HOME MANAGEMENT OF CONJUNCTIVITIS AMONG CHILDREN UNDER FIVE YEARS IN ETI-OSA LOCAL GOVERNMENT AREA, LAGOS STATE, NIGERIA

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DEDICATION

This dissertation is dedicated to the glory of God

and

to my dear husband Charles, our lovely children; Olohirere, Ohimai, Ohiomokhai and

to the memory of my late father Sir Gregory A. Ibe.

ABSTRACT

Conjunctivitis is the most common infectious disease of the eyes affecting children. In developing countries, poverty, socio cultural beliefs, taboos and exposure to harmful traditional practices predispose children to conjunctivitis infection which when not properly treated or attended to may lead to complications. Few studies have assessed the home management practices of conjunctivitis, therefore the objectives of this study were to assess mothers' knowledge, perceived severity of their children to conjunctivitis and home management practices of conjunctivitis.

The study was cross sectional in design. The study area was selected by random sampling technique. A multistage sampling technique was used to select 422 mothers with children under five years old in Eti-Osa local government area of Lagos state. A 23-item pretested questionnaire was used to conduct interviews with the respondents. The questionnaire sought information on demographic characteristics, knowledge and attitude to conjunctivitis, and management practices of mothers. Data were analyzed using SPSS 10.0 for windows.

The age of the respondents ranged from 15-70 years with mean of 34.5 years (± 8.20). Most of the mothers were married 353(83.6%) and 235(55.7%) had secondary education. Even though awareness of conjunctivitis was high 414(98.1%), knowledge of the causation was low as only 19(4.7%) knew that conjunctivitis is caused by bacteria or virus. Misconceptions of notions of causation of conjunctivitis were; god's anger, hereditary, fever, typhoid, exposure to too much sun, teething and worm. "Apollo" was mentioned by 364(86.2%) of mothers as the local name for conjunctivitis. Majority 357(84.6%) of the respondents could identify a child with conjunctivitis through redness, purulent discharge, itching and watery eyes. About half (49.8%) of the respondents indicated that their children had had their last episode of conjunctivitis prior to the study. Many (47.0%) of the respondents instituted treatment within the first 3 days of conjunctivitis infection. Mothers age and mode of conjunctivitis management were found to be statistically significant, ($P = 0.03$). With respect to mothers' treatment seeking behaviour for conjunctivitis 264(62.5%) practiced self medication such as the use of eyedrops, 70(26.5%), instill breast milk 40(15.1%), wash with urine 36(14.6%), pour

water into the eyes 25(9.4%), use bar beach water 33(12.4%), rub *"lead (graphite)"*, mentholatum or black soap 28(10.0%), use iced block and *"calcium carbonate"* 8(3.0%), use yeast 8(3.0%), use Vaseline 8(3.0%), use water, sugar and chloramphenicol 8(3.0%) while 114(27%) visited health center, 18(4.3%) visited herbalist and 26(6.2%) did nothing. Alternative practices include; use of sugar and water solution, urine, breast milk, *"corvone"*, Salt and lemon, concoction/herbs, palm wine, petrol, engine oil, snail saliva, battery water and Onion. These are chemically and physically irritating and can damage the eyes. The perceived outcomes of these management practices were that they were effective in the treatment of conjunctivitis.

In conclusion mothers had inadequate knowledge of conjunctivitis. Self treatments using traditional remedies were the most practiced in the management of conjunctivitis. Based on these findings, there is need to improve home management practices of conjunctivitis through basic training of mothers on causes, recognition and appropriate self treatment seeking behaviour for conjunctivitis.

Key words: Conjunctivitis, Home management, mothers, children under five years.

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Certification

I certify that this work was carried out by Ngozi Rosemary MUSA, in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Ibadan, Nigeria.

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CHAPTER ONE

INTRODUCTION

Background to the study

Conjunctivitis is the most common infectious disease of the eye that affects children. Most types of Conjunctivitis are contagious and in some cases can cause permanent damage or even blindness. Ocular infections remain a leading cause of blindness in developing countries. Trachoma, onchocerciasis, measles and ophthalmia neonatorum are responsible for the majority of such blinding ocular infections and the problems are further compounded due to lack of optimal diagnostic and therapeutic facilities, poor hygiene and concomital occurrence of nutritional disorders. (Taylor and Vajpayee 1996). Over a quarter of 2,250 children seen at a tertiary referral paediatric eye clinic in East Africa had vernal conjunctivitis. Even more came flocking to screening clinics complaining of itchy eyes.(Hall and Shilio 2005).

Conjunctivitis is one of the most common eye problems that present to health workers in Eti – Osa LGA. Approximately 15% of children seen in the private clinics and health centers present with conjunctivitis. (Health record). During the dry season and harmattan season there are reported cases of out break of conjunctivitis and they call it 'Apollo'. Bacterial and viral conjunctivitis are common amongst children under 5 in Eti-Osa LGA. Allergic conjunctivitis (sometimes called vernal conjunctivitis or vernal keratoconjunctivitis), which has a long history of itching in both eyes and gives the child's eyes a dark brown appearance is also very common in the LGA. Some of the patients who present at the health centers in the rural communities as reported by the health workers would have had some form of herbs or concoction applied in the eyes before visiting the health center. The preparation instilled into the eye can cause corneal ulcers or worsen exisning ones and end up as scar or eye perforations leading to blindness. For this reason adequate attention should be given to the prevention, early diagnosis and first aid management of these conditions.

The World Health Organisation estimates that there are 1.5million blind children worldwide, mainly in Africa and Asia. In developing countries blindness in children is usually caused by conditions, which cause scarring of the cornea (the front of the eye) such as vitamin A deficiency, measles infections, conjunctivitis of the newborn and harmful traditional eye medicines. Elsewhere, the main causes are cataract, retinopathy of

Given the fact that the life expectancy of those blind children who survive through childhood is 50 years, this represents approximately 75 million blind years. This figure is of similar magnitude to that due to cataract. Childhood blindness is therefore not only critical in terms of lost opportunity for the individual child, but it also has an important negative socio economic impact on the family, the community and the nation as a whole. However, because childhood blindness is a relatively uncommon occurrence, because children, particularly in developing countries, have little voice (importance), and because management of a blind child is difficult and time consuming the problem of childhood blindness continues to be under-recognised and under-valued in terms of importance and resource allocation by both governments and professionals (Foster and Gilbert 1996). Unlike adult blindness where the major causes of visual loss in most countries are cataract and glaucoma, the causes of childhood blindness vary widely between different regions and countries of the world, this being attributed mainly to the prevailing socio-economic conditions and quality of health care services.

In a study on causes of blindness in Northern Nigeria, the leading causes of blindness in order of frequency of occurrence were cataracts, glaucoma, corneal diseases, trachoma and trauma. (Kragha 1987). According to Eye Foundation Centre for Prevention of blindness, Nigeria has an estimated 100,000 blind children (age 0-15). (Eye Foundation document). About half of them will die within two years of becoming blind. The main causes of childhood blindness are cornea scaring from measles (70%), Vitamin A deficiency, conjunctivitis of Newborn babies and the application of harmful traditional medicines to the eye. All these conditions are amendable to simple cost effective control measures.

