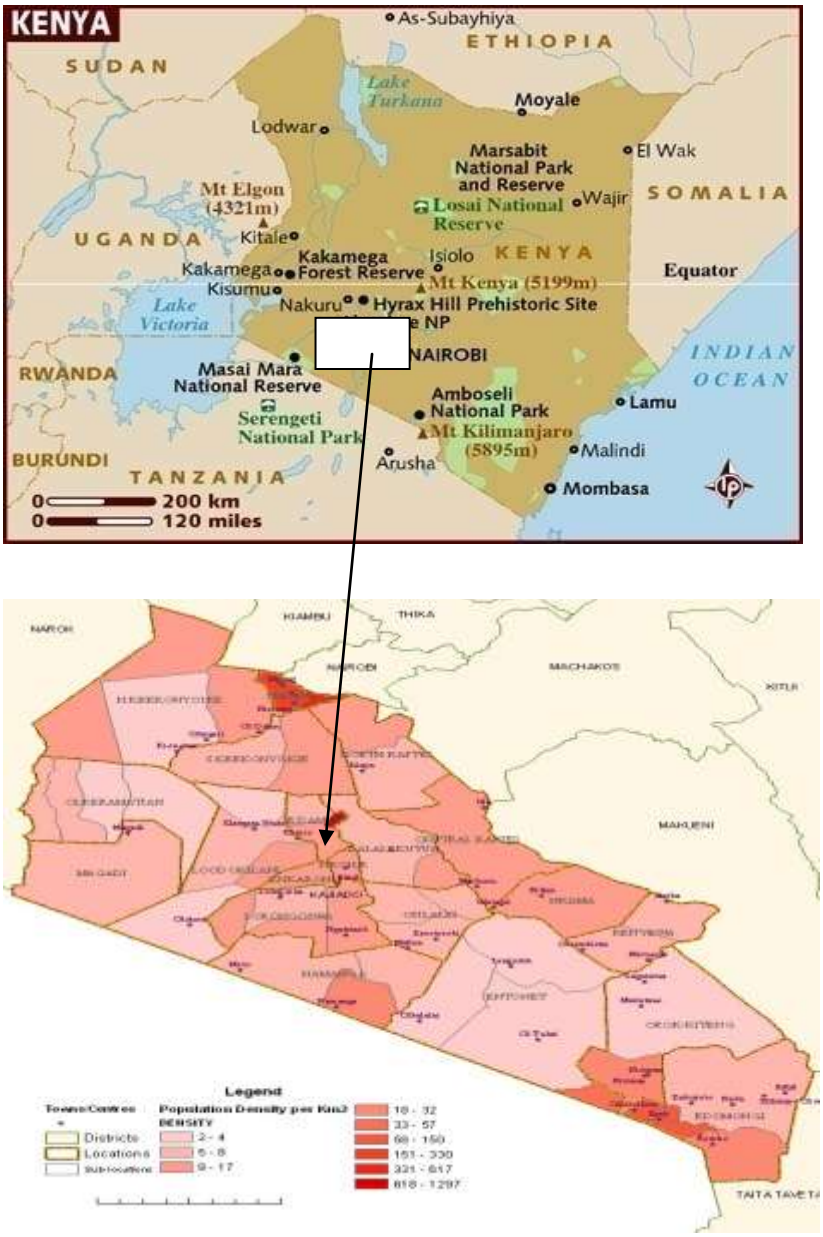

Figure 3.1: Map of the study area

3.2 Study Design

The study was a cross sectional descriptive survey among trachoma patients with both active/infectious and blinding trachoma aged 1 to 17 years and 18 to 50 years respectively as these age groups are more vulnerable to the disease. Both qualitative and quantitative data collection methods were used in the study to determine the knowledge, practices and perceptions on trachoma and its influence (association with) on the health seeking behavior of the patient's in Kajiado central sub county (former division).

3.3 Study Population

The study population comprised of caretakers of sick children aged 1 to 17 years with active/infectious trachoma and adults aged between 18 and 50 years with blinding trachoma as these age groups are more vulnerable to the diseases, who accepted to participate in the study.

- **Inclusion criteria:** The study recruits were caretakers to children aged 1 to 17 years with active/infectious trachoma and adults aged 18 to 50 years with blinding trachoma who consented to participate in the study.
- **Exclusion criteria:** The study excluded persons aged below 18 years or above 50 years for blinding trachoma and those people aged between 18 years and 50 years who were not sick with trachoma. In addition, any sick person or caretaker to a sick child who did not consent to participate in the study was excluded.

3.4 Sample size determination

The sample size for the quantitative interviews was determined using (Fisher *et al.*, 1998) formula.

Sample size calculation

$$N = \frac{z^2 pq}{d^2}$$

Where:

n = The desired sample size (if the target population is greater than (10,000)

z = The standard normal deviate at the required confidence level

p = The proportion of population seeking health care in relation to trachoma. **q** = 1-p

d = The level of statistical significance set

Therefore, the sample size is: -

$$N = \frac{(1.96)^2 x\ 0.8 \times 0.2}{(0.05)^2}$$

$$= 245.86$$

$$= 246 \text{ people } +10\% \quad = 271 \text{ people}$$

3.5 Sampling

Purposive sampling was used to select the overall study area, Kajiado central sub county (formerdivision) with the highest burden and prevalence of trachoma. This was based on previous prevalence studies conducted in the area and according to trachoma cases registered under the AMREF Kenya trachoma control programme in the county (former district). The study team worked with AMREF Kenya trachoma control health monitors who are recruited locally from the area and were conversant of the affected villages and existing trachoma cases. The study team obtained a total of 18 affected villages (referred as clusters in this study), within Kajiado central sub county (former division) and estimated number of trachoma patients in each from AMREF Kenya trachoma control programme. A simple random sampling within the clusters was done without replacement and a total of 7 villages (clusters) selected. The selected villages (clusters) included; Enkaroni, Ortarikati, Emuktani, Kiroyian, Oltanai, Paranai and Oletepesi. In each of these randomly selected villages (clusters), the study team recruited every trachoma patient who met the inclusion criteria and consented to participate in the study and used consecutive sequential sampling until the calculated 271 people were attained. The actual calculated sample size was 246 patients, an increment of 10% was added to allow for attrition, thus totaling to 271 patients. A total of 271 patients were interviewed and 269 questionnaires successfully analyzed and has informed the findings of this study.

3.6 Data collection tools

A structured questionnaire (Appendix 1 and 2- English and in Maasai) was used to collect quantitative data and has been provided as appendix to this report. Data obtained using the questionnaire included demographic details of the patients such as age, gender, education background, marital status, family monthly income, occupation, knowledge, perceptions and practices of trachoma and the influence (association) this has on health seeking behavior of the patients.

The questionnaire was administered by field assistants who were drawn from AMREF Kenya trachoma control health monitors in Kajiado central sub county (former division). All the research assistants were trained on ground on the questionnaire and on how to interview and collect data prior to the start of the study. Both the questionnaire and the consent form were translated in the local Maasai dialect to make it simple for both the respondents and the research assistants to understand, administer and respond to. The research assistants explained the information in the consent form and in the questionnaire to the participants and asked for their consent.

The questionnaire had codes to conceal the identity of the participant and all the information gathered from the patients was recorded for analysis and was treated with confidentiality. Out of the 269 questionnaires analyzed, 230 of the respondents were caretakers to sick children aged 1 to 17 years who had infectious trachoma, while the remaining 39 patients were adults aged between 18 and 50 years who had blinding trachoma.

Qualitative data was collected through FGDs (Appendix 3 and 4 – English and Maasai) and key informant interviews (Appendix 5 and 6 English and Maasai) provided as an appendix to this report, this was triangulated with data collected through the structured questionnaires. The focus group discussions (FGDs) were used to collect data on social cultural aspects, knowledge, practices and perceptions on trachoma and the influence (association with) on health seeking behavior of the patients.

A structured discussion guide was used to collect data in organized group discussions. A total of 6 focus group discussions were done with each group comprised of 5 to 8 members picked from different villages (clusters). Six groups were chosen representatively from the community in the surveyed locations and included, Ministry of health staff, two groups of trachoma patients, community health workers and two groups

on non trachoma patients. FGD group members were selected based on their interaction with trachoma patients and their understanding of the disease. The focus group discussions were conducted by a moderator and a secretary (research assistants) who took notes of the data gathered from the discussions.

10 key informant interviews were done with informants drawn from Kajiado central sub county (former division). A list of all the key informants was developed and 10 persons randomly selected from the list. These were people who worked closely with trachoma patients and had good knowledge of the area. The key informants were; the county medical officer of health, ophthalmic Officer, assistant Ophthalmic Officer, public health officer, UNICEF WASH officer, project Director - Nosim, project Assistant-Nosim, project officer- Nosim, AMREF field Officer and Pastor – ACK Church.

A written informed consent was obtained from the key informants prior to their participation in the study. A structured guide was used to conduct interviews with the key informants in the sub county (former division) on social cultural aspects of the community, knowledge, practices and perceptions of trachoma and the influence (association with) on health seeking behavior of trachoma patients.

The survey team observed the environmental cleanliness around the compounds of the patients interviewed, latrine coverage and use in the villages (clusters), distance to water sources, cleanliness of children' faces and size of the containers used to collect and store water at household level for the caretakers of sick children and adult patients.

3.7 Data management

3.7.1 Data quality, storage and analysis

Quality of data collected was ensured through; translation of the study tools from English to Kiswahili and Maasai and training of the research assistants for ease of understanding and administering. The data collection tools were pre-tested on the

ground prior to data collection. On completing interviews, the data collection tools were checked for completeness, coherence and accuracy by the main researcher and the assistant data analyst on ground and stored properly by the researcher in readiness for analysis. All the data from the questionnaires was entered first in an excel sheet, checked, cleaned, verified for errors and accuracy before being transferred to SPSS for further analysis.

Qualitative data collected from focused group discussions, key informant interviews was transcribed and categorized thematically based on emerging themes on knowledge, practices, perceptions and health seeking behaviour. Data collected from the survey was coded, entered into the computer using excel programs, cleaned and validated before analysis. A backup of the same was kept in an external hard drive for security before and after analysis. The data was made confidential and only made accessible to authorized research team members, that is, data entry clerks, data analyst assistant and main researcher. Quantitative data from the questionnaires was coded and analyzed using SPSS program. Data was statistically analyzed using univariate and bivariate analysis using chi-square technique for qualitative and categorical variables and student T-test to compare means by various variables. Qualitative data from FGDs and key informant interviews was transcribed, coded and analyzed thematically based on the emerging themes on knowledge, practices, perceptions and health seeking behavior on trachoma.

3.8 Ethical considerations

Data collection was with the approval of Scientific Steering Committee at KEMRI (Appendix 8) and National Ethical Review Committee (Appendix 9) for ethical approvals. All participants in the study were fully informed about the nature and purpose of the research and a written and verbal consent sought from them prior to the interview. Confidentiality was ensured for all the respondents with names coded and concealed. Caretakers to sick children (minors) with infectious trachoma were asked to assent.

Permission to carry out the research in Kajiado central sub county (former division) and to interview the patients was sought from AMREF Kenya trachoma control unit in Kajiado, Medical Officer of health Kajiado (MOH) and from the county (former district) ophthalmologists. (Appendix 10, 11 and 12).

A written informed consent was obtained from the caretakers of sick children and adult patients before administering the questionnaire on the household survey and from the focus discussion and key informants before involving them in the study (Appendix 7).

The findings of the study are to be shared with health policy makers and stakeholders targeting prevention and elimination of trachoma and shall therefore eventually help the patients who were interviewed.

CHAPTER FOUR

RESULTS

A cross sectional study was done in central Kajiado sub county (former division). The main objective of the study was to determine the knowledge, practices and perceptions of trachoma and its influence (association with) on health seeking behavior of the patients in Kajiado central sub county (former division). A total of 271 respondents among caretakers for sick children aged 0-17 years with infectious trachoma and adults aged 18-50 years with blinding trachoma who are more vulnerable to the disease and who consented to participate in the study were interviewed. A total of 269 questionnaires were successfully analyzed and 2 rejected.

4.1 Distribution of trachoma among children and adult patients in the sampled villages

The villages surveyed in the study are referred to as clusters and each has an administrative boundary and is managed by a village elder. The study showed that blinding trachoma mainly affects adults and was distributed across all the villages (clusters). Majority of the trachoma patients were among those aged 1-10 years who accounted for 74%, those aged 11-17 years accounted to 11% of the cases, while the adults aged 18-50 years comprised 15% of all cases. The distribution of the trachoma cases was similar across all the clusters (Table 4.1).

Table 4.1: Distribution of trachoma among children and adult patients in the sampled villages/cluster.

		Age group			
		0-10yrs	11-17yrs	18-50 yrs	Total
Cluster No	1	19 9.5%	0 .0%	1 2.6%	20 7.4%
	2	27 13.5%	2 6.7%	5 12.8%	34 12.6%
	3	23 11.5%	4 13.3%	10 25.6%	37 13.8%
	4	40 20.0%	4 13.3%	4 10.3%	48 17.8%
	5	24 12.0%	5 16.7%	7 17.9%	36 13.4%
	6	36 18.0%	10 33.3%	1 2.6%	47 17.5%
	7	31 15.5%	5 16.7%	11 28.2%	47 17.5%
Total		200	30	39	269

4.2 Socio-demographic characteristics of caretakers of sick children and adult patients.

The study shows that, among children aged 0-17 years with trachoma infection, 51.3 % were female and 48.7% were male, among the adults 18-50 years with trachoma, the majority (82.1%) were female compared to male (17.9%). Among the caretakers for children 0-17 years, three quarters were married (75.1%) and (22.2%) were single (P=0.095), the occupation of the respondent was mainly housewives (41.6%) and

business (41.6%), farmers (7.5%) and teachers (8%). Of the adult population with trachoma, majority (82.1%) were married and single (17.9%), while the occupation was similarly distributed, housewives (46.2%), business (35.9%), farmers (7.7%) and teachers (10.3%). The distribution of occupation of husband/wife were similar between child care takers and adult trachoma patients with majority being teachers (46.8% and 42.9%) and business (33.5% and 45.7%) respectively. Significantly higher propotion of adult trachoma patients had no formal education (97.4%) compared with child care takers (73.1%) of children 0-17years (P=0.012) and with primary education (24.2%). Majority of the adults and child care takers interviewed were protestant (86.8% and 91.6% respectively (P=0.001) (Table 4.2).

Table 4.2: Socio-demographic characteristics of caretakers of sick children and adult patients.