Conjunctivitis is the most common cause of red eye. Internationally conjunctivitis is extremely common. In the United States of America conjunctivitis is considered extremely common occurring in all ages and is responsible for approximately 30% of all eye complaints Silverman, Bessman, Chiang, Talavera, and Lavenburg et al (2003). Conjunctivitis is also one of the most common ocular diagnosis recorded for patients presenting to rural outpatient clinics in many developing nations. (Schwab 1999). Conjunctivitis typically is a self-limited process. However depending on the immune status of the patient and the etiology, conjunctivitis can progress to increasingly severe and sight threatening infections. No racial predilection exists with conjunctivitis, although 90% of women with chlamydial eye infections have associated genital infections, and as many as 60% of men have associated genitourinary symptoms (Silverman et al 2003).

Statement of the problem

In Nigeria and other developing countries, poverty, social and cultural beliefs, taboos and exposure to harmful traditional practices predispose the vulnerable pediatric group to conjunctivitis infection. Children who due to well meant but harmful traditional practices combined with neglect and sometimes outright abuse present with ophthalmic manifestations. According to (Chana 1997), there is generally a high incidence of eye diseases in children. Herbal medicines are documented to be responsible for estimated 8-10% corneal blindness in Africa. Also gonococcal conjunctivitis of the Newborn is still a major problem in many developing countries. Sexually transmitted diseases and now HIV/AIDS are the scourge of our times. Conjunctivitis in infants can be quite severe with membrane formation and bleeding, since the immune system in young infants is not fully developed and can be compromised, e.g. in measles. (Faal 2002).

Conjunctivitis outbreak is common in children during the harmattan season in Eti-Osa LGA. The prevalence rate of those that visit the hospitals an health centers is about 15%, as most patronize the traditional healers who are more accessible to the people. Also because of poor personal hygiene and the sandy nature of the area, children often present with red eyes. This is therefore a challenge for eye care.

Treatment of endemic disease is one of the essential services of community based primary health care program (Oladepo 1987). However, the primary health care centers are not equipped to meet the challenges of eye health problems in their various localities. Therefore, the basic responsibility of providing eye care lies on the secondary and tertiary institutions, which is not accessible to majority of the population. What people do when they have symptoms or suspicion of conjunctivitis has major implications for transmission and consequently, for disease control. Children under five years cannot take care of themselves and are prone to high mortality rate. They are exposed to hazards and risks that make them vulnerable to accidents which when not properly treated or attended to, may lead to complications. Infections are very common in childhood and are responsible for much of the illness in the under five's. Susceptibility to infection in children is increased because immune defenses are not fully developed and because young children may lack prior exposure or complete immunization to many infectious agents (Lawrence 2003). In developing countries, children may account for 40 to 50% of the total population (Chana 1997). Yet, they are conspicuously neglected when national eye health and rehabilitation programs are planned Most strategies are aimed at the adult group. Also at the

all suspected and confirmed cases and the bulk of this activity is to be carried out by the primary health care system. (Gordor 1992). The challenge lies in a better understanding of the immense eye problem affecting the under-served and vulnerable paediatric group in developing countries and in devising comprehensive national programs to deal with these problems. Delays in seeking and obtaining diagnosis and treatment can allow for continual transmission and the greater possibility of adverse sequella.

Justification of Study

The World Health Organization estimates that there are 1 to 5 million blind children world wide, with most of them in Africa and Asia (WHO 1997). In developing countries, blindness in children is usually caused by preventable and treatable conditions which cause scaring of the cornea (front of the eye) such as Vitamin A deficiency, measles infection, conjunctivitis of the Newborn and harmful traditional eye medicines. (Osazuwa 1997).

Conjunctivitis is the most common infectious disease of the eye that affects children. Most types of conjunctivitis are contagious and in some cases can cause permanent damage or even blindness. These infections are becoming more prevalent and are important to recognize them because of their significant associated systemic, ocular and social implications. All types of infectious conjunctivitis are contagious and can spread from one eye to the other by touching the eyes. A child can first become infected from direct contact with someone who has the infection or something that person has touched, such as a used tissue. The infectious organism can also spread through coughing and sneezing (Kids Health, 2003).

A healthy conjunctiva is necessary for the maintenance of a healthy cornea and thus the visual acuity of the eye. Infections of the conjunctiva can spread to the cornea and cause a perforation especially in gonococcal infections, which are common among adults. No exact figures are available in Nigerian about the number of blindness due to infection of the cornea with bacteria, fungi and viruses (Adele 2001). Allergic conjunctivitis can spread over the cornea. 'Cobblestones' from under the lid on the tarsal conjunctiva can cause corneal ulcers. Diseases of the conjunctiva are divers and need proper diagnosis, treatment and appropriate preventive measures.

At the moment relatively little is known about home management practices of conjunctivitis by mothers, who mothers turn to for advice, how symptoms are perceived,

management of conjunctivitis by mothers in children less than five years seeks to explain preventive health behaviour of mothers and home management practices, which will help to identify antecedent factors necessary for visual health planning and utilization of eye health services.

The focus of this study therefore is to determine the home management practices of conjunctivitis by mothers in children under five years old in Eti-Osa local government area of Lagos State. The findings from this study would provide baseline information for policy makers who would design, approve and review policy on Eye health education in Nigeria. This also can be used to design appropriate educational interventions for the control and prevention of conjunctivitis.

Research questions

The study set out to answer the following questions:

1. What is the local typology of Conjunctivitis?
2. How much knowledge do mothers have about conjunctivitis?
3. What are the management practices of mothers of children under five years old with conjunctivitis?
4. Do mothers perceive their children to be susceptible to conjunctivitis?
5. What is the mother's perception of severity to conjunctivitis in children?
6. What is the influence of age on the mode of conjunctivitis management?
7. What is the influence of education on the mode of conjunctivitis management?

Objectives of study

Broad objective

To document the home management practices of mothers in children under five years with conjunctivitis.

Specific objectives

1. To assess knowledge of mothers about conjunctivitis.
2. To assess mothers' perceived susceptibility of conjunctivitis in children.
3. To document the belief of mothers about conjunctivitis among children under five years.
4. Document conjunctivitis management practices in mothers.
5. Suggest eye health education strategies for mothers in the management of conjunctivitis.

Hypotheses

The following null hypotheses were tested by the study.

1. There is no significant relationship between mothers' knowledge of conjunctivitis and mode of management.
2. There is no significant relationship between mothers' level of education and mode of conjunctivitis management.
3. There is no significant relationship between mothers' perceived severity of conjunctivitis and mode of management.
4. There is no significant relationship between mother's age and mode of conjunctivitis management.

Limitation of Study

Due to lack of accurate census figures resulting in absence of sampling frame, a specific value could not be given to the sample size in proportion to the total population of women. Efforts were made to compensate for any lack of representation by covering two-thirds of the geographical area of Eti-Osa local government.

At the time the study was done conjunctivitis was not an existing problem so actual observation of practices was impossible.

CHAPTER TWO

LITERATURE REVIEW

Burden of Blindness

There are 45 million blind people and 135 million with low vision, comprising a total of nearly 180 million people with degree of visual impairment. There are 7 million blind people in Africa and estimates of 1.5million go blind each year.

According to WHO statistics: 80% of blindness is preventable, 20% that goes blind require rehabilitation services. Every 5 seconds a child goes blind and every minute an adult goes blind (WHO). The prevalence of blindness in different zones in Nigeria is shown in Table 1.

A leading light in disability management in Nigeria categorizes family attitudes into four groups:

"Go and beg"

"I am ashamed of you"

"It is not my business"

"Something must be done"

Socio-economic status seems to be a factor in parental reactions to having a visually impaired child. As the socio-economic situation improves, the ability to deal with the stress also seems to improve. Financial assistance can go a long way towards balancing the emotional levels of the family.

The child's self-image and self-esteem are closely related to how he or she perceives his or her value within the family. (Gani-Ikilama 2006). In most communities there are blind people. Blindness affects all the members of the communities in knowing people who are blind in their community. Blindness makes people depend on others. Begging reduces the dignity of the person who is blind. Beggars add to the burden of the community members as they expect to be given alms. Blind people are more likely to have accidents than people who are not blind. Accidents mean extra cost of care for family members. Blindness adds more responsibility to members of the family. Most causes of blindness are avoidable as they can be prevented or cured. (Oladepo et al undated).

Blindness has profound human and socio-economic consequences in all societies. The cost of lost productivity, rehabilitation and education of the blind are a significant

economic burden, particularly in many developing countries. Furthermore, in such settings blindness is often associated with lower life expectancy. Thus the prevention and cure of blindness can provide enormous savings and facilitate societal developments.

Unfortunately, there is generally a reduction in available funds for blindness prevention from the governments of developing countries, due to a combination of economic recession and new, competing demands for limited resources.

TABLE 1: NATIONAL DISTRIBUTION OF BLINDNESS IN NIGERIA
SOURCE: VISION 2020 PLANNING WORKSHOP 2001. BASED ON 1991 CENSUS

ZONE	Reference Population	Prevalence of Blindness (%)	Number blind
North West (NW)	24,715,400	1.14	281,755.56
North Central (NC)	21,732,200	2.02	438,990.44
North East (NE)	16,224,200	1.14	184,955.88
South East (SE)	14,871,800	1.19	176,976.42
South South (SS)	18,014,600	0.62	111,690.52
South West (SW)	24,441,800	1.3	369,071.18
Total	120,000.00	1.24	1,564,438.00

In a survey to determine the prevalence and causes of blindness in Anambra State of Nigeria, the estimated prevalence of blindness in the sample was 0.97% (1.54% among men and 0.64% among women).

Cataract was the primary cause of blindness (70.57%), followed by glaucoma (17.65%). In this area blindness associated with measles and other infectious causes has decreased (Ezefuke 1997). In another survey of blindness in rural Communities of South Western Nigeria, the prevalence rate of blindness was found to be 0.9%. The major causes of blindness were cataract and its sequelae (48.1%), onchocerciasis (14.8%), primary open angle glaucoma (11.1%) corneal scar/phisis, bulbi (7.4%) and optic atrophy (7.4%).

About half of the blindness is potentially curable through cataract surgery, and a third through health education, early diagnosis and prompt treatment (Adeoye 1996). Another study on causes of childhood blindness: results from school for the blind in South Eastern Nigeria, corneal scaring and phisis bulbi constituted a major cause of childhood blindness (Ezegwu, Umeh and Ezepue 2003).

Needless blindness can be eliminated form the face of the earth only if people worldwide have access to sight-saving medical and surgical techniques. There is need for trained eye doctors and eye care teams, increased availability of ophthalmic equipment, instruments, and medicines, and more effective systems for referring patients who are at risk of blindness to treatment centers. The direct economic cost of the global burden of blindness is US $25billion. Vision 2020 THE RIGHT TO SIGHT

Epidemiology of Blindness

The reported prevalence of severe visual impairment and blindness in children from sub-Saharan African and Asia ranges from 0.6 to 1.1. per thousand children (Foster and Gilbert 1996). 90% of the world's blind people live in developing countries. People who live in the developing world are ten times more likely to go blind than people who live in highly industrialized countries. There are at least 9 million people in India, 6 million in China and 7 million in Africa together constitutes half of the global burden of blindness It is estimated that at least 7 million people became blind each year. Without proper intervention the number of blind people will increase to 7.5 million by 2020. Nigeria has an estimated 100,000 blind children (age 0 – 15). About half of them will die within two years of becoming blind. The main causes of childhood blindness are cornea scarring from measles (70%), vitamin A deficiency, conjunctivins of newborn babies, and the application of harmful traditional medicines to the eye. All these conditions are amendable to simple and cost effective control measures.

In a study on causes of blindness among blind children in Ogun State, Nigeria, the main causes of blindness were, corneal scaring/staphyloma 11 (39.3%), cataract/aphakia/coughing 4(14.3%), cortical blindness 2(7.1%) and retinitis pigmentosa 2(7.1%). Eleven of the students with corneal blindness admitted to having measles prior to blindness. (Ajibade, Onabolu and Oluyadi 2003). In another study on causes of childhood blindness results from schools for the blind in south Eastern Nigeria, the major causes of childhood blindness are cataract, corneal scarring, pthisis bulbi and glaucoma/buphthalmos. The majority (74.5%) of this blindness is avoidable.

Community Participation in Eye Health

This is an integrative approach, which focuses on the eye health of communities. Communities identify what they already have, identify what they need, take action in a manner acceptable to them in order to avoid blindness, visual disability and pain (Faal 2006).

A community is a group of people who live in a defined geographical environment and who share social historical characteristics. Understanding that most people live in Rural areas where the services are either scanty or absent.

Service development

Community members should participate in decisions making in respect of activities for eye health promotion that will take into consideration the views and opinion of others.

Service Implementation

Community members should play active roles in carrying out eye services at the community level especially those related to healthy eye promotion. They should identify volunteers who are willing to be trained as Community Based Health Workers (CBHW) to train volunteers. Community members and CBWs should help identify and refer people with eye problems to CBHWs and eye health care facilities.

Traditional practitioners, community members, CBHWs and CBWs should work together as "Friends of the Eyes".

Measuring Progress

Community members must work out ways that will ensure that everyone knows about the progress being made in respect of the eye service activities carried out in their community and suggest further improvements during meetings.

Information on the progress of eye health promotion activities can be obtained through written records of the number of people with blindness and serious eye problems, those related and the number of committees that have been working on eye health promotion activities in your community.

Measuring Success

Community members should devise ways that will enable them know if the activities carried out is reducing blindness and serious eye problems in their community by considering the formation of committee or use existing community health committees. Through this action, community members can know the number of community committees actively involved in the implementation of the eye health promotion activities, the number of people who became blind or developed serious eye problems over a given time interval e.g. one year, 2 years, and the number of communal eye health promotion activities undertaken over the same period of time (Oladepo et al undated)

A community based programme is one which works within a geographically defined area, takes into account influences that operate at community level, and seek to involve community members in decision making process and in implementation (Hubley 1999). Working with communities can be challenging. Few workers need to be sensitive to the communities, needs and dynamics, and have patience and skills for a two way process of communication, to build consensus, resolve conflicts, and develop capacity (Hubley and

Gubert 2005). Eye health can be a starting point for involving communities in addressing a wide range of health and social concerns. (Maphorogo and Sutter 2003)

In Tanzania, a community based approach to promotion of face washing used non-formal adult education methods, drama, and training of locally recruited facilitators to improve cleanliness of children's faces. (Lynch, west, minoz et al 1994).