Characteristics	Status	% of caretakers of sick childrem age 0-17 yrs (N=230)	% of adults patients, age ≥18yrs (N=39)	P-value
Gender	Female	51.3	82.1	
	Male	48.7	17.9	
Marital status	Single	22.2	7.7	
	Married	75.1	87.2	0.000
	Widowed	2.6	5.1	
Occupation of respondent	Housewife	41.6	46.2	
	Business	41.6	35.9	
	Farmer	7.5	7.7	
	Teacher	8	10.3	
	Community health workers	1.3	0	0.868
Husband/wife occupation	Housewife	2.8	2.9	
	Business	33.5	45.7	
	Farmer	17	8.6	
	Teacher	46.8	42.9	
	Community health workers	0.9	0	0.422
Education level	No education	73.1	97.4	
	Primary	24.2	2.6	
	Secondary	1.8	0	
	College/University	0.9	0	0.020
Religion	Protestant	91.6	86.8	
	Catholic	6.6	0	
	No religion	1.8	13.2	
	Other religion	0	0	0.01

4.3 Duration of sickness, number of cases and income of the caretakers of sick children and adult patients.

The study indicated that, among children aged 0-17 years with trachoma, majority had been with trachoma for up to one year (63.5%), 2-3 years (8.7%) and 6-10 years (11.7%). Among adult patients with trachoma, for up to one year (24.7%), 2-3 years (20.5%) and majority had been with the disease for 6-10 years (41.0%).

The care takers of sick children and adult patients reported only one person infected with trachoma in the family in about 20% of cases interviewed, 2-3 persons infected with trachoma in the family accounting for 55.2% of the cases interviewed, 15.4% and 64.1% among child care takers and adult patients respectively. Over half of child care takers of sick children (0-17 years) with trachoma earned between Kenyan shillings 0-2,500 (55.2%) compared to adult trachoma patients majority of whom earned over KShs 2,500 (66.7%) per month (Table 4.3).

Table 4.3: Duration of sickness, number of cases and income of caretakers of sick children and adult patients.

Characteristics		% of caretakers of sick childrem age 0-17yrs (N=230)	% of adults patients ≥18 yrs (N=39)	P-value
Duration one is sick with trachoma	0-1 yr	63.5	24.7	0.0000
	2-3 yrs	8.7	20.5	
	4-5 yrs	2.2	7.7	
	6-10 yrs	11.7	41	
	don't Know	13.9	5.1	
Number infected with trachoma in the family	1 Person	19.6	15.4	0.393
	2 people	34.3	38.5	
	3 People	20.9	25.6	
	4 People	9.1	12.8	
	5-10 people	5.5	5.1	
	Don't Know	9.5	2.6	
Monthly income of child caretakers and adult patients with trachoma	less 1000	14.8	10.3	0.015
	1001-2500	40.4	17.9	
	2501-5000	19.6	30.8	
	over 5000	20.9	35.9	
	Don't Know	4.3	5.1	

4.4 Knowledge on trachoma among the caretakers to sick children and adult patients.

Knowledge of trachoma was assesed using ever heard of trachoma, knowledge of sign and symptoms and causes of trachoma. The study showed that, about two thirds (65.7%

and 64.1%) of the respondents had heard about trachoma among both child care takers and the adult trachoma respondents.

The commonly reported causes of trachoma among child care takers were contact with flies (33.5%) and dirty faces (23%) while, among adult patients, contact with flies (28.2%) and dirty face (23%). Knowledge of contact with flies and dirty face was proportionately higher for those with primary education (39.3% and 28%) compared to those with no formal education (30.9% and 22%) respectively.

The most commonly reputed signs and symptoms of trachoma among the child caretakers were red eyes (34.8%), watery eyes (26.5%) and eye rashes (6.1%) while those who didn't know of any signs (26.5%). Among adult trachoma patients were red eyes (23.1%), watery eyes (35.9%), poor eye sight (8.2%) and eye rashes (5.9%) and didn't know any signs (15.4%). Over 70% of the caretakers and adult patients reported to have a local name for trachoma and about half reported to have a local treatment for trachoma (46%). The children less than 10 years were reported to be the most affected by trachoma by both child caretakers (81.7%) and adult patients (89.7%) with an overall, children less than 10 years most affected reported by 83% of respondents (Table 4.4).

Table 4.4: Knowledge on trachoma by age, among caretakers of sick children and adult patients.

Characteristics		**% of caretakers of sick childrem age 0-17years (N=230)**	**% of adults patients ≥18 years (N=39)**	**p-value**
Heard of trachoma		65.7	64.1	0.670
Knowledge of signs of trachoma	Red eyes	34.8	23.1	
	Eye Rashes	6.1	5.9	
	Watery eyes	26.5	35.9	
	Poor eye sight	20.5	8.2	
	Don't know	26.5	15.4	0.023
Causes of trachoma	Flies	33.5	28.2	
	Dirty face	23	23.1	
	Contact with infected	1.3	5.1	
	Don't Know	42.2	35.9	0.506
Have local name for trachoma		70	76.9	0.717
Have traditional treatment		43	64.1	0.045
Most affected by trachoma	Children<10yrs	81.7	89.7	
	Teens 13-18 years	3	0	
	Adults (over 18 years)	5.6	2.6	
	Everyboby	4.8	5	
	Older people	2.6	2.6	
	Don't know	2.1	0	0.786

4.5 Practices on trachoma on cleanliness, amount of water used by caretakers of sick children and adult patients by age

The study indicates that less than half of the caretakers to sick children aged 0-17 years (31.7%) and among the adult trachoma patients (43.6%) knew the link between flies and trachoma. Adult trachoma patients (41%) and caretakers to sick children aged 0-17 years with infectious trachoma knew the link between flies and livestock (P=0.004). The main source of water for most caretakers to sick children and adult patients was pools and streams with a small proportion using boreholes and dry river beds (P=0.041). Among the caretakers to children aged 0-17 years with infectious trachoma (47%) and (25.2%) and among adults trachoma patients (33.3%) and (38.5%) took water from streams and pools respectively. Among the care takers to sick children aged 0-17 years with infectious trachoma (48.7%) and among adult trachoma patients (46.2%) walked for more than 2 hours to get water for the family. Among the care takers aged 0-17 years with infectious trachoma (49.6%) and among adult trachoma patients (53.8%) indicated that they have one 20 litre jerican of water per day, that is shared among the family members.Washing of face once a day was reported among the caretakers to children aged 0-17 years (Table 4.5).

Table 4.5: Practices on trachoma, cleanliness and amount of water used by age among the caretakers of sick children and adult patients.

Characteristics	Description	% of caretakers of sick childrem age 0-17 years (N=230)	% of adults' patients ≥18 years (N=39)	P-Value
Link between trachoma and flies	Yes	31.7	43.6	0.454
Link between trachoma and animals	Yes	16.1	41	0.004
Source of drinking water	River	13.9	2.6	0.041
	Borehole	12.6	23.1	
	Well	0	0	
	Pool	25.2	38.5	
	Stream	47	33.3	
Time taken to fetch water	30 mins	5.7	0	0.269
	1 hour	14.8	25.6	
	2-4 hrs	48.7	46.2	
	>5hrs	29.6	28.2	
Amount of drinking water	5 litres	0.4	0	0.859
	10 litres	0.9	2.6	
	20 litres	49.6	53.8	
	>20litres	47.4	43.6	
Frequency of washing face	Once	67.4	74.4	0.413
	Twice	17.8	12.8	
	Thrice	0.4	2.6	
	None	6.5	2.6	
	Others	5.2	7.7	

4.6 Perceptions on washing and hygiene issues, rituals and beliefs by age among caretakers to sick children and adult patients.

The study established the practices, perceptions and attitudes towards trachoma among the child caretakers and adult patients interviewed. Caretakers interviewed reported to clean the child's face once in a day (62.6%) and 17 % reported to clean it twice a day. Adult patients with trachoma interviewed cleaned face once a day (61.3%) and twice a day 10.3%. The common methods of disposal of domestic waste was the bush (44.3% and 64.1%) and burning (45.2% and 30.8%) respectively among child caretakers and adult patients. 0.9% of the child caretakers deposited waste in a rubbish pit (P=0.002), while none among adult patients deposited in a rubbish pit. About 13% of caretakers and 12.8 % of adult patients had clean compounds and environment (15% and 13.0 %) had traditional beliefs on trachoma respectively.

6.1 % of caretakers to sick children and 5.1% adults patients reported to conduct trachoma related rituals such as smoking of the patient eyes with cowdug and application of local herbs and about 1% reported having food restriction for trachoma patients. The practices of reduced frequency in washing face, poor disposal of waste, non use of latrine, belief that trachoma is as a result of generational curse and diseases for the poor (Table 4.6).

Table 4.6: Perception on washing face and hygiene issues, rituals and beliefs by age among the caretakers of sick children and adult patients.

Characteristics	Description	% of caretakers of sick children age 0-17 years (N=230)	% of adult patients ≥18 years (N=39)	P-value
Face washed and cleaned		35.2	5.1	0.001
Household has pit latrine		2.2	2.6	0.766
Frequency of washing child's face	Once	62.6	61.5	0.384
	Twice	17	10.3	
	Thrice	8.7	5.1	
	None	3	5.1	
	others	6.5	15.4	
Where domestic waste deposited	Pit	0.9	0	0.269
	Latrine	2.6	0	
	Burn	45.2	30.8	
	Throw in bush	44.3	64.1	
Trained on trachoma		13.5	20.5	0.303
Clean home		13	12.8	0.916
Environment clean		14.3	20.5	
Rituals for trachoma		6.1	5.1	0.627
Believes on trachoma		10.9	30.8	0.003
Food restrictions		1.3	0	0.497

4.7 Health seeking behaviour on trachoma by age, sex and education level among the caretakers of sick children and adult patients.

The study shows that half of the respondents sought treatment for trachoma within a month for those children 0-17 years and about 41% of adult patients. Over 40% of adult cases and 27% of children sought treatment when signs and symptoms became critical and about 20% of both groups after failure of traditional methods (Table 4.7).

Table 4.7. Health seeking behaviour on trachoma by age among the caretakers of sick children and adult patients.

Charactristics	Description	% Of caretakers of sick children age 0-17years (N=230)	% Adult patients ≥18 years(N=39)	p-value	All groups
Where care was sought for trachoma	Hospital	2.2	10.3		3.3
	Health clinic	67.8	64.1		67.3
	Traditional healer	26.5	23.1		26
	Witch doctor	0	0		0
	Other	0.4	0	0.140	0.4
When trachoma patients sought for treatment	Immediately	3.1	2.6		3
	In a month	50	41.6		48.7
	After failure of traditional methods	16.8	15.4		16.6
	Don't seek	2.7	0		2.3
	When signs /symptoms are critical	27	41	0.537	29.1
1st contact if child/self sick with trachoma	Witch doctor	0.3	0		
	Community health worker	8.3	2.6		7.4
	Doctor, Clinical staff	32.2	41.0		33.5
	Eye specialist	0	2.6		1.5
	Traditional healer	1.3	2.6		2.6
	Husband/partner	52.4	53.5	0.182	
	Other persons	2.0	2.6		2.6
Time taken to health centre for treatment	Less 30mins	4.8	5		4.8
	30min-1 hour	3	0		2.6
	< 2 hours	5.6	2.6		5.2
	Over 2 hours	8.7	89.7	0.817	82.9

4.8 Health seeking behaviour on trachoma by religion and marital status of the caretakers of sick children and adult patients.

The study shows that a high percentage of the caretakers and adult patients who were protestants sought health care services in clinic (68.9%) compared to catholics (66.7%) and those who did not practice any religion (44.4%). Among them, 80% of the caretakers and the adult patients were married, 61.9% were single and 28.6 % were widowed. A high percentage of the catholics (93.3 %) and protestants (45.6%) sought for health care within the first month compared to those who did not practice any religion (44.4%). There was a high tendency of seeking health care after failure of traditional methods among those who practiced no religion (22.2%) compared to protestans (17.2%) and catholics (6.7%). Similarly a high percentage of those who did not practice any religion (33.3%) sought health care services when signs and symptoms became critical compared to protestants (31%). This practice was high among the widowed (42.9%) compared to the married (26.3%) and the single (16.3%). A high percentage of the caretakers to sick children and adult patients indicated that the first contact when child or self was sick was the husband or partner with a high number of this reported for those who practiced no religion (88.9%) compared to the protestants (49.4%) and catholics (80%). The second contact was doctor or clinical staff only for the protestants (36.1%) and catholics (20%) and not for those who practiced no religion. The practice was high among the married (32.4%) compared to the single (6.7%) and widowed 28.6% care takers and adult patients.

The table below, shows factors associated with seeking health care from a health facility (hospital, health center, clinic) by caretakers to sick children and trachoma patients. The factors significantly associated with seeking care from health facilities were; Link between trachoma and livestock (OR=2.24, P=0.036), the length of time taken to water source (OR=0.42, P=0.036), compound clean (OR=5.05, P=0.0042), times care takers to sick children and adult patient wash face (OR=0.25, P=0.0028), have pit latrine (OR=0.19, P=0.036) (Table 4.8).

Table 4.8: Factors associated with where they sought health care

		Health Facility	Other	OR	P-Value	Confidence interval
link between trachoma and flies	Yes	64.9	35.1	0.81	0.544	0.45,1.48
	No	73.1	36.9			
Link between trachoma /livestock	Yes	83	27	2.24	0.036	0.98,5.25
	No	68.5	31.5			
How long to water source	</=1 Hour	49.1	50.9	0.42	0.0036	0.23,0.79
	2 or more hours	69.5	30.5			
Times they wash face	Once	67.9	32.1	0.25	0.0028	0.08,0.69
	2 or more	89.6	10.4			
Have pit latrine	Yes	33.3	66.7	0.19	0.036	0.02,1.25
	No	72.3	27.7			
Compound clean	Yes	91.4	8.6	6.99	0.0027	1.57,43.41
	No	67.9	32.1			
Heard of trachoma	Yes	69.3	30.7	0.74	0.346	0.40,1.37
	No	75.3	24.7			
Marital status	Single/windowed	80.7	19.3	1.96	0.07	0.87,4.51
	Married	68.1	31.9			
Gender	Female	71.3	28.7	1.08	0.997	0.62,1.89
	Male	69.8	30.2			
Level of education	None	71	29	0.56	0.295	0.26,1.21
	Primary/above	81.4	19.6			
Trained on trachoma	Yes	59	41	0.49	0.046	0.23,1.06
	No	74.4	25.6			
Children washed or cleaned	Yes	78.3	21.7	1.73	0.07	0.90,3.34
	No	67.6	32.4			

4.9 Health seeking behavior on trachoma by age and sex among the caretakers of sick children and adult patients.

The study shows that half of the respondents sought treatment for trachoma within a month for caretakers of sick children aged 0-17 years and about 41% of adult patients. Over 40% of adult cases and 27% of caretakers of sick children sought treatment when signs and symptoms became critical and about 20% of both groups after failure of traditional methods.

The table below shows factors associated with seeking health care within one month by caretakers of sick children and adult patients.The factors significantly associated with seeking care within a month were; Link between trachoma and livestock (OR=2.24, P=0.036), link between trachoma and flies (OR=2.24, P=0.036), length of time taken to water source (OR=0.42, P=0.036), cleanliness of compound (OR=5.05, P=0.0042), times they wash face (OR=0.25, P=0.0028), trained on trachoma (OR=0.11, P=0.0000), face washed or cleaned (OR=11.35, P=0.0000).