The use of volunteers is an important component of the directed distribution of mectizan that is now central to the African program for Onchoarciasis control (APOC) which operates in west and Central Africa. The success of community directed treatments is such that this approach is now being used in filariasis control, for distributing bed nets and vitamin A, and distributors are also being trained to identify individuals who are cataract blind (Okeibunor, Ogungbemi, Sama et al 2004).

Community based approaches build on local resource that includes traditional healers, many of whom treat eye complaints. Data from Malawi indicate that there may be up to 4,500 visits made to traditional healer for eye disease for each presentation to the ophthalmic medical assistant with corneal disease. (Courtright and Lewallen 1997). Traditional healers have long been part of most cultures and will remain so. In Africa, doctors, nurses and traditional healers have to share the burden of health care services. Traditional healers are not only important but crucial in primary eye care in developing countries. (Ghana 1997).

A project to control vitamin A deficiency among 830 families in coastal Bangledem evaluated an 18 months intervention, which used group meetings in schools, mosques and community settings supplemented with posters, leaflets, and a calendar. Evaluation showed increased knowledge about vitamin A rich foods, increased cultivation of vegetables and a reduction in the prevalence of night blindness. (Yusuf and Islam 1994).

A strength of community based approaches is the opportunity for multi-sectoral strategies in which health education is supported by other interventions such as appropriate technology and agriculture.

Concept of conjunctivitis

Conjunctivitis is the most common cause of red eye and it affects all ages. It is usually painless and is characterized by pussy or watery discharge. There are different types of conjunctivitis: bacterial conjunctivitis caused by a bacterium e.g. staphylococcus or streptococcus; viral conjunctivitis caused by a virus e.g. herpes simplex; and conjunctivitis caused by allergies e.g. smoke, cosmetics, medicines, etc. The signs vary depending on the

cause but include swollen eyelids, red conjunctiva and a watery or pussy discharge. The cornea and pupil are usually normal (Baba 2005).

The conjunctiva is a thin transparent mucous membrane, which lines the inner surface of the eyelids and covers the sclera (the white part of the eye). The conjunctiva contains glands, which produce secretions that help the eyes to keep moist, and antibodies, which reduce infection.

Conjunctivitis means "inflammation of the conjunctiva" and the commonest cause is infection by viruses or bacteria. Conjunctivitis can also be due to chemical irritants, traditional eye remedies or allergy. It is usual for both eyes to be affected in infectious cases. The patient notices that the eyes are red and uncomfortable, and there is discharge, which may make the eyelids stick together in the morning. The vision is usually not affected. On examination the eyelids maybe slightly swollen, the eyes are red and there may be some visible discharge. The cornea should be bright and the pupils should be round, regular and react to light. Conjunctivitis due to infection occurs at all ages, but some of the less common causes affect particular age groups. See table 2. There is one form of conjunctivitis which can be sight threatening – that due to gonococcal infection (Senamtrie and Gilbert 2005).

The red eye forms a big proportion of the eye problems seen in most eye clinics in developing countries. For example, in the Bawku Hospital eye unit, Ghana, in 2004 a total 21,391 patients were seen as outpatients, out of which 8,931 were red eyes of one type or another, representing over 40% of the total number of patients seen.

The majority of red eyes are seen at community clinics and health centers, diagnosis and management are done by the community health nurses. It is for this reason that adequate attention should be given to the prevention, early diagnosis and first aid management of these conditions.

The common cause of acute red eye are; conjunctivitis and trachoma, corneal ulcer, acute iritis, acute glaucoma and injury (or trauma).

Table 2: CAUSES OF CONJUNCTIVITIS, AND WHO IS PRIMARILY AFFECTED

Causes of Conjunctivitis	Newborn babies	Children	Adults
Viral Infection	Uncommon	Usually affects both eyes	Usually affects both eyes.
Bacterial Infection	May be severe and sight threatening	May affect one or both eyes. May be severe and sight threatening.	May affect one or both eyes. May be severe and sight threatening.
Chlamydia	Can cause conjunctivitis	Causes Trachoma, which usually affects both eyes	Usually affects both eyes
Allergy	Uncommon	Usually affects both eyes	Uncommon
Chemical Irritants/ traditional eye remedies	Uncommon	Can affect one or both eyes.	Can affect one or both eyes.

Red eye may also be due to the use of harmful traditional medicines for other eye conditions.

Corneal Ulcer

Corneal ulcers may have many causes. They can be caused by infection – bacteria, fungus, virus or acanthamoeba or malnutrition as in measles/vitamin A deficiency which occurs mainly in infants between the ages of six months and two years. Some cases are mainly unilateral whereas others like vitamin A deficiency are often bilateral. The result of a corneal ulcer can be a corneal scar or phthisis bulbi. A break in the corneal surface is known as a corneal abrasion/erosion/ulcer. There are superficial and deep ulcers. The patient will complain of a red painful eye. The eyelids maybe swollen, the conjunctiva is red around the cornea, the pupil is normal, and the visual acuity is often reduced. There is often a grey spot or mark on the cornea. The other eye is usually normal. Corneal ulcer is a serious eye problem. Frequent (Hourly) antibiotic eye drops should be instilled, an eye pad applied, and the patient referred for help urgently. If the patient is aged one to ten years, vitamin A 200,000 IU should also be given orally. All corneal ulcers should be managed by an eye specialist as they can easily lead to corneal scarring and blindness. Bacterial ulcers are treated with topical and subconjunctival antibiotics. Fungal ulcers are treated with antifungals e.g. natamycin, but are difficult to treat. Viral ulcers are treated with antivirals

e.g. acyclovir. Nutritional ulcers are usually due to vitamin A deficiency following measles or malnutrition. Treatment involves giving vitamin A capsules according to age.

Acute Iritis: Acute Iritis is often of unknown cause. The patient will complain of red painful eye. There is no discharge but the visual acuity is reduced. The conjunctiva is red but the cornea is clear. The pupil is usually small and maybe irregular in shape. This is more obvious as the pupil dilates with treatment. This is a serious problem. If you can dilate the pupil with a short-acting mydriatic, such as tropicamide, this should be done and refer the patient quickly for help.

Acute Glaucoma: This disease is uncommon with people of African origin but more common in people from Asia. In acute glaucoma the pressure in the eye goes up quickly. This causes a very red painful eye, with poor visual acuity. The cornea is hazy due to oedema and the pupil is large and does not become small when a bright light is shone into the eye.

This is a very serious and painful disease. The patient must be referred for help immediately. If you have diamox tablets (250mg each) give two tablets by mouth and one tablet four times a day and refer the patient. Pilocarpine eye drops can be given (if available) to make the pupil small.

Traditional Eye Medicine

Traditional eye medicine is as old as man himself. Traditional healers are highly respected members of each community. Many patients who present at an eye clinic in Africa would have had some form of herbs or concoctions applied in his/her eyes before coming to the eye clinic. This is especially dangerous in children.

Traditional eye treatments can be classified as harmful or harmless. Harmless eye treatments include incantations by traditional healers and use of salt solution, to name a few. Examples of harmful eye medicines include alcohol, ground cowries, donkey and cow dung, herbal preparations, human sputum, bird and lizard faeces, wine, etc. Eye care workers around the world would probably be able to add to this list from their own experience, and these concoctions differ from one culture to another. The preparations put into the eye can cause corneal ulcers or worsen existing ones and end up as scars or eye perforations leading to blindness.

The primary eye worker has an important role to play in preventing blindness from the use of traditional eye treatments. They are often the first point of contact when something goes wrong with the treatment, and they are also close enough to the community to discourage their use. The first step from preventing blindness from traditional eye medicines is to establish trust and respect between health care providers, patients and communities.

It is important to understand the reasons why people use traditional eye treatments, and not judge them. There is widespread ignorance about the dangers of self-treatment for eye conditions. Many poor patients are put off seeking help from health clinics because of the negative attitudes of some health workers. Socio-cultural beliefs in evil spirits and witchcraft may lead people to think that the best course of action is with spiritual rather than medical healers; for many patients, prescribed eye medicines are considered very expensive. Furthermore, the distance to health facilities results in patients taking help from the nearest source management most patients tend to come to hospital when the eye is already damaged. Treatment is with waters irrigation, if the traditional medicine was recently applied, and then topical hourly antibiotic eye drops.

Every opportunity should be used to educate people and discourage the use of traditional eye medicine, for example, health education in communities, schools, women's groups and clinics Refer all patients with eye complications. (Baba 2005)

Traditional healers may use mechanical manipulation or thermal cautery on the ocular adnexia or may instill medications into the surface of the eye(s) that can cause harm. Traditional eye medication (TEM) may include extracts from leaves or herbs, human urine, or products and often cause permanent damage to the ocular surface, visual impairment, and blindness. Plant substances that are chemically basic (pH greater than 7.0) can be particularly harmful because they may penetrate the cornea and cause permanent opacity or perforate the cornea and cause endophthalmitis. Traditional healers may also use thermal cautery to treat eyelid lesions, infections, and entropion. Such treatments that cause damage to the ocular adnexia, to the eye, and vision are collectively known as harmful eye practices (HEP).

Traditional healers are respected in villages and communities; health care practitioners should not stigmatize them. Rather, they can be trained to avoid certain practices that are harmful to the eyes and instead to utilize treatments that we know to be beneficial. Several projects in Africa include traditional healers in their health care delivery systems. By doing so, harmful eye practices may be avoided or lessened.

Gonococcal conjunctivitis and kerato conjunctivitis may be spread by poor hygiene and self-inoculation from genital infection. In some areas in rural Africa, urine may be used as an

ocular treatment by traditional healers. Urine contaminated with Neisseria gonorrhoeae will cause acute gonococcal keratoconjunctivitis. Many drugs, herbs, and remedies supplied by traditional healers may be used by patients at the same time that they are undergoing treatment by eye health care members. Many of these preparations may produce irritation and redness of the conjunctiva. Some may be toxic and can cause corneal damage and permanent blindness. In taking a history from a patient who has a red or irritated eye, ask about the use of traditional medications. These maybe prescribed by a traditional healer or they may be prepared by the patient or the family.. (Schwab 1999)

Injury (or Trauma): Traumatic injuries form about 15% of all red eyes. These injuries may cause irreversible damage to the eyes leading to blindness. Many of these would need immediate referral to a secondary or tertiary eye care facility.

Conventional Management (Orthodox Management)

Conjunctivitis normally does not affect vision and is simple to treat. To treat bacterial conjunctivitis, clean the eyes and apply any topical antibiotic. In the absence of any antibiotics, merely cleaning the eyes of discharge regularly will allow the eyes to settle in a few days. Broad spectrum antibiotic such as tetracycline eye ointment applied to the lid margins at least three times a day can be used for treatment of chronic bacterial conjunctivitis. Usually no treatment is required for viral conjunctivitis but an antibiotic ointment can reassure the patient. Viral conjunctivitis may occur in epidemics affecting many people at the same time. For example a school child with this condition could infect half the school in just one day. In cases like this it is better to close down the school for a couple of days to avoid its spread. This condition is popularly known in West Africa as "Apollo". The danger is use of harmful traditional medicines, which may make the eyes worse.

Allergic conjunctivitis (sometimes called vernal conjunenvins or vernal kerato-conjunctivitis) usually has a long history of intense itching in both eyes. Chronic vernal conjunctivitis gives the child's eyes a dark brown appearance. In very severe cases these children will need topical steroids prescribed by a specialist. Steroid eye preparations can be dangerous and should only be prescribed by an eye specialist.

In conjunctivitis of the newborn, clean the eyes gently with water or normal saline and apply tetracycline ointment hourly. If the cornea is involved, refer to the eya center where the baby will be treated with intensive antibiotics eye drops and sometimes systemic antibiotics (Baba 2005).

Wallace (1998) identified ocular medications used by pediatricians or Ophthalmologists caring for pediatric patients. Topical antibiotics are commonly prescribed for bacteria conjunctivitis, nasolacrimal duct obstructions, and ophthalmic neanatorum. Many new antiallergy eye drops are now available for the treatment of seasonal (hay fever) conjunctivitis. According to Farpour (2001) in a study on diagnosis and management of chronic blepharo keratoconjunctivitis in children, he said that blepharo keratoconjunctivitis in childhood is a chronic inflammatory process that can have different presentations. It can be successfully treated with oral erythromycin and topical steroids. In a controlled trail of povidone-iodine to treat infectious conjunctivitis in children by Isenberg et al (2002), Povidone-iodine 1.25% ophthalmic solutions was as effective as neomycin-polymyxin B-gramicidin for treating bacterial conjunctivitis, some what more effective against chlamydial, and was ineffective against viral conjunctivitis. Povidone-iodine ophthalmic solution should be strongly considered as treatment for bacterial and chlamydial conjuoctivitis, especially in developing countries where topical antibiotics are often unavailable or costly.

According to Essek Health Protection unit notes (2004), because infection can be passed on before a person is unwell it is important that high standards of basic hygiene are always maintained. National guide on management and control of eye conditions at primary level (2004) says that the activities of primary eye care are clinical, preventive and promotive. Bacteria conjunctivitis can be managed by applying chloramphenicol 1% ophthalmic ointment 6 hourly for 7 days, paracetamol for pain relief and refer if no response after 5 days. Viral conjunctivitis is managed by advising the patient to cleanse/rinse the eye by washing with normal saline or clean warm water, cold compress, apply oxymetazoline 0.02% eye drops instilled in the eyes 6 hourly for 7 days, Paracetamol for pain relief and advise on prevention measures. Management of allergic conjunctivitis is by removing cause if known and possible. Cold compress to relieve symptoms. Oxymathazoline 0.025% eyedrops instilled in the eyes 6 hourly for 7 days, Chlorpheniramine oral for severe cases.