Table 4.9: Factors associated with when caretakers of sick children and adult patients seek health care

				Odds Ratio (OR)	P-Value	Confidence interval
	</= 1 month		**>1 month/Other**			
Link trachoma and flies	Yes	33.7	66.3			
	No	61.1	38.9	0.32	0.000	0.10,0.57
Link between trachoma and animals	Yes	35.9	64.1			
	No	55.7	44.3	0.45	0.001	0.23,0.87
How long to water source	<1 hour	28.6	71.4			
	>2 hours	55	45	0.33	0.003	0.17, 0.64
Times they wash face	Once	48.6	52.1			
	2-3 times	51.4	47.9	0.87	0.186	0.44,1.72
Have pit latrine	Yes	33.3	66.7			
	No	42.1	57.9	0.46	0.363	0.06,2.97
Compound clean	Yes	54.3	45.7			
	No	52.5	47.5	1.13	0.742	0.52,2.44
Level of education	None	49.3	50.7			
	Primary and above	59	41	0.67	0.192	0.36,1.25
Heard of trachoma	Yes	50.8	49.2			
	No	53.9	46.1	0.88	0.523	0.51,1.52
Gender	Female	49.7	50.3			
	Male	54.3	45.7	0.83	0.452	0.50,1.39
Marital status	Single/windowed	70	30			
	Married	50.9	49.1	2.06	0.035	0.99,4.31
Trained on trachoma	Yes	13.2	86.8			
	No	57.7	41.3	0.11	0.000	0.04,0.36
Children washed or cleaned	Yes	86.6	13.4			
	No	36.6	63.4	11.35	0.000	5.36,24.55

4.10 Qualitative data

4.10.1 Results focus group discussions

Results of 6 focus group discussions (FGD) done among AMREF community health workers (FGD 3), 2 groups of trachoma patients (FGD 2), 2 groups of non trachoma patients (FGD 4) and Ministry of health staff (FGD 1) from the surveyed locations in Kajiado central sub county (former division). The results were grouped according to four emerging themes as follows: knowledge on proportion of people suffering from trachoma and causes of the diseases, common practices linked to trachoma among the population, belief and perceptions linked to trachoma among the population where people seek for treatment and challenges facing them.

The responses show good understanding and knowledge on the high cases of the patients suffering from the diseases, especially among children aged less than 10 years in the surveyed areas. However, the results showed, poor knowledege on causes of trachoma as reported in the FGDs.

> ‘’Those affected by the disease are about 20-30% of the population in this area (FGD 1- Ministry of health staff).’’

> ‘’The disease affects mainly children aged less than 10 years of age and women in general (FGD 3- Community health workers).’’

> ‘’Knowledge on causes is generally very low, despite awareness campaigns by Ministry of health staff (FGD 1- MOH staff).’’

The results show poor and unhealthy traditional practices linked to trachoma in the population, lack of latrines with common use of open defecation and dirty enviroments that attract flies and cause trachoma.

‘’ People here don’t use latrines and therefore flies are many in their living compounds (FGD 3- Community health workers).

‘’Many people in this community live in the same compounds with their livestock with poor milk storage which attract flies (FGD 3- Community health workers).

‘’ Smoking of cow-dung on the eyes of patients is really a common practice in this community (FGD 3- Community health workers).’’

The results traditional beliefs and perceptions that are not true on trachoma among respondents interviewed.

‘’ Trachoma is a disease caused by family curses (FGD 3- Community health workers)’’.

‘’Trachoma is a disease of the poor families (FGD 2- Trachoma patients).’’

The results demonstrate late and poor health seeking behavior among the patients.

‘’Majority of the patients treat themselves using local herbs (FGD 3- Community health workers).’’

‘’There is no way of getting treatment in health centers because they are very far from the community (FGD 4- Non trachoma patients).’’

‘’Covering long distances to the nearest health facilities is a huge and real nightmare to the majority of the community (FGD 1- Ministry of health staff).’’

4.10.2 Results key informants

Results of 10 key informant interviews done among the ministry of health staff, local NGO staff, UNICEF staff and area administrative staff show similar trends on trachoma to those identified through focus group discussions and household questionnaire in the surveyed locations. The trends noted included: high proportion and cases of people affected by trachoma especially among children aged less than 10 years, poor knowledge on causes of trachoma, poor and unhealthy traditional practices linked to trachoma, lack of latrines, dirty environments that attracts flies and cause trachoma, use of herbs by patient to treat trachoma, late and poor health seeking behavior, inadequate and poorly equiped health facilities as reported by the key informants.

> ‘’The most affected group are children aged less than 15 years and women (Chief, male, 47 years).’’

> ‘’Approximately 40% of the population especially children and women are affected by trachoma in this community (MoH, male, 45 years).’’

> ‘’Majority of the people do not know and are not aware of trachoma and can not differentiate between trachoma and other diseases (MOH, male 45 years; NGO, female, 38 years).’’

> ‘’People in this region still go for open defecation in the bushes around their homesteads that attract flies (NGO, male, 33 years).’’

> ‘’Majority of the people do not have latrines because they claim to have bushes which they can comfortably use (Chief, male, 38 years).’’

> ‘’We have done about 100 latrines shared by 3 villages but the acceptance to use them is very low (NGO, female, 33 years).’’

‘’There is this habit of smoking of cow-dung on the eyes of patient’s in the community (UNICEF, male, 37 years).’’

‘’It is really a bad disease for the poor and it is a curse in the family (NGO, female, 36 years).’’

‘’There are no eye specialists within the community (MoH, male, 45 years).’’

‘’In this part of the community, many people treat trachoma just like any other disease, while others view it as a disease inherited from ancestors (NGO, male, 37 years).’’

‘’First, many people in this community use herbs and later go to the traditional healers and finally, as a last resort, visit health centers (NGO, male, 33 years; MoH, male, 45 years).’’

‘’Available drugs for trachoma are inadequate to handle the high number of patients seeking treatment (MoH, male, 43 years).’’

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

The findings in this study demonstrated a wide distribution of infectious and blinding trachoma in Kajiado central sub county (former division), despite strong coordinated campaigns by AMREF and Ministry of health to prevent and control the disease. Significantly low levels of knowledge (p=0.045) practices and perceptions about trachoma among child caretakers and adult patients were important factors in the transmission and sustaining of the infection in the community. There were significant links between trachoma and low-socio economic status (p=0.004).

According to the caretakers of sick children and adult patients interviewed, children less than 10 years of age were the most infected, compared to adults. Similar observations were made in a study conducted in turkana, which recorded low knowledge of signs and symptoms of trachoma and significantly high cases of trachoma among less than 10 years of age compared to other ages (Karimurio *et al.,* 2010).

5.2 Knowledge of trachoma among the patients and how it influences (association with) the health seeking behavior in Kajiado central sub county (former division).

Two thirds of the respondents among caretakers of sick children and adult patients in the study reported to have heard about trachoma, but four out of ten of the caretakers of sick children and adult patients did not know the causes of trachoma (42.2% and 35.9%). Flies as a major cause of trachoma was mentioned by (33.5% and 28.2 %) and dirty faces by (23% and 23%) among caretakers to sick children and adult patients respectively. Knowledge about contact with flies and dirty faces was significantly associated with level of education with primary level of education and beyond (39.3%

and 28%) more likely than those with no education (30.9% and 22%) respectively. The findings concur with a study done in Niger that show a inverse association between the number of years of education and knowledge on trachoma (Amza *et al.*, 2012). Only one third of them knew the link between flies and trachoma (P<0.001). Flies are important agents in the transmission of infectious and blinding trachoma. Flies covered faces were common sights observed in children under five years and adult patients. About 35% of the caretakers reported not to wash faces of the children and this could attract a host of flies on the face thus a rise in transmission potentials. Data on knowledge in the current study gave low results compared to the qualitative report in Turkana which indicated that majority of the respondents could associate trachoma with some of the known causes like; dirt, flies, dust, lack of water and latrines (Karimurio *et al.*, 2004).

Knowledge of signs and symptoms of trachoma among the caretakers and adult patients in the study was low where 26.5% and 15.4% of child caretakers and adult patients did not know signs and symptoms of trachoma. However, majority of the caretakers and adult patients (70%) had a local name (Enkoe) for the infection and about half of them (46%) of the respondents knew local treatment (Oseki and Ortikariti) for trachoma. Identification of the disease by local language could translate into increased knowledge of the symptom (Karimurio *et al.*, 2010).

The study findings show a recognized local name and treatment for the disease an indication that trachoma is a recognized problem in the community.

5.3 Practices in relation to trachoma among the patients and how they influence the health seeking behavior in Kajiado central sub county (former division).

Water availability and safety was reported as important factors in the transmission of trachoma (WHO, 2004). Significantly high proprotion **(**47% and 25.2%) among the caretakers of sick children and adult patients collected domestic water from water pools and streams and about (33.3% and 38.5%) among caretakers and adult patients collected less than 20 liters a day to be shared among the family members (P <0.001). Among the caretakers of sick children and adults (49.6% and 53.8%) fetched water in one 20-liter container per day, 48.7% and 46.2% among caretakers and adult patients walked for over 2 hours to fetch water for the family. Previous studies in pastoralist communities in Turkana region Kenya (Karimurio *et al.,* 2010). Gambia and Northern Tanzania reported large families as a major risk factor in the transmission of trachoma (Bailey *et al.,* 1999, Mahande *et al.,* 2012). Major contributing factors to high transmission rate of trachoma could be associated with the amount of water available to each family member each day. Long distance to water source, low, inadequate amounts of water used per family to clean, lack of latrines and poor hygiene behaviour and practices (Mahande *et al.*, 2012).

Education levels of the caretakers of sick children and adult patients influenced the practices towards transmission of trachoma. The practice of washing face was significantly higher in those with primary and higher level of formal education (61.2%) than those with no education (p= 0.031) in the current study. The results of this study concur with studies done in Gambia and Tanzania that showed a direct association between improved act of washing of face among children and adults with trachoma infection (Harding-Esch *et al*., 2010).

Caretakers and adult patients also tended to seek treatment when signs and symptoms become critical (27% and 40% respectively). The husband or partner of respondents was the first contact person notified when symptoms were noted (52%), followed by a visit to the health facility (33.5%) (P = 0.019). However, 20% of them sought treatment after

failure of traditional methods. Long distance to health facilities could be a deterrent to seeking health attention early. Majority (81.7% and 89.7%) of the caretakers and adult patients walked for over 2 hours to the nearest health care centre for treatment. An earlier study in Mali reported a direct association between proximity to health clinics and reduced levels of trachoma (Schemann *et al*., 2001).

5.4 Perceptions of trachoma among the pastoralist patients and how they influence health seeking behavior in Kajiado central sub county (former division).

Traditional believes and culture were reported to influence health seeking behaviour of the caretakers and adults some of whom attributed the cause of infection to a generational curse, family inheritance from ancestors and a disease of the poor people who live with livestock. Consequently, 10% of the caretakers of sick children and adult patients sought treatment from a traditional healer (P = 0.009). This observation could be compared with the report in a study in Turkana, Kenya which associated trachoma to people with livestock where the administrative regions with high prevalence of active and potentially blinding trachoma were the main grazing areas for cattle (Karimurio & Rono, 2010).

The caretakers and adults who were able to link trachoma with livestock, those taking 2 or more hours to fetch water, those with no pit latrine, were more likely to seek health care at a health facility. Such explanation could be related to the intensity of infection, chronicity or constant re-infection due to high risk factors. Self medication could also have played a role in the observed delays to seek medical care especially for the enlightened group who could be more aware of some other conventional remedies and would be ready to try them before seeking medical attention. Failure of such home remedies could resort to exacerbation of the symptoms. Poor sanitation is important in the transmission of trachoma (WHO, 2004).

Only 2.2% of the caretakers of sick children and adults' patients reported to have household latrines, which could be attributed to traditional believes that, it is a taboo to mix men and women faeces and that there is enough bush around for one to hide for excreta disposal hence no energy should be wasted digging and building latrines. It was established that the few latrines in existence are as a result of organizations' efforts on awareness on the importance of disposing human excreta in pit latrines. Traditional believes could influence transmission of infections especially with no proven local remedies. Over 5% of the caretakers reported having rituals related to trachoma such as smoking of the patient's eyes with burned cow dung and application of "Oseki" a local herb and about 1% reported having food restriction such as eggs for trachoma patient's especially for expectant women. The practices and believes were similar for those with primary education and those with no education. These findings support similar observations in an earlier study on the traditional believes in the same community (Cromwell & Emerson, 2009).

Health seeking behavior was significantly affected by knowlegde on the link between trachoma and livestock, the time it took them to a water source, the compound cleanliness, the frequency of washing their faces and presence of pit latrine ($P = 0.002$). Seeking health care within a month was significantly associated with their knowledge on the link between trachoma and livestock, link between trachoma and flies, time it took them to water source, cleanliness of their compound, frequency of washing their faces, ($P < 0.001$) and if they were trained on trachoma. This concurs with a study done in Tigray, Northern Ethiopia in 2004 on prevalence and risk factors in which it was indicated that poor health seeking behavior and lack of access to eye care services could be responsible for the high prevalence of trachoma in the study counties (former districts) (Taylor *et al.,* 2006).

Prolonged delays in care seeking among caretakers with minors and adult patients with infectious and blinding trachoma could affect prevention and control programmes. Early detection and treatment reduces the burden of blindness while treatment of active

trachoma reduces the incidence of the infection (Taylor *et al*., 2006). The study findings concurred with the Ugandan study, which advocated behavioral changes that could reduce the transmission. Rapid spread of the infection was attributed to the tendency of many community members to seek treatment from traditional healers or self-medications in response to the initial symptoms instead of going to health centres, only to go to the centers when the former failed (Cromwell & Emerson, 2009).

5.5 Conclusion

Knowledge on trachoma causes, signs and symptoms was poor among the caretakers of sick children and adult patients interviewed. Health seeking behaviour against infectious and blinding trachoma was poor in all the study villages in Kajiado central sub county (former division) as a result of which transmission is high. Numerous environmental and human factors contributed to the transmission and delayed health seeking behaviour. Initial tendency to consult traditional healers deterred early medical care attention a situation that could play a significant role in the spread of the infection.

5.6 Recommendations

The following are the recommendations based on the findings of the study.

1. Policy makers should focus on policies that promote improvement of knowledge and behavior change towards prevention and early health seeking behaviour on trachoma, such as promotion of good hygiene practices in the community, availing water to the community, use of latrines and enviromental cleanliness
2. Organizations eliminating trachoma should use strategies that improve communities knowledge on the disease, causes, signs and symptoms and prevention and promote behaviour change on early health seeking, effective and efficient treatment.
3. Organizations eliminating trachoma should sensitize the community on the importance of use of latrines to minimize flies that cause trachoma.

4. Organizations eliminating trachoma should create awareness among the community on archaic community beliefs and taboos that accelerate spread of trachoma and instead promote early health seeking behaviour in health facilities.
5. A study on the effectiveness of local treatment and potentials of promoting it to reduce transimission of trachoma can be explored.
6. A study to establish the role of domestic animals in the transmission of trachoma could be explored in the grazing communities.
7. A study to examine the intensity of trachoma infection in relation to the different characteristics of the caretakers of sick children and adult patients could be explored.
8. Further studies could be conducted to examine the rate of feacal contamination in the county and the effect on both the domestic and wild animals especially those that are common pests in human habitat.

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APPENDICES

Appendix 1: Household survey questionnaire (English).

My name is Pennina Munguti, a postgraduate student at Jomo Kenyatta University of Agriculture and Technology, undertaking a study on trachoma as part of requirement for an award of a degree of Masters of Science in Public Health. Trachoma is a disease caused by a bacterium called *Chlamydia trachomatis* that affects the cornea of the eye, it is infectious especially among children aged below 10 years and if not attended in time it causes blindness especially to adults. This study is aimed at determining the influence (association with) of knowledge, practices and perceptions on trachoma and its influence on health seeking behavior and will provide information that helps programmes targeting elimination of both infectious and blinding trachoma in Kajiado central sub county (former division). You will be asked questions on socio-demography, knowledge, practices and perceptions on trachoma. Any information provided will be treated with strict confidentiality and used solely for academic purpose. Your cooperation will be greatly appreciated.

Questionnaire no_____ Date of interview_____

Code number of the respondent_____ Cluster number _____

Instructions- Please tick inside the box with the right answer choice as shown in this box here (√)

Socio-demographic data

1. Gender (Tick √)

a. Female ( ) b. Male ( )

2. Age in years _____ (Write number)

3. Marital status (Tick)

a. Single ( ) b. Married ( )

c. Divorced ( ) d. Widowed ( )

4. Respondents occupation (Tick)

a. Teacher ( ) b. Business ( )

c. Community health worker ( ) d. Farmer (Livestock or crops) ( )

e. Other (Please Specify) _____

5. What is your husband's/wife's occupation (Tick)

a. Teacher ( ) b. Business ( ) c. Community health worker ( )

d. Farmer (livestock or crops ( ) e. Others (Please specify) ( )

6. What is your religion (Tick)

a. Protestant ( ) b. Catholic ( ) c. African traditional religions ( )

d. Muslim ( ) e. Other (specify) _____

7. Highest level of education attained (Tick)

a. No education ( ) b. Primary ( ) c. Secondary ( )

d. College / technical training ( ) e. Other (Please specify) _____

8. How long have you/or your child been sick with trachoma (Tick)

a. 1 yr ( ) b. 2 to 3Yrs ( ) c. 3 to 5 years ( ) d. 5 to 10 years ( )

e. Other (Please specify) _____

9. How many people have been infected with trachoma in your household before (Write number) _____

10. What is your household total monthly income in Kenyan shillings (Tick)

a. Below 1000 ( ) b. 1000 –2500 ( ) c. 2501 – 5000 ( ) d. Above 5000 ( )

11. How much of this money do you spend on trachoma treatment per month (Write the amount) _____

Knowledge on trachoma

12. Have you heard of a disease called trachoma (Tick)

a. Yes ( ) b. No ( )

13. Is there a local name for trachoma in this community (Tick)

a. Yes ( ) b. No ( )

14. If yes, what is the name (Write the local name) _____

15. How does a person with trachoma look like (Tick)

a. Eyes are red ( ) b. Eye lashes get into the eyes c. watery eyes ( ) d. Poor eye

Sight ( ) e. I don't know ( ) f. Other (Please specify) _____

16. What makes a person to get trachoma (Tick)

a. Flies ( ) b. Dirty face ( ) c. witchcraft d. Contact with a sick person ( )

e. Other (Please specify) _____

17. Do you have a traditional treatment for trachoma (Tick)

a. Yes ( ) b. No ( )

18. If yes, please specify (Write the treatment) _____

19. Who is the most affected by trachoma (Tick)

a. Children under 10 years ( ) b. teenagers aged 13-18 years ( ) c. Women ( )

d. Men ( ) e. Other (Please specify) _____

20. Is there a link between Trachoma and flies (Tick)

a. Yes ( ) b. No ( ) c. I don't know ( )

21. If yes what is the link, please specify (Write the answer)

_____

22. Is there a link between trachoma and animals/livestock (Tick)

a. Yes ( ) b. No ( ) c. I don't know ( )

23. If yes what is the link, please specify (Write the answer)

_____

Practices

24. Where do you get your drinking and household water from (Tick)

a. River ( ) b. Borehole ( ) c. Shallow well ( ) d. Pool ( ) e. Stream ( )

f. Other specify (write the answer)

_____

25. How long do you walk (to and from) to get drinking /domestic water (Tick)

a. 30 minutes ( ) b. 1 hour ( ) c. 2-4 hours ( ) d. More than 5 hours ( )

26. How many litres of water do you fetch in the house in a day for drinking and for house hold use (Tick)

a. 5 litres ( ) b. 10 litres ( ) c. 20 litres ( ) d. More than 20 litres ( )

e. Other (Please specify) _____

27. How many times do you wash your face in a day (applicable for adult respondents?)

(Tick)

a. Once ( ) b. Twice ( ) c. Thrice ( ) d. None ( )

e. If none please specify why (Write the answer) _____

28. How many times do you wash your child's face in a day (Applicable for caretakers) (Tick)

a. Once ( ) b. Twice ( ) c. Thrice ( ) c. None ( )

e. Other (specify) _____

29. Do you have a household pit latrine (Tick)

a. Yes ( ) b. No ( )

30. If no please specify why (write the answer)

_____

31. Where do you deposit domestic rubbish (Tick)

a. In a rubbish pit ( ) b. Inside the latrine ( ) c. I Burn it ( ) d. I throw in the bush outside the compound ( ) e. Other specify _____

32. Do you get any education on trachoma (Tick)

a. Yes ( ) 2. No ( )

33. If yes, who provided education please specify (write the answer)

_____

34. Where do you seek for health care if you or your child is sick with trachoma (Tick)

a. District hospital ( ) b. Health Clinic ( ) c. Traditional healer ( ) d.

Witch Doctor ( ) e. Other (please specify)

_____

35. When do you seek for health care in relation to trachoma (Tick)

a. Immediately ( ) b. Within a month ( ) c. After other traditional method fail ( )

d. I don't seek at all ( ) e. When signs and symptoms become critical ( )

f. Other specify (Write the answer)

_____

36. How often do you seek for health care in relation to trachoma (Write the interval?)

_____

37. Who do you contact first when you or your child is sick with Trachoma (Tick)

a. Witch doctor b. Community health worker ( ) c. Doctor/Clinical officer/Nurse at the clinic ( ) e. Eye specialist ( ) f. Traditional healers ( ) g. Other

(Specify)_____

38. How long do you take to walk to the nearest health care centre in search for clinical attention to your/or child's trachoma problem (Tick)

a. Less than 30 minutes ( ) b. 30 minutes to 1 hour ( ) c. less than 2

hours ( ) d. More than 2 hours ( )

39. Do you encounter any problem in seeking for health care (Tick)

a. Yes ( ) b. No ( )

40. If yes specify (write the answer)

_____

Perceptions

41. What is trachoma disease in your understanding (write the answer)

_____

___

42. What causes trachoma in your understanding (Tick)

a. A bacteria ( ) b. Evil spirit ( ) c. Generational curse ( ) d. Other (specify)

_____

43. Are there beliefs attached to trachoma disease in your community (Tick)

a. Yes ( )b. No ( )

44. If yes, what are they, please specify (write the answer)

_____

45. Are there any rituals done by the community on trachoma patients (Tick)

a. Yes ( ) b. No. ( )

46. If yes, please specify (write the answer)

_____

47. Are there food restrictions for trachoma patient (Tick)

a. Yes ( ) b. No ( )

48. If yes, which foods are avoided (write the answer)

_____

49. Please give the reasons why

_____

50. Are there special foods recommended for consumption by trachoma patient (Tick)

a. Yes ( ) b. No ( )

51. If yes, which foods (write the answer)

_____

52. Please give reasons why such foods are recommended (write the answer)

_____

Appendix 2: Household survey questionaire (Maasai).

Kaaji nanu Pennina Munguti natii Jomo kenyatta University of Agriculture and Technology aasita esia naipirta trakoma aa entoki nabo nayieuni pee aishori degree e Masters in Public Health. Ore Trakoma na emoyian oo nkonyek nayau bacteria naji ***Chlamydia trachomatis.*** Emoyian nashurtakinoi oleng neisul too nkera olarin tomon nedou neyau sii emodoo too ltunganak kituak. Ore paasita ena siai naa pee eibalayu eniyololo weniasitata or-kuaki iboitarere ltunganak oota ena moyian e Trakoma. Keret iyiok kigira aingoru nkoitoi naidipieki ena moyian e Trakoma nashurtakinoi neyau sii emodoo tiatua olorere lor Kejuado e polos.

Kikilikuani ntai ntokiting naipirta eramatare oo nkangitie weniyololo tena moyian e Trakoma. Ore pooki nilimumu naa keipirieki enkisoma ake. Ajo taa ashe oleng too nilimumu tenolong.

Enkilikilikwanare enamba_____ Engolong engililikwanare_____
_____

Enkikilikwanare enamba edukaya-oloiruk_____ Enamba ooliururur tenabo
_____
_____

Taasa- Tipika enaishakinore atua oo sanduku **(√)**

Enkikilikwanare naipasta atua

1. Era iyie Enkitok ena Olee (Tick)

a. Enkitok ( ) b. Olee ( )

2. Llarin enaa pee kiini _____ (Write number)

3. Enkiyama (Tick)

a. Eton mayama/ituayamisho ( ) b. Ayamishe/Kayama ( )

c. Divorced *(*) d. Enkolia ( )

4. Kaa siai itii (Tick)

a. Ormwalimui ( ) b. Orbiasharai ( )

c. *Community health worker* ( ) d. Olarramatani (Nkishu enaa emukunda) ( )

e. Ai siai (Tolimu)
_____

5. Kaa siai etii Orpayian/Enkitok ino? (Tick)

a. Ormwalimui ( ) b. Orbiasharai ( )

c. *Community health worker* ( ) d. Olarramatani (Nkishu enaa emukunda)

( )

e. Ai siai (Tolimu)
_____

6. What is your religion (Tick)

a. Protestant ( ) b. Catholic ( ) c. African traditional religions ( )

d. Muslim ( ) e. Ai (Tolimu) _____

7. Kaitabayie te nkisuma? (Tick)

a. Itu aiteru ( ) b. Primary ( ) c. Secondary ( )

d. College / technical training ( ) e. Ai kisuma (Tolimu) _____

8. Kaja llarin litobiko arashu ootobiko enkerai ino eeta emoyian Ee Trakoma (Tick)

a. Obo ( ) b. Waare ashu Okuni ( ) c. Okuni - Imiet ( ) d. Imiet – Tomon ( )

e. Kulie Arrin (Tolimu) _____

9. Kaja lltunganak loltiren lino oibunga ena moyian Ee Trakoma? _____

10. Kaja ropiani naatumi to lapa naipirrta oltiren lino? (Tick)

a. Abori enkalifu Nabo ( ) b. Enkalifu nabo –Nkalifuni are o miai imiet ( )

c. Nkalifuni are o miai imiet – Nkalifuni imiet ( ) d. shumata Oo Nkalifuni imiet ( )

11. Ama tiatua kuna ropiani, kaja ebakieki emoyian Ee Trakoma?

_____

_____

Engano e Trakoma

12. Itoningo aikata emoyian naji trakoma? (Tick)

a. Ee ( ) b. A a ( )

13. Keetai enkarna E Trakoma te nkutuk e maa (Tick)

a. Ee ( ) b. A a ( )

14. Teneetai keji aa? (Write the local name) _____

15. Keyia oltungani oota Trakoma (Tick)

a. Kedo nkonyek ( ) b. Kejing irpapit lonkonyek atua c. Kiishirr nkonyek ( ) d. Medol nkonyek enelakua ( ) e. Mayiolo ( ) f. Ai (Tolimu) _____

_____

16. Kaa toki naiko oltungani meibunga trakoma (Tick)

a. Llojongak ( ) b. Enkomom natii oloiteriu ( ) c. Esakutore d. Tenimbung oltungani omwoi ( ) e. Ai (Tolimu) _____

17. Keetai ilkeek lormaasai oobakieki Trakoma (Tick)

a. Ee ( ) b. A a ( )

18. Teneetai keji aa? (Write the treatment)
_____

19. Kalo orere esej etum Trakoma (Tick)

a. Nkera nitu ebaya llarin tomon ( ) b. Nkera ollarin tomon okuni mpaka isiet ( ) c. Nkituak ( ) d. Llewa ( ) e. Olikai orere (Tolimu)
_____

20. Keeta enabaikinore llojongak emoyian e trakoma? (Tick)

a. Ee ( ) b. A a ( ) c. Mayiolo ( )

21. Teneeta, tolimu enabaikinore (Write the answer)
_____

22. Keeta enabaikinore inkishu emoyian E Trakoma? (Tick)

a. Ee ( ) b. A a ( ) c. Mayiolo ( )

23. Teneeta, tolimu enabaikinore (Write the answer)
_____

Asaat ee nkolongi pooki

24. Kai itumieki enkare naoki tenkaji (Tick)

a. Orkeju ( ) b. Oltinka ( ) c. Olumbwani ( ) d. Olchorro ( ) e. Ereyiet ( )

f. Ai weji (Tolimu) (write the answer)
_____

25. Kaja saai niya iloito enkare otushukunye Ang? (Tick)

a. Ldakikani tomoniuni ( ) b. Esaa nabo ( ) c. Saai are, uni ashu ongwan ( ) d. Saai imiet ashu egiroo ( )

26. Kebaa enkare toolitai neyau naoki wenenkaji(Tick)

a. Litai imiet ( ) b. Litai tomon ( ) c. Litai tikitam ( ) d. Egiroo litai tikitam ( )

e. Kulie (Tolimu) _____

27. Ke katititin aja iisuj enkomom te nkolong (applicable for adult respondents?)

(Tick)

a. Nabo ( ) b. Are ( ) c. Uni ( ) d. Maisuj ( )

e.Tenimiisujkainyoo? (Write the answer) _____ _____

28. Ke katititin aja iisuj enkomom enkerai ino te nkolong (Applicable for caretakers) (Tick)

a. Nabo ( ) b. Are ( ) c. Uni ( ) d. Maisuj ( )

e. Katitin kulie (Tolimu) _____

29. Keetai choo naturro / engumoto oltiren lino (Tick)

a. Ee ( ) b. A a ( )

30. Tenemeetai tolimu ainyo (write the answer) _____

31. Kaji oshi epiki oloiterio loltiren (Tick)

a. Tengumoto oloiterio ( ) b. Atua choo ( ) c. Kapejoo ( ) d. Anangaki orpashee te boo

enkang ( ) e. Ai wei (Tolimu) _____

32. Ketolikioki aikata ntae mbaa naipirrta Trakoma? (Tick)

a. Ee ( ) b. A a ( )