Conjunctivitis as it relates to Vision 2020

Blindness is one of the most tragic yet often avoidable disabilities in the developing world (Resnikoff, Pascolin, Etya'ale et al 2002). Actions by individuals, families and communities as well as eye care professionals are vital to achieving the ambitious target of "Vision 2020", The Right to Sight which aims to prevent 100 million cases of blindness by the year 2020. (Resnikoff & Pararajasegwanj 2001). The World Health Organization estimates that there are 1.5 million blind children worldwide mainly in Africa and Asia. In developing countries blindness in children is usually caused by conditions, which cause

scarring of the cornea (the front of the eye) such as vitamin A deficiency, measles infection, conjunctivitis of the newborn and harmful traditional eye medicines. A child in our world goes blind every minute. (Vision 2020). Conjunctivitis of newborn babies and corneal scarring are the main causes of childhood blindness. The prevalence and causes of corneal blindness vary from one region of the world to another. There is even variation within developing countries of Africa. There were 3,573 new patients seen in the eye clinic of university college Hospital Ibadan (UCH) during this period of which 675 subjects (18.9%) had corneal opacity. The peak age of presentation was 0 -10years (46.7%). The periods of January to March, and July to September were noted to be the peak periods of presentation. Trauma (51.1%), microbial keratitis (26.7%) and vitamin A deficiency (8.9%) were the main causes of corneal opacity. Other causes were viral keratitis, exposure keratitis, and other less frequent causes like opacity following surgery, pterygium and vernal conjunctivitis. Almost half (48.9%) of the eyes with corneal opacity seen in this study were blind. (Ashaye and Oluleye 2004). The use of traditional eye medicines is a major risk factor in the current epidemic of corneal ulceration in developing countries. (Steinkulles, Gilbert and Foster et al 1999). Because of the difficulty in treating corneal blindness once it has occurred, public health prevention programmes are the most cost-effective means of decreasing the global burden of corneal blindness. (Gilbert 1993). There is need for community based study on the aetiology of corneal opacity and planning a programme for prevention of major causes.

The main priorities for eliminating avoidable blindness are cataract (an eye disease of ageing), eye infections (trachoma and onchocerciasis), and visual loss in children.

Policy

African Region – Disease Control

Weaknesses in the control of eye diseases in the region centre on the following primary issues:

(1) Blindness caused by both communicable and non communicable disease

(2) The distribution of eye care services through out the region is inequitable

(3) The region suffers generally from a low financial commitment to eye health care from local government.

The limitation to improving the situation are essentially political:

(1) Whereas the infrastructure that has been put in place to address onchocerciasis or trachoma is effective and is now being used in some countries as the base for addressing other infectious diseases, it does not exist everywhere. The region thus requires much additional infrastructure development and maintenance.

(2) In many countries there is lack of continuity among government officials, with the result that long-term planning and projects are difficult.

(3) The limited financial and human resources in the region are spread thinly by the many competing demands, particularly in relation to AIDS and malaria.

Through the work of many dedicated individuals, the region is developing the following strengths:

(1) AS VISION 2020 workshops are held, the national authorities are putting together needs and resources baseline data, which can be used as a guide for national priority-setting and or partners.

(2) An increasing number of governments are giving their political commitment to the vision 2020 goals and agenda.

In this context, the following opportunities are particularly evident:

(1) The onchocerciasis programmes have provided community based data and a structure and system for delivery, on which other efforts can be modeled.

(2) The relationships with many non-governmental organizations and partners working in the regions need to be further developed and these organizations included in regional planning.

(3) The same is true of information and education in the communities, which need to focus on local groups.

(4) Both the millennium development goals and the poverty reduction strategy papers point to the importance of blindness prevention in order to reduce poverty. These documents need to be used as the basis for activities in relation to vision 2020

Conclusion and recommendations

The members of the monitoring committee acknowledged substantial progress in the implementation of the vision 2020 Global Initiative. To ensure the full achievement of the objectives of the initiative, the following recommendations were made:

Disease Control

Childhood blindness

The Committee noted the paucity of accurate information on blindness in childhood and supported efforts to collect and collate, at committee level, information on childhood blindness and on childhood programmes. WHO/PBL/06.100

Vision 2020 The Right to Sight

Vision 2020 the right to sight is a global initiative which aims to help eliminate avoidable blindness by the year 2020, jointly launched by the World Health Organization and the international agency for the prevention of Blindness (IAPB) together with more than 20 international non-governmental organizations involved in care and prevention and management of blindness. Vision 2020 will take the following responsibilities:

a. Increase awareness of blindness as a major public health issue
b. Control the major causes of blindness
c. Train opbthalmologist and other personnel to provide eye care
d. Create an infrastructure to manage the problem
e. Develop appropriate technology

Vision 2020 involves the active participation of UN agencies, governments, eye care organizations, health professionals, philanthropic institutions and individuals working together in a global partnership to accomplish this goal by the year 2020. If national and international efforts to avert blindness are not intensified the number of people with severe visual disability will double by the year 2020.

There are 45 million blind people and 135 million with low vision, comprising a total of nearly 180 million people with some degree of visual impairment. 90% of the world's blind people live in developing countries. The leading causes of blindness are cataract, trachoma, onchocerciasis and childhood blindness, cataract a clouding of blindness worldwide. In most countries of Africa and Asia, cataract accounts for at least half of all blindness.

Cataract has different origins, occasionally some children can be born with the condition, and a cataract may develop after eye injuries. However, most cases are related to ageing process. An estimated 20 million people in the world today are blind from cataract in need of cataract operation to restore full sight.

Trachoma is the second leading cause of blindness in the world. It is one of the infectious diseases known to mankind. It is responsible at present for 15% of the world's blindness. Worldwide there are about 6 million people irreversibly blinded by trachoma and need of treatment. Today, trachoma is found mainly in poor rural areas of Africa, some countries in the Eastern Mediterranean and Asia, and certain parts of Central and South America. Onchocerciacis is a major cause of blindness in many Africa countries. As a public health problem the disease is most closely associated with West and Central

Africa, and is also prevalent in 6 countries in Latin America. Much progress has been made in fighting the disease in several countries through control of the black fly, the disease can now be treated with an annual dose of the drug mectizan which also relieves the severe skin itching caused by the disease. The combined effort of the World Health Organizations' programs, working together with UN agencies, the World Bank, donor nations, ministries of health, non-governmental organization and vision 2020 will be effective in halting this disease.

In developing countries blindness in children is usually caused by conditions which cause scarring of the cornea (the front of the eye) such as vitamin A deficiency, measles infection, conjunctivitis of the newborn and harmful traditional eye medicines. Vitamin a deficiency blinding malnutrition (xerophthalmia) – is the major cause of blindness in children. An estimated 250 million pre-school children are vitamin A deficient, and each year 350,000 children go blind and 2 million children die from lack of Vitamin A.

Vision 2020 aims to prevent an additional 100 million men, women and children from becoming blind by the year 2020.

Role of Health Education in Preventing Blindness

Health education to promote the adoption of eye health promoting behaviours and increase uptake of eye care services provides the backbone of health promotion. Changing long standing behaviours that might be deeply rooted in culture is never easy. However, well planned educational programmes can be effective provided two critical conditions are fulfilled: the underlying influences on behaviour are addressed, and appropriate methods, target groups, and settings are selected.

Understanding influences on behaviour, qualitative research methods provide useful insights into the reasons for use and non-use of eye health services. Barriers to the uptake of cataract services from patients' perspective can include one or more of the following: acceptance of unpaired sight as an inevitable consequence of old age, fear of the operation, contact with individuals who have had experiences, lack of encouragement from the family, lack of knowledge concerning where surgery is provided, distance from the service, lack of a person to accompany the patient to the hospital, poor state of hospitals, long waiting list and cost (Courtright, kenjaloti & Lewallen 1995). (Rabiu M M, 2001) lewallen and Courtright 2000). This could also be low perceived risk and lack of appreciation of the benefits of surgery. Lack of confidence in the service being provided was identified as an important

factor in a study of glaucoma in Togo, West Africa. In a survey of 767 people who lived in and around the capital city, Lome, about two thirds of sample who were aware of glaucoma (25%) were non confident of the capabilities of the doctors to treat the disease. (Balo, Serovies, banal et. al 2004). Stigma attached to some diseases (for example leprosies) can be a deterrent to coming forward for treatment with the result that ocular complications may be identified at a late stage. Here the health promotion strategy is to address the issue of stigma and other carriers to early presentation for treatment in the general public and train leprosy healthcare workers in the recognition of ocular complications and lid surgery for Lagophthalmos.