33. Tenaa Ee, tolimu ajo kengai otolikio ntae (write the answer) _____ _____

34. Kai oshi ingorunyeye baata tenimwoi arashu tenemwoi enkerai ino trakoma(Tick)

a. District hospital ( ) b. Health Clinic ( ) c. Oloiboni ( ) d. Olasakutoni ( ) e. Ai wei

(Tolimu) _____

35. Kanu oshi ingoru baata tengaraki emoyian e Trakoma (Tick)

a. Teinakata ( ) b. Tiatua olapa ( ) c. Tenemening ilkeek lentim ( )

d. Maingoru aikata ( ) e. Tenamwoyu oleng ( )

f. Ai kata (Write the answer)

_____

36. Ke katititn aja oshi ingoru baata tengaraki emoyian e trakoma (Write the interval)

_____

_

37. Kalo le dukuya libaike imwoi arashu emwoi enkerai ino trakoma (Tick)

a. Olasakutoni ( ) b. Community health worker ( ) c. Oldakitari ashu olaasani le klinik ( ) e. Oldakitari lonkonyek ( ) f. Oloiboni ( ) g. Olikai (Tolimu)_____

_____

38. Ke saai aja iya peyie ibaya klinik nikitaaniki ingoru baata ino ashu enenkerai ino te moyian e trakoma (Tick)

a. megiroo ldakikani tomoniuni ( ) b. Ldakikani tomoniuni – esaa nabo ( ) c. Megiro saai

are ( ) d. Saai are negiroo ( )

39. Keeta enyamali nitum ingoru baata te klinik (Tick)

a. Ee ( ) b. A a ( )

40. Teneetai tolimu (write the answer)

_____

Ainyoo eibirir te Trakoma

41. Kanyoo iyolo naipirrta emoyian e trakoma (write the answer)

_____

42. Kanyoo nayau emoyian e trakoma te yiolon ino? (Tick)

a. Bakteria ( ) b. keeya ( ) c. Esakutore ( ) d. Ai ake (tolimu)

43. Keetai ntokiting nasuj apake lmaasai te siai e trakoma (Tick)

a. Ee ( ) b. A a ( )

44. Teneetai tolimu nena tokiting (write the answer)

_____

45. Keetai mbaa naitasii ltamoyia le trakoma (Tick)

a. Ee ( ) b. A a ( )

46. Teneetai tolimu (write the answer)

_____

47. Keetai ndaiki nemeishore oltamoyiai le trakoma (Tick)

a. Ee ( ) b. A a ( )

48. Teneetai tolimu ajo kakwa daiki nena (write the answer)

49. Kanyoo pee meishori nena daiki

50. Keetai ndaiki naiyouni nishore oltamoyiai le trakoma (Tick)

a. Ee ( ) b. A a ( )

51.Teneetai tolimu ajo kakwa daiki nena (write the answer)

_____

52. Kanyoo pee eishori nena daiki (write the answer)

_____

Observation guide- (Do not ask the question, just observe at each household)

53. Are the children faces washed /clean in the household interviewed (Tick)

a. Yes ( ) b. No ( ) c. I was not able to observe ( )

54. Is the compound in the household you are interviewing clean (Tick)

a. Yes ( ) b. No ( ) c. I was not able to observe ( )

55. Is the area /environment around the compound of the household you are interviewing clean

(Tick)

a. Yes ( ) b. No ( ) c. I was not able to observe ( )

56. Is the household you are interviewing having and using a pit latrine (Tick)

a. Yes ( ) b. No ( ) c. I was not able to observe ( )

57. If the household has a pit latrine, is it kept clean (Tick)

a. Yes ( ) b. No ( ) c. I was not able to observe ( )

58. What size of a container are they using to fetch water for the household (Tick)

a. 5 litres ( ) b. 10 litres ( ) c. 20 litres ( ) d. Other (Specify) _____

Enkingurata eewaarato-Eminki likwanisho enjuraita aku

59. Omaa nkera keisuja ngonek (Tick)

a. Ee ( ) b. Aa ( )

60. Oma euia ang keisidai (Tick)

a. Ee ( ) b. Aa ( ) c. Aa adol ( )

61. Amaa boo ankang keisidia (Tick)

a. Ee ( ) b. Aa ( ) c. Aa adol ( )

62. Kiata enkaji enchoo na keisidae (Tick)

a. Ee ( ) b. Aa ( ) c. Aa adol ( )

63. Keeta ena ang endio naa keisidae (Tick)

a. Ee ( ) b. Aa ( ) c. Aa adol ( )

64. Amaa olpukuri okanyeki enkare ke hi tai aja (Tick)

a. 5 lita ( ) b. 10 lita ( ) c. 20 lita ( ) d. ai (Tolimu) _____

Appendix 3: Focus group discussion guide (English).

Sub county (former division):_____Village/Cluster name: _____

Team number: _____Cluster number_____

Enumerator's name: _____Date:_____

My name is Pennina Munguti, a postgraduate student at Jomo Kenyatta University of Agriculture and Technology, undertaking a study on trachoma as part of requirement for an award of a degree of Masters of Science in Public Health. Trachoma is a disease caused by a bacterium called ***Chlamydia trachomatis*** that affects the cornea of the eye, it is infectious especially among children aged below 10 years and if not attended in time it causes blindness especially to adults. This study is aimed at determining the influence of knowledge, practices and perceptions on trachoma and its influence (association) on health seeking behavior and will provide information that helps in programmes targeting elimination of both infectious and blinding trachoma in Kajiado central sub county (former division). You will be asked questions on socio demography, knowledge, practices and perceptions on trachoma. Any information provided will be treated with strict confidentiality and used solely for academic purpose. Your cooperation will be greatly appreciated.

1. Proportion of the population suffering from trachoma? Probe for mostly affected
2. Knowledge of people on trachoma?
3. Practices linked to trachoma?
4. Perceptions on trachoma?

5. Local names for trachoma?
6. Where trachoma patients seek for health care? Probe to know their first contact
7. If there are traditional treatment for trachoma?
8. Who administers traditional treatment on trachoma patients?
9. When trachoma patients seek for health care? Probe on time taken to seek health care.
10. The average time taken to walk to the nearest hospital or health centre?
11. The average waiting time at the clinic before trachoma patients are attended?
12. Amount of money spend on trachoma treatment per month?
13. Availability of drugs and health personnel for trachoma patients?
14. Challenges faced in seeking trachoma treatment
15. General understanding of trachoma in the community
16. Cultural belief and practices associated with trachoma in the community
17. Main source of water in the community? Probe for reliability, distance taken
18. Quantity of water and if water adequate for domestic use?
19. How often do people wash their faces? Probe on use of soap?
20. Availability of household latrines?
21. What proportion use latrines in the community?
22. Rituals linked to trachoma and who performs them?
23. Foods recommended for trachoma patients- probe to know why?
24. Foods restricted for trachoma patients – probe to know why?
25. Understanding on causes of trachoma

Appendix 4: Focus group discussion guide (Maasai).

Emurua: _____Emanyatta/Eukarane enturur tenabo: _____
_____

Embuoto enamba: _____Enamba oo itururur tenebo_____
_____

Oloikilikwanisho:
_____Entarikini:_____
_____

Kaaji nanu Pennina Munguti natii Jomo kenyatta University of Agriculture and Technology aasita esia naipirta trakoma aa entoki nabo nayieuni pee aishori degree Ee Masters in Public Health. Ore Trakoma na emoyian oo nkonyek nayau bacteria naji ***Chlamydia trachomatis.*** Emoyian nashurtakinoi oleng neisul too nkera olarin tomon nedou neyau sii emodoo too ltunganak kituak. Ore paasita ena siai naa pee eibalayu eniyololo weniasitata or-kuaki iboitarere ltunganak oota ena moyian Ee Trakoma. Keret iyiok kigira aingoru nkoitoi naidipieki ena moyian Ee Trakoma nashurtakinoi neyau sii emodoo tiatua olorere lor Kejuado Central.

Kikilikuani ntai ntokiting naipirta eramatare oo nkangitie weniyololo tena moyian Ee Trakoma. Ore pooki nilimumu naa keipirieki enkisoma ake. Ajo taa ashe oleng too nilimumu tenolong.

1. Esiana oitamoyia le trakoma enkilikwanu oleng? Ajo ngiai woota enamoyian oleng
2. Keiyaa eyewunolo enamoyian e trakoma teatwa iutungiana?
3. Asaat naipirita enamoyian e trakoma?

4. Keiyaa ngibirirat wooitungana tena moyian e trakoma?
5. Enkarna e Trakoma tengutuk olmaasai?
6. Kaji oshi epwo iltamoyia lena moyiai e trakoma tenemoyu teramatata?
7. Ketii eramatata oikiek lang tena moyian e trakoma?
8. Aingiai olabaani lenamoyian e trakoma tookiek lang?
9. Teekata oshi epuo iltamoyia te trakoma aingoru eramatata. Engilikwanu, enaba engata, naya iltamoyia, pee ingoru eramatata edukuya?
10. Keya engata nabaa iltamoyia peebaya sipitali peeramati/
11. Keya engata nabaa oitamoyia le trakoma le sipatari peeramiti?
12. Keropian aja eramatieki? Oitamayai le trakoma tolapa
13. Ketu ilkuk lenamoyian e trakoma, naa ketu ildakitarini lenamoyia ina sipitali.
14. Ketu nyamalareitin naaya netumiangoruru erametat e Trakoma?
15. Omaa ena mayian e trakoma kengamu iltungiana teamua?
16. Keyaa oikwak, woo asaat oipirita ena moyian e trakoma?
17. Kaji oshi eokunyiki engare naakekotii engare kat pookiri?
18. Ketumi engare nabaikita ntai naa kebaa engaer naokuni tengolong?
19. Keya enkata naba itamoyai e trakoma peisuj nkiribo. Nkilikwano olengajo e sabuni
20. Keteshetaki enchoo teatwaang?
21. Naa kaja esisna woo iltungarata tenaang wooijing enacho?
22. Kato kwak eipireiki trachoma, naa ainglai woas?
23. Kaa daa eiruki woltungiana tena moyian e trakoma? Nkilikwano oleng ajo clinyo paa ena daa enyoraa?
24. Kaa daa meyieni toilamoya le trakoma?
25. Ainyoo nayeu ana moyian e trakoma?

Appendix 5: Key informant interview guide (English).

Respondent_____Title_____

_____

Address_____

_____

Institution_____

_____

Date of interview_____

_

1. Proportion of the population suffering from trachoma? Probe for mostly affected
2. Knowledge of people on trachoma?
3. Practices linked to trachoma?
4. Perceptions on trachoma?
5. Local names for trachoma
6. Where trachoma patients seek for health care. Probe to know their first contact
7. If there are traditional treatment for trachoma?
8. Who administers traditional treatment on trachoma patients?
9. When trachoma patients seek for health care? Probe on time taken to seek health care.
10. The average time taken to walk to the nearest hospital or health centre?
11. The average waiting time at the clinic before trachoma patients are attended?
12. Amount of money spend on trachoma treatment per month?
13. Availability of drugs and health personnel for trachoma patients?
14. Challenges faced in seeking trachoma treatment
15. General understanding of trachoma in the community

16. Cultural belief and practices associated with trachoma in the community
17. Main source of water in the community? Probe for reliability, distance taken
18. Quantity of water and if water adequate for domestic use?
19. How often do people wash their faces? Probe on use of soap?
20. Availability of household latrines?
21. What proportion use latrines in the community?
22. Rituals linked to trachoma and who performs them?
23. Foods recommended for trachoma patients- probe to know why?
24. Foods restricted for trachoma patients – probe to know why?
25. Understanding on causes of trachoma.

Appendix 6: Key informant interview guide (Maasai).

Oloikilikuani_____Engasiata_____
_____

Sanduku la posta_____
_____

Engasiata
_____

Enkolong enkililikwanare_____Esiana oitamoyia le Trakoma enkilikwanu oleng? Ajo ngiai woota enamoyian oleng

1. Keiyaa eyewunolo enamoyian e trakoma teatwa iutungiana?
2. Asaat naipirita enamoyian e trakoma?
3. Keiyaa ngibiririat wooitungana tena moyian e trakoma?
4. Enkarna e trakoma tengutuk olmaasai?
5. Kaji oshi epwo iltamoyia lena moyiai e trakoma tenemoyu teramatata?
6. Ketii eramatata oikiek lang tena moyian e trakoma?
7. Aingiai olabaani lenamoyian e trakoma tookiek lang?
8. Teekata oshi epuo iltamoyia te trakoma aingoru eramatata. Engilikwanu, enaba engata, naya iltamoyia, pee ingoru eramatata edukuya?
9. Keya engata nabaa iltamoyia peebaya sipitali peeramati/
10. Keya engata nabaa oitamoyia le trakoma le sipatari peeramiti?
11. Keropian aja eramatieki? Oitamayai le trakoma tolapa
12. Ketu ilkuk lenamoyian e trakoma, naa ketu ildakitarini lenamoyia ina sipitali.
13. Ketu nyamalareitin naaya netumiangoruru erametat e trakoma?
14. Omaa ena mayian e trakoma kengamu iltungiana teamua?

15. Keyaa oikwak, woo asaat oipirita ena moyian e trakoma?
16. Kaji oshi eokunyiki engare naakekotii engare kat pookiri?
17. Ketumi engare nabaikita ntai naa kebaa engaer naokuni tengolong?
18. Keya enkata naba itamoyai e trakoma peisuj nkiribo. Nkilikwano olengajo e sabuni
19. Keteshetaki enchoo teatwaang?
20. Naa kaja esisna woo iltungarata tenaang wooijing enacho?
21. Kato kwak eipireiki trachoma, naa ainglai woas?
22. Kaa daa eiruki woltungiana tena moyian e trakoma? Nkilikwano oleng ajo clinyo paa ena daa enyoraa?
23. Kaa daa meyieni toilamoya le trakoma?
24. Ainyoo nayeu ana moyian e trakoma?

Appendix 7: Consent form

Title of the study

The influence (association) of knowledge, practices and perceptions on trachoma and its influence on the health seeking behavior of the patients in Kajiado central sub county (former division).

Anwani ya utafiti

Visawishi vya maarifa, uzoefu na fikra dhidi ya ugonjwa wa trakoma kwa utafutaji wa tibamiongoni mwa wagonjwa wa trakoma katika taarafa ya Kajiado ya kati

Kenenyo ena siai

Enaibalunye enayioloi onaasitae or-kuaki ootae oipirrta trakoma tiatua larramatak lor Kejuado central eingoru baata

Part A

Introduction

Trachoma is a public health concern and a common disease especially in poor developing countries population and it is the second largest cause of preventable blindness.

You are therefore invited to participate in this study whose main objective is to determine the influence (association) of knowledge, practices and perceptions on trachoma and its influence on health seeking behavior of the patients in Kajiado central sub county (former division). We kindly request you to read this form and ask any questions you may have before agreeing to participate in the study. This study is being

conducted by Pennina Nduku Munguti from Kenya Medical Research Institute (KEMRI), Jomo Kenyatta University of Agriculture and Technology.

Sehemu A

Utangulizi

Trakoma ni hoja inayohusu afya ya umma, na pia ugonjwa wa kawaida haswa katika nchi zinazoendelea, nichanzo cha pili kwa ukubwa wa magonjwa yanayosababisha upofu unaoweza kuzuilika na tena yazidi kuhangaisha afya ya umma. Kwa sababu hii, utafiti huu unalenga kuchunguza visawishi vya maarifa, uzoefu na fikra dhidi ya ugonjwa wa trakoma kwa utafutaji wa tibamiongoni mwa wagonjwa wa trakoma katika Taarafa ya Kajiado ya Kati. Basi, unaalikwa kushiriki katika utafiti huu wenye lengo kuu la kubainisha visawishi vya maarifa, uzoefu, na fikra dhidi ya ugonjwa wa trakoma kwa utafutaji wa tiba miongoni mwa wagonjwa wa trakoma katika taarafa ya Kajiado ya Kati. Tunakuomba kwa ukarimu, kuisoma fomu hii na pia kuuliza maswali yoyote kuhusu utafiti huu kabla ya kukubali kushiriki. Utafiti huu unaongozwa na Pennina Nduku Munguti kutoka Taasisi ya Madawa Tropiki na maradhi ya Kuambukiza (INTROMID-KEMRI), Chuo Kikuu cha Ukulima na Teknologia cha Jomo Kenyatta.

Ematua A

Enkiterunoto

Ore trakoma naa emoyian naitanyamalita olorere pooki niesul toonkwapi aisinak neton ebulu naa ninye emoyian e are eyau emodoo naidimayu aiboi.

Kigirai taa aitomon mataas ena siai peyie kimbalunye inikiyiolo wenikiasita or-kuaki likiata oipirrta trakoma tiatua larramatak lor Kejuado central eingoru baata. Kigira aikilikwan iyie peyie ingas aisum kulo kigerot nikintisipuni nemeibala eton itu nyorraa ataasa ashu ataa tenebu ena siai. Ore ena siai naa ene Pennina Nduku Munguti eingua

Kenya Medical Research Institute (KEMRI), Jomo Kenyatta University of Agriculture and Technology.

Purpose of the study

The main objective of the study is to determine knowledge, practices and perceptions on trachoma and its influence (association) on the health seeking behavior of the patients in Kajiado central sub county (former division). The information gathered helps programmes targeting elimination of trachoma.

Lengo la utafiti

Lengo kuu la utafiti huu ni kubaini vishawishi vya maarifa, uzoefu na fikra dhidi ya ugonjwa wa trakoma kwa utafutaji wa tiba miongoni mwa wagonjwa wa trakoma katika Taarafa ya Kajiado ya Kati. Matokeo ya uchunguzi huu utatoa taarifa yenye thamani kwa mipango inayolenga kinga na uondoaji wa maradhi haya.

Kenenyoo ena siai

Ore ena siai naa enaibalunye enayioloi onaasitae or-kuaki ootae oipirrta trakoma tiatua larramatak lor Kejuado central eingoru baata. Ore pooki nilimumu naa keret siaitin pooki naasitai peyie eidipi ena moyian e trakoma

Study procedures

If you agree to take part in this study, you will be interviewed on various issues such as knowledge practices and perceptions on trachoma and its influence (association) on health seeking behavior. You will be also asked questions regarding your child who is sick with trachoma.

Hatua ya utafiti

Unapokubali kushiriki katika utafiti huu, utaulizwa maswali kuhusu maswala mbali mbali kama vile, maarifa, uzoefu, fikra dhidi ya ugonjwa wa trachoma kwa utafutaji wa tiba. Utahitajika kutoa idhini na kupatiana habari kuhusu mwanao anayeugua maradhi haya.

Kaji ikunakinoi ena siai

Teninyorraa ataa obo oos ena siai naa ikinkilikuani ntokitin niyolo or-kuaki ootae ingoruni baata ena moyian e trakoma. Kinkilikuani sii mbaa enkerai ino naata ena moyian e trakoma

Risks of study participation

There are no risks anticipated in relation to the study for you and for your child. Investigators will explain the procedures to you and the care takers of the children below 18 years.

Madhara ya uchuguzi

Hakuna hatari inayotarajiwa kuhusiana na utafiti huu, kwako na kwa mwanao. Wachunguzi watakuelezea kwa taratibu na pia wale wanaosimamia watoto wenye umri chini ya miaka kumi na nane.

Keetai intoki torrono tena siai

Meetai intoki torrono napuku tena siai teyie arashu tenkerai ino. Ikilikini inaikunari kulo omon nelikini sii nkera nituebaiki llarin tomon oisiet.

Research benefits

There will be no direct benefit to the participants involved in this study, however, the researcher will share the findings of the study with agencies and programmes targeting elimination of trachoma which will be an indirect benefit of the research to both the participants and trachoma patients who may get support from various agencies.

If you agree to participate, you will be asked questions on knowledge, practices and perceptions on trachoma and its influence (association) on health seeking behavior. The information gathered from this study will be used in programmes targeting prevention and elimination of both infectious and blinding trachoma.

Manufaa ya utafiti

Hakutakuwa na manufaa yanayolenga washiriki haswa kwa utafiti huu, walakini, mtafiti atatoa taarifa ya uchunguzi wa utafiti kwa mashirika yanayolenga kuangamiza ugonjwa wa trakoma ambayo itakuwa manufaa kwa washiriki na pia wangonjwa wa trakoma wanaoweza kufaidika kutokana na usaidizi wa mashirika hayo.

Ukikubali kushiriki kwenye utafiti huu, utaulizwa maswali kuhusu vishawishi vya maarifa, uzoefu na fikra dhidi ya ugonjwa wa trachoma kwa utafutaji wa tiba. Matokeo ya uchunguzi huu utatoa taarifa yenye thamani kwa mipango inayolenga kinga na uondoaji wa maradhi haya.

Kanyoo etumitoi tena siai

Meetai entoki natum oltungani aa ninye openy kake kishori llturrurri ooretito olorere aajo maishu ena moyian e trakoma. Keeku na etarreto oltungani amu kepuonu ake lelo turrurri aashukokino iltirenito lelelo ootaa tenebo ena siai

Study costs

If you accept to take part in this study, there will be no payment to you and for the study procedures.

Gharama ya utafiti

Ukikubali kushiriki kwenye utafiti huu, hutapokea malipo ye yote hata kwa hatua ya utafiti huu.

Keetai entoki nalaki tenasiai

Teninyorra ataa obo oos ena siai nemeetai intoki pooki nikilaakini iyie arashu elaakini esiai.

Confidentiality

The information collected from you and your child will be strictly private and confidential and will be kept secret. Your name or that of your child will not be used in any report of this study, or in any reports, publications or presentations. In case the officials from Institute of Tropical Medicine and Infectious Diseases (ITROMID, KEMRI), or Jomo Kenyatta University of Agriculture and Technology will review your records for the study, they will protect your privacy.

Kubanwa kwa taarifa za utafiti

Taarifa zitakazokusanywa kutoka kwako na mtoto wako zitawekwa kwa siri kubwa na kuhifadhiwa. Majina yako au yale ya mtoto wako hayatatumiwa kwenye ripoti ya utafiti huu, ama kwenye makala yo yote au maonyesho. Ikiwa maafisa kutoka Idara ya Utafiti wa Madawa na Magonjwa ya Kuambukizana au wale kutoka Chuo Kikuu cha Kilimo na Teknolojia cha Jomo Kenyatta watatumia majibu yako, watahifadhi siri yako.

Confidentiality

Ore llomon pooki likinkilikuanaki nilimu o nekerai ino nemelikini olikai tungani na keikenori pee metumi. Ore sii nkarrn inyi wenonkera nemepiki atua ena siai arashu kulie kigerot. Teneyiu sii ilkituak loingua Institute of Tropical Medicine and Infectious Diseases (ITROMID, KEMRI), arashu Jomo Kenyatta University of Agriculture and Technology neinguraa ilkigerot nemelimu ake entoki pooki niimakitia.

Participation information

Participation is voluntary and there are no risks at all. It is your decision to participate or not to join in this study. If at any time you wish to withdraw from the study, you can do so, and this will not affect any future participation or relations with anyone or any institution.

Taarifa ya kushiriki

Kushiriki katika utafiti huu ni wa hiari na hakuna madhara yeyote. Ni uamuzi wako kushiriki au kutoshiriki. Endapo unahisi kujiondoa wakati wowote, una uhuru wa kufanya hivyo na hiyo haitaathiri kushiriki kwako nyakati zijazo au uhusiano wako na mtu ye yote au idara yoyote.

Participation information

Te nyorrata ino ake kindimi aikilikuana ntokitin naipirrta kulo omon nemetii sii entoki torrono nikienikini tenimiyiu. Tenitonyorraiyie nintoki ayiu nipuku itu eishunye ena siai nemetii enyamali nimitum sii enyamali teniyeu ningil arashu tiatua olorere olturruri pooki.

Contacts and questions

The researcher conducting this study is Pennina Nduku Munguti, you may ask any questions you have now, or if you have any concerns later, you are encouraged to get in touch with her through mobile telephone number; 0722422949 or email: peninah_munguti@yahoo.co.uk

Mawasiliano na maswali

Mtafiti anayetekeleza utafiti huu ni Pennina Nduku Munguti. Unaweza kuuliza maswali yoyote uliyonayo sasa au ikiwa utakuwa nayo baadaye, unahimizwa kuwasiliana naye kupitia nambari ya simu ya mkono: 0722 422949, au barua pepe peninah_munguti@yahoo.co.uk

Contacts and questions

Ore oltungani oitasheki ena siai naa Pennina Nduku Munguti. Teniata intoki pooki niyeu ninkilikuan nindim atooshoki esimu te 0722422949 arashu ingeroki empalai e email te peninah_munguti@yahoo.co.uk

If you have any questions or concerns regarding the study and would like to talk to someone other than the researcher (s), you are encouraged to contact the following:

Ikiwa una maswali yo yote kuhusu utafiti huu na ungependa kuongea na mtu mwengine asipokuwa mtafiti, unahimizwa uwasiliane na wafuatao:

Teniata orkilikua likai nimeyiu ninkilikuan enopeny ena siai arashu iyuo nitum ai kutuk, rorie kulo tunganak,

The Director,

Institute of Tropical Medicine and Infectious Diseases (ITROMID)

Jomo Kenyatta University of Agriculture and Technology (JKUAT)

P.O. Box 62000- 00200, Nairobi

Telephone no: 067- 52711

Email: itromid@nairobi.mimcom.net

OR/AU

Mkurugenzi,

Idara ya Utafiti ya Madawa na Magonjwa ya Kuambukizana

Chuo Kikuu cha Kilimo na Teknolojia cha Jomo Kenyatta,

S.L.P 62000 00200, Nairobi

Nambari ya simu: 067-52711

Barua pepe: itromid@nairobi.mimcom.net

OR / AU

The Chairman (Mwenyekiti)

KEMRI National Ethical Review Committee,

S.L.P. 54840 00200, Nairobi

Nambari ya simu 2722541, 2713349, 0722 205901

Barua pepe: info@kemri.org

Part B: Participant consent form

Please read the information sheet (PART A) or have the information read to you carefully before completing and signing this consent form. If there are any questions you have which are not clear to you regarding this study, please feel free to ask the investigator prior to signing the consent form.

Sehemu B: Fomu ya mshiriki ya idhini

Tafadhali soma taarifa kwenye sehemu A ama hakikisha kwamba umesomewa na kuelewa kabla ya kutia sahihi fomu hii. Tafadhali uwe huru kuuliza maswali yo yoye kwa mtafiti yasiyoeleweka kuhusiana na utafiti huu, kabla ya Kutia shahihi kwenye fomu.

Ematua B: Ilkigerot loitodolu ajo itonyorraie

Suma ilkigerot ootii ematua A arashu kisumakini otisipu eton itu tukuny. Tenetii entoki nemeibala ninkilikuan oltungani likigirra autaa eton itu tukuny lkigerot.

Participant Statement

I, Mr, Mrs, Miss, _____here by give consent to Pennina Nduku Munguti to include me and my child in the proposed study entitled **"Knowledge, practices and perceptionss on trachoma and its influence (association with) on health seeking behavior among the patients in Kajiado central sub county (formerdivision)".** I have read the information concerning this study, and I

fully understand the aim of the study and what will be required of me if I accept to take part in the study. The risks and benefits have been explained to me. Any questions I have concerning the study have been adequately answered and I am satisfied. I understand that I can withdraw from this study anytime, if I wish so without giving any reason and this will not affect my access to normal health care and management. I understand that I will be interviewed from the start to the end of the implementation of this study. I therefore consent voluntarily to participate in this study.

Maelezo ya mshiriki

Mimi Bwana/Bibi/Binti ……... natoa idhini kwa Pennina Nduku Munguti anijumusishe kwa utafiti ujulikanao "**Maarifa, uzoefu na fikra dhidi ya ugonjwa wa trakoma na visawishi vyake kwa utafutaji wa tiba miongoni mwa wagonjwa wa trakoma katika Taarafa ya Kajiado ya Kati"** Nimesoma habari zote kuhusu utafiti huu, nimeelewa lengo la utafiti huu na yanayohitajika kwangu kama nitashiriki katika utafiti huu. Hatari na manufaa ya utafiti huu yameelezwa kinagaubaga kwangu. Maswali yote niliyokuwa nayo yamejibiwa vilivyo na nimeridhika. Ninaelewa kwamba ninaweza kujiondoa kushiriki kwenye utafiti huu wakati wowote na sitakuwa na budi la kutoa sababu yo yote au haitanizuia kupata huduma ya kawaida ya matibabu.

Ninaelewa ya kwamba nitahojiwa mara tatu kutoka mwanzo wa utekeleshwaji wa utafiti huu mpaka ukingoni mwake. Kwa hivyo, ninatoa idhini kwa hiari nishiriki katika utafiti huu.

Mbaa nitejo iyie

Ore nanu ara Olpayian/Enkitok/Enkerai naaji _____ natonyorraie peyie epik Pennina Nduku Munguti enkarrna ai wenekerai ai atua kulo kigerot oojo **"Kanyoo ndamunot ang onikiyolo tiatua siaitin or-kuaki land tena moyian e trakoma tiatua llaramatak lor Kejuado e polos"** Aisuma lomon oipirrta ena

siai natayiolo inaayioni naas tenanyoraa. Teneetai entooki pooki nemeibala nibalieki nayiolo ajo kaidim atupuku te nkata pooki nayieu, naa kaidim atupuku nemaikilikuani ajo tenkaraki nyoo. Tenapuku sii nemaamitiki atum enoshi ake baata natum we ramatare ena moyian. Kayiolo sii ajo kaikilikuani mbaa mpaka neishunye ena siai natonyorraie paikilikuani

Name of Participant or

respondent_____

(Jina la mhojiwa) (Enkarrna ino)

Relation to the index child

(subject)_____

(Uhusiano kwa mtoto mshiriki) (enibaikinore enkerai)

Signature/Sahihi_____ or

/ama_____

Thumpprint/Alamayakidole gumba
(Kushoto)_____

Date/Tarehe_____

Name/Code of the person taking consent

_____

Jina/Nambari ya anayetoa idhini

_____

Signature /Sahihi_____ Date /

Tarehe_____

Name of the investigator / Jina la mtafiti

_____

Signature / Sahihi

_____

Date / Tarehe

_____

Appendix 8 : Approval letter scientific steering committee

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840 - 00200 NAIROBI, Kenya
Tel: (254) (020) 2722541, 2713349, 0722-205901, 0733-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

ESACIPAC/SSC/ 9022 **28th January, 2011**

Pennina M. Nduku

Thro'
Director, CPHR
NAIROBI

REF: SSC No.1956 (Revised) – The influence of knowledge, practices and perception in relation to trachoma on the health seeking behavior of pastrolists population in Kajiado Central Division, Kenya.