Many communities have traditional beliefs on the nature, cause and prevention of blinding conditions. For example, an ethnographic study of women in Nepal found that night blindness (which is common in vitamin A deficiency) was recognized, local names existed, and the condition was considered serious might be expected to act as a powerful motivation for parents, teachers, and children to support blindness prevention activities. One approach is for health educators to visit schools and run health education sessions. This approach was shown to result in improved knowledge of onchocerciasis in Nigeria. (Shu, Okonkwo and Onwujekwe 1999). However, a more sustainable approach is to train teachers, which is the approach used in the vision testing program a pilot project in Nigeria. (Ajuwon, Oladepo, Sati et al 1997). A comprehensive school based approach should have three components: firstly, health education using activity based methods such as those pioneered by child-to-child and others, secondly, a health promoting school environment which includes provision of water and sanitation, safe risk free play facilities and school gardens; and thirdly, school health services in screening children for refractive errors, provision of spectacles, and management of simple eye health problems

Methods that can be used

The two most important health education methods are mass media and face to face communication, either separately or together. Mass media have the potential to reach large numbers at a low cost per person. The relative importance of radio and television varies from region to region. It is thus important to find out what media are available and who accesses them, and base the choice of media on the local pattern of use.

Health education through mass media can be delivered in a range of formats. Some may require payment (for example, advertisements, jingles, spot, announcements), while others may be free (for example, news bulletins, documentaries, and dramas). A recent

development is the use of "entertainment education", in which health education is incorporated within drama and music.

It is generally accepted that mass media are particularly appropriate when the behaviour changes to be promoted are simple and there are no significant barriers to the community taking action. With more difficult behaviours, especially those that are underpinned by story of cultural beliefs, mass media need to be supplemented by more intensive community based approaches. Face to face discussions might be slower and labour intensive, but they provide opportunities for direct engagement and participation of individuals communities.

Social marketing uses mass media in combination with face to face education to promote uptake of specific practices.

Advocacy

Advocacy includes all activities designed to raise awareness of the importance of blindness prevention among policy makers and planners, to increase resources for blindness prevention, and for the integration of blindness prevention into other programmes. Advocacy can also lead to enactment and enforcement of laws that place on legal footing the obligations of governments to ensure "the right to sight". Advocacy can take place at every level from international, national, and local level. The most notably success for advocacy at the international level has been the endorsement of vision 2020 by the World Health Assembly in May 2004 in which resolution WHAS6.26 was adopted by member states (WHO 2003).

At the national and district level effective advocacy involves the mass media to gain public support, meetings with decision makers, and working through professional associations. An important objective for advocacy is to raise public awareness of the need for channeling public resources into prevention of blindness.

Health Education

Viral Conjunctivitis: The patient should be told that the condition is very infectious, that they should not share face towels, and should wash their hands regularly. In parts of the world where traditional remedies are commonly used, the patient should be advised not to use traditional remedies and needs to be told that the infection will get better.

Conjunctivitis due to gonococcus: if a newborn baby has conjunctivitis and gonococcus is suspected, the mother should take her baby to the eye clinic immediately for treatment. She should also be treated as well as her husband/partner. Communities should be

warned of the potential dangers of traditional eye remedies particularly urine, which may have come from someone with gonorrhea.

Acute Allergic Conjunctivitis: One needs to try and find out what led to the reaction (e.g. eating certain food; sitting under a particular tree) and try to avoid this in future. They should be told not to rub their eyes as this makes the condition worse.

Chemical Conjunctivitis: People should not instill anything in their eyes that has not been prescribed for them, and they should throw away any eye drop after the bottle has been opened for one month or more.

Prevention and Health Promotion Of Eye Care

1. Clean the eyes of all newborn babies as soon as they are born with clean water and a clean cloth (This prevents Ophthalmic neonatorum) in particular it should be taught to village midwives (traditional birth attendants).
2. Mothers should make sure their children receive the following foods:

   Age 0 – 18 Months Breast Milk.

   Age 4 – 18 Months Breast Milk + papaya / mangoes
   + Dark green leafy vegetables

   Age 18 Months – 5yrs Dark green leafy vegetables
   + papaya / mangoes

   Eggs and milk are good for children of all ages.

   This prevents nutritional blindness from vitamin A deficiency.
3. Washing the face and eyes of all babies, young children and school children everyday should be taught to mothers, teachers and school children. (This prevents conjunctivitis / trachoma)
4. When your vision is getting worse, go for help early. When your eyes are red and painful, go for help early. Do not use traditional medicines. (Erika, Allen and Francis 2002).

Personal hygiene, hand washing should be encouraged. Avoid allergens.

Prevention of infective conjuncuivitis relies primarily on good personal hygiene.

Bacterial conjunctivitis is uncommon but can be spread by the hands or from upper respiratory tract infections.

Gonoccocal infection is transmitted from the genital tract or urine to the eye by hands. This is a serious breach of normal hygiene.

Ophthalmia neonatorum can be prevented by the use of providone iodine drops, tetracycline eye ointment or other antiseptics or antibiotics at birth.

Viral conjunctivitis, in particular adenovirus, can sweep through a community or an institution such as a school very quickly. This is highly infectious and needs to be controlled by the enforcement of strict hygiene standards. Towels, face cloths and hands are some of how this can easily be transmitted.

Prevention of allergic conjunctivitis is not possible unless the patient is able to change his or her environment or job or identify the allergens causing the allergy and remove it e.g. pollen, animal fur. Drugs can cause an allergy that is reversed by stopping the drug. Atropine, neomycine and eye drop preservatives are particularly common causes of such drug reactions. (Wood M. Undated).

Children under five years old

Characteristics and Socio-cultural issues

Every year in the developing world 14 million children die before the age of five. Many million more live with ill health, disablement or poor growth. The wastage of these young lives is a tragedy condemning any pretence which human society may have to civilized values. For it is a tragedy which is largely preventable. The knowledge to save this great majority of these children and to protect their healthy development already is not highly technical. It is knowledge, which, to a large extent, most parents and most communities could put into practice. It is therefore to which all parents and all communities have a right (Unicef).

The pre school period is from 1 to 4 years. The pre-school child represents a major public health problem for developing countries. The leading causes of morbidity and mortality during this period are: diarrhea diseases, respiratory tract infecnons and protein-calorie malnutrition (Kwashiorkor and nutritional marasmus). These are referred to as the Big three. The rest include tuberculosis, childhood infections/measles and whooping cough, intestinal helminthes, which may be hookworm, roundworm or tapeworm depending on local circumstances, malaria, anemia and accidents. Almost all these are preventable.

The age specific morality rate 1-4 years is used an index of nutritional status of a community (WHO 1963) deaths during this period in developing countries are mainly due to malnutrinon and infections, while in developed countries they are mainly due to accidents.

Nutritional deficiencies are another factor contributing to the high rates of morbidity, mortality and disability in Nigeria. While malnutrition is reported as a direct cause of death in

only 2 percent of infant and under five morbidity, it is a contributory factor in much higher proportion of mortality in these age group.