I am pleased to inform you that the above-mentioned proposal, in which you are the PI, was discussed by the KEMRI Scientific Steering Committee (SSC), during its **174rd meeting** held on **30th November, 2010** and has since been approved for implementation by the SSC.

The SSC however, advises that work on this project can only start when ERC approval is received.

Sammy Njenga, PhD
SECRETARY, SSC

Appendix 9: Approval letter ethical review committee

KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840 - 00200 NAIROBI, Kenya
Tel: (254) (020) 2722541, 2713349, 0722-205901, 0733-400003. Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

KEMRI/RES/7/3/1 **April 11, 2011**

TO: **PENNINA N. MUNGUTI (PRINCIPAL INVESTIGATOR)**

THROUGH : **DR. YERI KOMBE,**
THE DIRECTOR, CPHR
NAIROBI

RE: **SSC PROTOCOL No. 1956 (*RE-SUBMISSION*) : THE INFLUENCE OF KNOWLEDGE, PRACTICES ND PERCEPTION IN RELATION TO TRACHOMA ON THE HEALTH SEEKING BEHAVIOUR OF PASTORALISTS POPULATION IN KAJIADO CENTRAL DIVISION, KENYA (*VERSION DATED 11 APRIL 2011*)**

Reference is made to your letter dated 11 April 2011.

We acknowledge receipt of:

a. The revised study protocol clearly describing the potential benefits of the proposed research;
b. The questionnaire - English and Maasai language versions;
c. The FGD guide - English and Maasai language versions; and
d. The consent documents in both English and Maasai language.

The Committee finds the research to be justified on the basis of a favorable risk/benefit assessment and is satisfied that the issues raised at the 186th meeting of 15th February 2011 have been adequately addressed.

The study is granted approval for implementation effective this **11th day of April 2011** to **10th April 2012**. Please note that authorization to conduct this study will automatically expire on **10th April 2012**. If you plan to continue with data collection or analysis beyond this date, please submit an application for continuing approval to the ERC Secretariat by **Tuesday, 28th February 2012**.

You may embark on the study

Sincerely,

Caroline Kithinji,
FOR: SECRETARY,
KEMRI/NATIONAL ETHICS REVIEW COMMITTEE

In Search of Better Health

Appendix 10: AMREF Trachoma control unit – Kenya

AMREF
Better Health for Africa

African Medical and Research Foundation
In Kenya

DATE: 11th April, 2011

To,

The District Medical Officer of Health,

Ministry of Public Health and Sanitation,

Kajiado Central District.

RE: RESEARCH BY PENINA MUNGUTI-JKUAT UNIVERSITY (REF: TM 310-0605) IN KAJIADO CENTRAL DISTRICT

This is to request you to allow Penina Munguti from JKUAT University to carry out her Masters Research in Kajiado Central District. The research is titled "The Influence of Knowledge, Practices and Perception in Relation to Trachoma on the Health Seeking Behavior of Pastoralists Population in Kajiado Central District, Kenya".

The research findings will be shared with your office and other relevant partners and will contribute to re-planning of interventions for trachoma control in the district.

Ms. Penina will work closely with the District Ophthalmic Clinical Officer in Kajiado to identify suitable sites for the study, and also work with the Trachoma Monitors as Research Assistants.

Kindly accord her the necessary support needed to carry out her research successfully.

Yours' Faithfully,

Francis Dikir

Trachoma Projects Manager,

AMREF in Kenya

Cc: John Soine – District Ophthalmic Clinical Officer, Kajiado Central District

Winner of the

Appendix 11: Approval Letter County (former District) Medical Officer of Health (Kajiado).

REPUBLIC OF KENYA
MINISTRY OF PUBLIC HEALTH AND SANITATION

Tel: +254 20 2018867
Fax:+ 254 20 2018867
Email: dmohkajiado@gmail.com
When replying please quote

District Medical Officer of Health
Kajiado Central District
P. O. Box 31
Kajiado
Date: 15TH APRIL 2011

PENINAH MUNGUTI
P. O. BOX 285-00202
NAIROBI

RE: RESEARCH WORK ON TRACHOMA

I am in receipt of a letter from the Amref Trachoma Project Manager indicating that you intend to carry out a research titled *" The Influence Of Knowledge, Practices And Perception In Relation To Trachoma On The Health Seeking Behaviour Of Pastoralists Population In Kajiado Central Division, Kenya."* within our district. With copies of authorization from KEMRI Ethics Review Commitee and KEMRI Scientific Steering Committee.

The office therefore grants you the permission to go ahead with the study, however, you will be expected to liaise with the health officers within the areas of your data collection. You will also be expected to share with the office and other stakeholders including the community of the findings of the study as we believe this would help in the improvement of health care service delivery.

I take this opportunity to wish you the best in your study and other future academic pursuits.

Thank you

District Medical Officer of Health
P. O. Box 31,
Kajiado - 01100.

DR. PHILLIP NGERE
DISTRICT MEDICAL OFFICER OF HEALTH
KAJIADO CENTRAL DISTRICT

Appendix 12: Approval letter County (former district) Opthamologist (Kajiado).

AMREF
African Medical & Research Foundation
Kenya

TRACHOMA CONTROL PROJECT KAJIADO,
PO BOX 378,
KAJIADO.

20th APRIL 2011

TO,
WHOM IT MAY CONCERN

RE: RESEACH BY PENINA MUNGUTI – JKUAT UNIVERSITY (REF: TM 310-0605) IN KAJIADO CENTRAL

Am writing to confirm that the above mentioned student pursuing masters degree in public health reported to my office on 11th May 2011 with clearance from KEMRI/National ethics review committee and asked for assistance from the eye care team in our district. She was accorded all possible assistance in field data collection and was allowed access to appropriate district data. The student has promised to share her final report with our office and the involved community.
Sincerely,

JOHN SOINE
DISTRICT OPHTHALMIC CLINICAL OFFICER

Appendix 13: Evidence of publication of the thesis.

Original Research

Knowledge, practices and perception on trachoma and its influence on health seeking behaviour of the pastoralist patients in Kajiado Central Division, Kenya

Munguti PN[1], Ng'ang'a Z[2], Muttunga J[2]

[1]Jomo Kenyatta University of Agriculture and Technology, Department of Public Health, P.O. Box 62000 – 00200, Nairobi, Kenya
[2]Kenya Medical Research Institute, P.O. Box 54840-00200, Nairobi, Kenya

Corresponding author: Penmah N. Munguti, Jomo Kenyatta University of Agriculture and Technology, Department of Public Health, P.O. Box 62000 – 00200 Nairobi Kenya. Email: penmah_munguti@yahoo.co.uk

Abstract

Background: Trachoma is an infection of the eyes caused by bacterium *Chlamydia trachomatis* and it is a major cause of blindness in the world especially in developing countries. It is endemic in over 30 districts in Kenya including Kajiado. This study aims at assessing the influence of knowledge, practices and community perception on health seeking behavior of patients and caretakers of children.

Objectives: To determine the knowledge, disease preventive practices, perception on trachoma and the factors that influence health seeking behaviour of the pastoralist patients in Kajiado Central Division

Methods: This was a descriptive cross-sectional study conducted in Kajiado Central Division in 2011 among 230 children aged 0-17 years old with infectious trachoma. Structured questionnaire interview administered to the caretakers of the minors (parent/guardian), focused group discussion and key informant interview guide were used to obtain the survey information.

Results: Data for a total of 230 caretakers with children aged 0 –17 years with infectious/active trachoma was analyzed. Health care seeking behaviour by the caretakers was significantly associated with knowledge on linkage between trachoma and animals (AOR=2.80; 95% CI: 1.07 – 7.33; p=0.036), spending 2 hours or more to the water source (AOR=3.85; 95% CI: 1.85 – 7.69; p<0.001), and having a clean compound (AOR=4.25; 95% CI: 1.32 – 13.68; p=0.015); A large number of caretakers sought health care within a period of two months or more from the onset of symptoms. Seeking health care within one month was significantly associated with; being single or widowed (AOR=3.62; 95% CI: 1.58 – 8.26; p=0.002), not being trained on trachoma (AOR=50.00; 95% CI: 7.14 – 333.33; p<0.001).

Conclusion: Poor social economic factors, lack of education and poor knowledge on trachoma, poor environmental sanitation and poor practices are important risk factors that sustain the infection in Kajiado Central Division in Kajiado County. There is a dire need to enhance and strengthen the existing programmes on prevention and control of the infection.

Introduction

Trachoma is an infection of the eyes caused by bacterium *Chlamydia trachomatis* that results in blindness after repeated infections. Currently the disease is a public health concern especially in Kenya where it is endemic in over 30 districts located in dry areas with scarcity of water, Kajiado District included [1]. The disease is characterized by swelling of the eyelids, sensitivity to light and eventual scarring of the conjunctivae and cornea of the eyes and spreads easily from an infected person to un-infected person and disease is categorized mainly as active/infectious, affecting minors and blinding trachoma in adults [1].

A previous study reported trachoma prevalence of 17.4% for infectious trachoma and 3.3% for blinding trachoma in Kajiado county in 2009 [2] which was high compared to WHO manageable levels of 10% and 1%, respectively [1]. The aim of the study was to determine the knowledge, practices and perception of trachoma and its influence on health-seeking behaviour of the patients in Kajiado central division. The findings provide valuable information on the existing gaps, to projects targeting prevention and elimination of the disease.

Materials and Methods

The study was a cross sectional descriptive survey among trachoma patients with active/infectious in minors aged 1 to 17 years in Kajiado central division in Kajiado central district. The area was selected purposively based on the high prevalence of trachoma published in a previous study [2]. Trachoma patients were randomly selected from 7 of the 18

infected clusters registered in the division under AMREF trachoma control programme, which included; Enkaroni, Ortarikati, Emuktani, Kiroyian, Oltanai, Paranai and Oletepesi [2].

Both qualitative and quantitative data collection methods were applied to determine the levels of knowledge, practices and perception on trachoma and its influence on the health seeking behaviour of the caretakers (parents or guardians) of the infected children. The study population comprised of caretakers of children aged 1 to 17 years with active/infectious trachoma. A structured questionnaire, FGD and key informant interview guide written in English and translated to Maasai language were used to collect data

A written informed consent was obtained from the caretakers to the minors and adult patients with trachoma before administering the tools. AMREF trachoma control health monitors from the area were recruited as research assistants and trained on how to collect data prior to the start of the study.

The respondents were asked about their demographics including; age, gender, education background, marital status, family monthly income, occupation, knowledge, perception and practices on trachoma and the influence this has on their health seeking behaviour.

Data collected in the questionnaires was entered in MS Access and cleaned before transferring to SPSS version 12.0 (statistical Package for Social Sciences). Six FGDs and ten key informant interviews were done, transcribed and categorized thematically based on emerging themes to triangulate the information.

Observational check list method was used to record environmental cleanliness around the compound of the interviewed households, latrine coverage and use, distance to water sources, cleanliness of the children's faces and size of the containers used for collecting and storing water at household level.

Approval to carry out the study was sought from Kenya Medical Research Institute (KEMRI) Scientific Steering Committee and National Ethical Review Committee. Further approval to carry out the study was sought from the AMREF trachoma control unit in Kajiado, from the Medical Officer of Health (MOH) Kajiado and from the district ophthalmologist's in charge of the study area. Children with infectious trachoma whose care takers consented to participate were interviewed

Results

Socio demographic characteristics of the caretakers of the infected minors: Data for caretakers of 230 minors aged between 0-17 years with infectious trachoma was analyzed for this study. The ratio of infected minors was 48.7% males and 51.3% females. Social demographic characteristics of the caretakers of the infected minors (parents and guardians) were examined, 75.1% were married and 22.2% were single. The predominant occupation of the caretakers was housewife (41.6%), and some form of business (41.6%). Teaching profession was recorded in 45.8% of the husbands of the care takers while 33.5% did some form of business. A large number of the caretakers (73.1%) did not have any formal education, 24.2% reported to have primary level of education. Over half of them (55.2%) earned not more US$28 per month.

Table 1: Socio demographic characteristics of trachoma infected children (n=230)

Characteristics	Variables	(%)
Marital status	Single	22.2
	Married	75.1
	Widowed	2.6
Occupation	Housewife	41.6
	Business	41.6
	Farmer	7.5
	Teacher	8.0
	CHW *	1.3
Education level	No education	73.1
	Primary	24.2
	Secondary	1.8
	Tertiary	0.9
Monthly income (US$)	<12	14.8
	12>28	40.4
	≥28 -≥6	19.6
	>56	20.9
	Don't know	4.3

*= Community health workers

Knowledge on trachoma: About two thirds of the respondent caretakers of the infected minors (65.7%) reported to have heard about trachoma and indicated the main signs to be: red eyes (34.8%), watery eyes (26.5%), and poor eye sight (20.5%). Most reported causes of trachoma among children were contact with flies (33.5%) and dirty faces (23.0%). Majority (70.0%) reported to have a local name for trachoma and 43% reported to have a local treatment for trachoma. Children aged less than 10 years were reported to be the most affected by 81.7% of the respondents (Table 2).

Table 2: Knowledge on trachoma among child care takers (n=230)

Characteristics	Variables	(%)
Heard of trachoma		65.7
Knowledge of signs of trachoma	Red eyes	34.8
	Eye rashes	6.1
	Watery eyes	26.5
	Poor eye sight	13.9
	Don't know	18.7
Causes of trachoma	Flies	33.5
	Dirty face	23
	Contact with infected persons	1.3
	Don't know	42.2
Have local name for trachoma		70
Have traditional treatment		43
Most affected by trachoma	Children<10years	81.7
	Teens 13-17 years	3
	Adults (over 18 years)	5.6
	Everybody	4.8
	Older people	2.6
	Don't know	2.1

Practices on trachoma: Data on practices and perception of the children caretakers indicated that 31.7% of the caretakers knew the link between flies and trachoma and only 16% of them knew the link between trachoma and animals/livestock (Table 3). Water pools and streams were the main source of water for 72.2% of the respondents for which 48.7% spend 2-4 hours at the water source and 97% fetched it in one 20 liter jerrican per day. Over two thirds of the caretakers washed their face once a day and 35.2% reported to be washing or cleaning their children of whom 62.6% did it only once a day. The number with households pit latrine was only 2.2% and the most commonly reported ways of domestic waste disposal was by burning (45.2%) and throwing it in the bush (44.3%).

Table 3: Practices and perception of the children caretakers (n=230)

Characteristics/Links	Variables	(%)
Trachoma and flies		31.7
Trachoma/animals		16.1
Water source	River	13.9
	Borehole	12.6
	Well	1.3
	Pool	25.2
	Stream	47.0
Time taken to fetch water	30 mins	5.7
	1 hour	14.8
	2-4 hours	48.7
	≥5 hours	29.6
Amount of drinking water	5 litres	1.3
	10 litres	1.7
	20 litres	49.6
	>20 litres	47.4
Frequency of washing face	Once	67.4
	Twice	17.8
	Thrice	3.1
	None	6.5
	Others	5.2
Child washed		35.2
Have pit latrine		2.2
Times face washed	Once	62.6
	Twice	17.0
	Thrice	8.7
	None	5.2
	Others	6.5
Waste handling	Pit	2.6
	Latrine	7.8
	Burn	45.2
	Bush	44.3
Trained on trachoma		13.5
Clean compound		13.0
Rituals for trachoma		6.1
Traditional believes		10.9
Food restrictions		1.3

Comparison of different factors that influenced the caretakers' choice for health care (Table 4) revealed significant increase in the proportion of caretakers seeking healthcare at heath facilities among those who spent 2 hours or more to the water source (72.7%) compared to those spending one hour and below (48.9%), (OR=2.78; 95% CI: 1.43 – 5.26; p=0.002), those whose compound was clean (86.7%) compared to those whose compound was not clean (65.0%), (OR=3.50; 95% CI: 1.17 – 10.43; p=0.018) and significance difference among those who washed or cleaned their children (77.8%) compared to those who did not (62.4%), (OR=2.11; 95% CI: 1.13 – 3.92; p=0.017).

Table 4: Comparison of different risk factors in relation to health care seeking behaviour

Variables /Links	Health facility(n=156)		Other (n=74)		OR	95% CI		p value
	n	%	n	%		Lower	Upper	
Trachoma and flies								
Yes	49	67.1	24	32.9	0.95	0.53	1.73	0.876
No	107	68.2	50	31.8	1.00			
Trachoma and animals								
Yes	30	81.1	7	18.9	2.28	0.95	5.46	0.060
No	126	65.3	67	34.7				
Time to water source								
≤1 hour	23	48.9	24	51.1	1.00			
2 hours or more	133	72.7	50	27.3	2.78	1.43	5.26	0.002
Times they wash face								
Once	103	64.0	58	36.0	0.54	0.28	1.02	0.056
Twice or more	53	76.8	16	23.2	1.00			
Have pit latrine								
Yes	2	40.0	3	60.0	0.31	0.05	1.88	0.331
No	154	68.4	71	31.6	1.00			
Compound clean								
Yes	26	86.7	4	13.3	3.50	1.17	10.43	0.018
No	130	65.0	70	35.0	1.00			
Heard of trachoma								
Yes	100	66.2	51	33.8	0.81	0.45	1.45	0.472
No	56	70.9	23	29.1	1.00			
Marital status								
Single/widowed	35	74.5	12	25.5	1.84	0.88	3.85	0.101
Married	87	61.3	55	38.7	1.00			
Gender								
Female	83	70.3	35	29.7	1.27	0.73	2.21	0.402
Male	73	65.2	39	34.8	1.00			
Level of education								
No education	110	65.1	59	34.9	0.61	0.31	1.18	0.139
Primary and higher	46	75.4	15	24.6	1.00			
Trained on trachoma								
Yes	19	61.3	12	38.7	0.72	0.33	1.57	0.402
No	137	68.8	62	31.2	1.00			
Washed or cleaned								
Yes	63	77.8	18	22.2	2.11	1.13	3.92	0.017
No	93	62.4	56	37.6	1.00			

From the multivariate analysis, significance differences were observed in: the knowledge on linkage between trachoma and animals (AOR=2.80; 95% CI: 1.07 – 7.33; p=0.036), spending 2 hours or more to the water source (AOR=3.85; 95% CI: 1.85 – 7.69; p<0.001), and having a clean compound (AOR=4.25; 95% CI: 1.32 – 13.68; p=0.015), were significantly associated with where the caretaker sought health services.

Table 5: Timing for seeking health care at the health facilities in relation to different characteristics

Variables/Links	≤1 month (n=120)		>1 month (n=110)		OR	95% CI		p value
	n	%	n	%		Lower	Upper	
Link between trachoma and flies								
Yes	25	34.2	48	65.8	1.00			
No	95	60.5	62	39.5	2.94	1.64	5.26	<0.001
Link between trachoma and animals								
Yes	12	32.4	25	67.6	1.00			
No	108	56.0	85	44.0	2.63	1.25	5.56	0.009
How long to water source								
≤1 hour	12	25.5	35	74.5	1.00			
2 hours or more	108	59.0	75	41.0	4.17	2.04	8.33	<0.001
Times they wash face								
Once	82	50.9	79	49.1	0.85	0.48	1.49	0.565
Two or more	38	55.1	31	44.9	1.00			
Have pit latrine								
Yes	1	20.0	4	80.0	0.22	0.02	2.02	
No	119	52.9	106	47.1	1.00			
Compound clean								
Yes	16	53.3	14	46.7	1.05	0.49	2.28	0.892
No	104	52.0	96	48.0	1.00			
Heard of trachoma								
Yes	81	53.6	70	46.4	1.19	0.69	2.05	0.538
No	39	49.4	40	50.6	1.00			
Marital status								
Single/widowed	32	68.1	15	31.9	1.91	0.95	3.82	0.067
Married	75	52.8	67	47.2	1.00			
Gender								
Female	60	50.8	58	49.2	0.90	0.53	1.50	0.679
Male	60	53.6	52	46.4	1.00			
Level of education								
No education	85	50.3	84	49.7	0.75	0.42	1.36	0.343
Primary and higher	35	57.4	26	42.6	1.00			
Trained on trachoma								
Yes	3	9.7	28	90.3	1.00			
No	117	58.8	82	41.2	12.50	3.85	50.00	<0.001
Children washed or cleaned								
Yes	70	86.4	11	13.6	12.60	6.13	25.91	<0.001
No	50	33.6	99	66.4	1.00			

Bivariate analysis of the factors associated with health care seeking behaviour (Table 5) revealed that significantly high number of those who were likely to seek health care in the health facilities within one month of initial symptoms were those who reported not to know the link between trachoma and flies (60.5%) compared to those on the affirmative (34.2%), (OR=2.94; 95% CI: 1.64 – 5.26; p<0.001), among those who did not know the link between trachoma and animals (56.0%) compared to those who did (32.4%), (OR=2.63; 95% CI: 1.25 – 5.56; p=0.009). Those who spend 2 hours or more to reach the water source (59.0%) compared to those who spent 1 hour or less (25.5%), (OR=4.17; 95% CI: 2.04 – 8.33; p<0.001), those who washed or cleaned their children (86.4%) compared to those who did not (33.6%), (OR=12.60; 95% CI: 6.13 – 25.91; p<0.001 and those who did not have education on trachoma (58.8%) compared to those who were trained (9.7%), (OR=12.50; 95% CI: 3.85 – 50.00; p<0.001).

Discussion

The finding in this study demonstrated a wide distribution of infectious trachoma in Kajiado Division Central despite strong coordinated campaign by AMREF/ Ministry of Health to prevent and control the infection. Significantly low levels of knowledge (P=0.045) perception about trachoma and practices among infected persons were important factors in the transmission and sustaining of the infection in the community. The present study did not collect data from none infected persons but there were significant links between trachoma low socio-economic status (P=0.000), long distance to water source, inadequate amounts of water used per family, washing of face of the children, health seeking behaviour absence of latrines and poor practices (p=0.004).

This study did not consider the number of minors infected in each household but data from caretakers of 230 children with infectious trachoma was analyzed. According to the caretakers, children less than 10 years of age were the most infected. Similar observations were made in a study conducted in Turkana, which recorded low knowledge on signs and symptoms of trachoma and significantly high cases of trachoma among children less than 10 years of age compared to other ages [6].

Two thirds of the respondents among child caretakers in our study reported to have heard about trachoma, but four out of ten of them did not know the causes of trachoma. Flies as a major cause of trachoma were mentioned by 33.5% and 23% for dirty faces. Knowledge about contact with flies and dirty faces was significantly associated with those with primary level of education and beyond (39.3% and 28%) compared to those with no education (30.9% and 22%) respectively. Only one third of them knew the link between flies and trachoma (P<0.001). Flies are important agents in the transmission of the infectious trachoma [10]. Flies covered faces were common sights in children under five years (personal observation). About 35% of the caretakers reported not to wash faces of the children and this could attract a ho of flies on the face thus a rise in transmission potentials

Data on knowledge in the current study gave lo results compared to the qualitative report in Turkar which indicated that majority of the respondents cou associate trachoma with some of the known caus like; dirt, flies, dust, lack of water and latrines [5 Knowledge of signs and symptoms of trachoma amor the respondents in our study was low where 26.5% child caretakers did not know signs and symptoms trachoma. However, majority of the respondents (70% had a local name (Enkoe) for the infection and about ha of them (46%) of the respondents knew local treatme (Oseki and Ortikuriti) for trachoma. Identification of t disease by local language could translate into increas knowledge of the symptoms [5]. No data was collected compare the distribution of infection based on differe social demographic characteristics of caretakers b the fact that there was a recognized local name a treatment for the disease was an indication that trachon is a recognized problem in the community. It could be interest to study the effectiveness of local treatment a potentials of promoting it to reduce transmission of t infection.

Water availability and safety was reported as importa factors in the transmission of trachoma [10]. Significant high number (47%) among the caretakers of the infect minors collected domestic water from water pools a streams and about half of them collected less than 20 lit a day to be shared among the family members (P <0.00 Among the caretakers (49.6%) fetched water in one 20-li container per day, 48.7% of whom walked for over hours to fetch water for the family. Previous studies pastoralist communities in Turkana region Kenya [Gambia and Northern Tanzania reported large famili as a major risk factor in the transmission of trachoma 7]. Such could be associated with the amount of wa available to each family member each day. Long distan to water source, low, inadequate amounts of water us per family to clean, lack of latrines and poor hygie behaviour and practices were major contributing fact to high transmission rate of trachoma [7].

Education levels of the caretakers influenced practices towards transmission of trachoma. The practi of washing face was significantly higher in those w primary and higher level of formal education (61.2 than those with no education (p= 0.031) in the curr study. The results of this study concur with studies do in Gambia and Tanzania that showed a direct associati between improved act of washing of face among child and adults with trachoma infection [3].

Caretakers also tended to seek treatment when sig and symptoms become critical (27%). The husb or partner of respondents was the first contact per notified when symptoms were noted (52%), followed a visit to the health facility (33.5%) (P = 0.019). Howe 20% of them sought treatment after failure of traditio methods.

Long distance to health facilities could be a deterrent to seeking health attention early. Majority (81.7%) of the respondents of the caretakers walked for over 2 hours to the nearest health care centre for treatment. An earlier study in Mali reported a direct association between proximity to health clinics and reduced levels of trachoma [8].

Traditional believes and culture were reported to influence health seeking behaviour of the caretakers some of whom attributed the cause of infection to a generational curse, family inheritance from ancestors and a disease of the poor people who live with livestock. Consequently, 10% of the caretakers sought treatment from a traditional healer (P = 0.009). Our observation could be compared with the report in a study in Turkana, Kenya which associated trachoma to people with livestock where the administrative regions with high prevalence of active and potentially blinding trachoma were the main grazing areas for cattle [6]. More studies to establish the role of domestic animals in the transmission of the infection are needed in the grazing communities.

The caretakers who were able to link trachoma with animals, those taking 2 or more hours to fetch water, those with no pit latrine, were more likely to seek health care at a health facility. It is not clear how the observed trend takes place. However, such an explanation could be related to the intensity of infection, chronicity or constant re-infection due to high risk factors. Self medication could also play a role in the observed delays to seek medical care especially for the enlightened group who could be more aware of some other conventional remedies and would be ready to try them before seeking medical attention. Failure of such home remedies could resort to exacerbation of the symptoms. This study did not examine the intensity of infection in relation to different characteristics of the respondents. Such studies could shed some light on the causes of delays especially in the enlightened group in the community.

Poor sanitation is important in the transmission of trachoma [10]. Only 2.2% of the caretakers reported to have household latrines, which could be attributed to traditional believes that it is a taboo to mix men and women faeces and that there is enough bush around for one to hide for execrator disposal hence no energy should be wasted digging and building latrines. It was established that the few latrines in existence are as a result of organizations' efforts on awareness on the importance disposing human excreta in pit latrines. Further studies could be conducted to examine the rate of faecal contamination in the region and the effects not only in the domestic animals but also in the wild animals including rats, which are common pests in the human habitat.

Traditional believes could influence transmission of infections especially if there are no proven local remedies. Over 5% of the caretakers reported having rituals related to trachoma such as smoking of the patients eyes with burned cow dung and application of "Oseki" and about 1% reported having food restriction such as eggs for trachoma patient's especially in expectant women. The practices and believes were similar for those with primary education and those with no education. These findings support similar observations in an earlier study on the traditional believes in the same community [3].

Health seeking behaviour were significantly affected by knowledge on the link between trachoma and animals, the time it took them to a water source, the compound cleanliness, the frequency of washing their faces and presence of pit latrine (P = 0.002). Seeking health care within a month was significantly associated with their knowledge on the link between trachoma and animals link between trachoma and flies, time it took them to water source, cleanliness of their compound, frequency of washing their faces (P<0.001) and if they were trained on trachoma. This concurs with a study done in Tigray, Northern Ethiopia in 2004 on prevalence and risk factors in which it was indicated that poor health seeking behaviour and lack of access to eye care services could be responsible for the high prevalence of trachoma in the study districts [9].

Prolonged delays in care seeking among respondents with infectious trachoma could affect prevention and control programmes. Early detection and treatment reduces the burden of blindness while treatment of active trachoma reduces the incidence of the infection (9). Our study concurred with the Ugandan study, which advocated behavioural changes that could reduce the transmission. Rapid spread of the infection was attributed to the tendency of many community members to seek treatment from traditional healers or self-medications in response to the initial symptoms instead of going to health centres, only to go to the centers when the former failed [4].

Conclusion

Health seeking behaviour against infectious trachoma was poor in all the study villages in Kajiado Central Division as a result of which transmission is high. Numerous environmental and human factors contributed to the transmission and delayed health seeking behaviour. Initial tendency to consult traditional healers deterred early medical care attention a situation that could play a significant role in the spread of the infection. Concerted efforts are required to address the problem of transmission by all stakeholders especially those directed to behavioural change for early diagnosis and treatment of the infection.

Declaration

The authors declare that there is no conflict of interest in this work.

Acknowledgements

Our gratitude and indebtedness to all those who made this study possible. Special thanks to African Medical and Research Foundation (AMREF), Kenya trachoma control project manager for sharing valuable statistics and

information on locations with high burden of trachoma and to all the study participants for their willingness to take part in the study and for their invaluable contribution.

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