No stage in the individual life cycle is more important than the formative months and years of early childhood .It is during that crucial period that the child's opportunities for optimal growth and development are being most seriously compromised.

Key right issues in early childhood

Survival issues.

Persistent high infant and under five mortality rates especially in the north, resulting principally from malaria, vaccine, preventable diseases, diahorrhoe diseases and acute respiratory infections.

Decline in immunization coverage rates (in some parts of the country but with rates among the lowest in the world in the northern Nigeria), due to weak PHC system and very low rates of routine immunization and unsustainability of large founded mobile campaigns.

High incidence of diarrhea disease, due partly to unsanitary environmental conditions and unsafe water supply, significant improvement in treatment of diarrhea through ORS/RHS and increased fluid.

High prevalence of stunting and in wasting in context of large scale deepening poverty and household food insecurity.

High prevalence of vitamin A deficiency, but opportunity to capitalize on recent legislation on food fortification and vitamin A.

Weak primary health care system with endemic drug shortages, lack of equipment, poor service, financial barrier to access poorly designed cost recovery mechanism, lack of effective community participation or real decentralization, week referral linkages to secondary and tertiary care, many developing vertical programme, weak information systems and planning, low levels of national funding and over dependence on donors. (UNICEF)

Socio cultural issues:

Erosion of mutual solidarity of the extended family system, change in social values and gender- related factors such as teenage pregnancy, early female marriage and attitudes about the relative worth of educating girls as opposed to boys. Under the extended family system, family members were traditionally expected to share each other's burden and joy, beyond the nuclear family unit.

This meant the children by other members of the extended family with urbanization and the weakening of the extended family cohesion, coupled with widespread poverty. The obligation

of the extended family system have tended to weaken, making it less common for Nigerians to pay the cost of education for distant relatives.

Teenage pregnancy is another impediment to the enrolment, retention and learning achievement of girls. Teenage pregnancy is widespread: the 1999 Nigeria demographic and Health Survey (NDHS) indicated that for women of 20-24, 43 percent had given birth before they were 20 years old, 28 percent of teenagers aged 15-19 were already mothers and another 6 percent were pregnant with their first child.

The factors were much higher in the rural areas and in the north of the country.

Women are the primary care givers for children and this ultimately shape children's lives. This is especially true in the most traditional, patriarchal societies awareness and responsibilities are strictly delineated by gender.

The world being of women and children is inseparable.

Women's access to power at the household level has the most direct impact on families and children. Here is where decisions are made about the allocation of resources for food, health care, schooling and other family necessities.

When women are locked out of decisions regarding household income and other resources, they and their children are more likely to receive less food, and to be denied essential health services and education. As women become economically productive, their spheres of influence increase.

Historically, when women hold decision- making power, they do it well that their children eat well, receive adequate medical care, finish school and have time for recreation and play. Women who have access to meaningful income producing work are more likely to increase their families' standard of living, leading children out of poverty.

Social groups and networks encourage and support women's participation in decision making at the community level. Evidence drawn from demographic and health surveys suggests that in some developing countries most of the impact of women's overall decision-making power is concentrated at the community level. Where women's access to community resources is seriously restricted by physical impediments or gender discrimination. Women collaborative to help provide each other and children with food, water, child care, medicines and labour for farming often beyond the preview of the men who control the decision-making process. (Unicef 2006)

Relationship of Primary Eye Care to Primary Health Care

Primary Health Care (PHC) is a fundamental concept of WHO for in health. That Primaty Eye Care is an integral part of PHC can be seen from the list of main PHC activities.

PHC ACTIVITY	PRIMARY EYE CARE
Immunization	Measles vaccination prevents blindness from measles; rubella vaccination prevents congenital rubella syndrome.
Better nutrition	Prevents vitamin A deficiency
Water and Sanitation programmes	Relevant in trachoma control
Control of common diseases	Trachoma and onchocerciasis control
Delivery of maternal care and Child health care	Reduce Retinopathy of prematurity.
Health education	Prevention of eye trauma
Simple treatment	Treatment of simple eye diseases.
Essential drugs supply	Availability of tetracycline eye ointment for Trachoma and common eye infections; Vitamin A capsules for xerophtalmia, ivermectin for onchocerciasis

Primary Health Care workers are ideally placed to identify blind and visually impaired people in the community. With additional training they can diagnose and refer patients to the appropriate eye care workers and provide basic treatment for simple eye diseases (World Health Organization and International Agency for the prevention of Blindness 2003).

Primary Eye Care In Prevention of Blindness

Recognition of ocular disease and appropriate management through primary eye care at the community level is the key to the prevention of blindness in the developing world. The World Health Organization (WHO) has stated that "Primary eye care is a vital component of primary health care and includes the promotion of eye health and the prevention and treatment of conditions that may lead to visual loss". A common definition for primary eye

care is basic for common eye infections, first aid for eye injuries and the public health measures which promote and maintain general good health such as hygiene and sanitation to prevent ocular infections, nutrition to prevent vitamin A deficiency, and safety to prevent ocular injuries.

It is the primary eye care worker in the community who best recognizes the difficulties faced by people in their communities and is challenged to overcome them. Most blindness is preventable or curable with existing interventions. Preventable causes include trachoma, xerophthalmia, onchocerciasis, and trauma. Curable causes of blindness in developing countries are primarily cataract and glaucoma (treated surgically). The big three of preventable blindness are trachoma, xerophthalmia and onchocerciais and they can now be controlled at the primary level. Therefore prevention of blindness depends on a strong network of primary health care workers who can provide primary eye care in their communities. With appropriate training and good supervision, primary level health workers can be taught some basic skills and to recognize, treat or refer and prevent common eye conditions and prevent blindness. Dr Paul Courright and his colleagues, working in Malawi, conducted primary eye care training sessions with traditional healers. Today the number of cataract patients being appropriately referred to a secondary or tertiary facility has increased. Dr Harjinder Chana, working in Zimbabwe is involved in training traditional healers as part of the country's overall eye care programme. He notes that "Traditional healers are well accepted in their communities and can make a vital contribution to primary eye care services". (Victoria Sheffield 1996).

The Role of International Non-Governmental Organisation in the Prevention of Blindness

Blindness is increasing year by year. At present there are approximately 40 million blind people in the world and this number increases by more than 1 million each year. 80% of all blindness occurs in developing counnies, with Africa having approximately 7 million blind and Asia an estimated 25 million.

National governments through their ministries of health are responsible for the health and eye care services of their populations, including the preventions of blindness. However, many of these governments have limited financial resources and limited capacities in terms of manpower and managerial skills. These limited resources are desperately needed in other areas of health care delivery which take priority over prevention of blindness and eye care, e.g. material and clinical health, malaria and other infectious disease control. The result

is a lack of resources, both human, managerial and financial for prevention of blindness activities. INGDO's can bring positive influence to prevention of blindness and eye care delivery because "blindness" is emotive, INGDO's have the opportunity to mobilize funds from private and government sources in the economically developed parts of the world. These funds can be used to supply facilities, equipment, medicines, transport and personnel to areas lacking in these resources.

INGDO'S try to identify needs, which have priority from a global perspective. They have a body of experience built up over many years. The body of experience can be utilized to develop national or district programmes for prevention of blindness. INGDO's can offer to countries an international technical expertise, which can be mobilized and utilized in capacity building at a national level for specific prevention of blindness programmes.

- INGDO's aim to be flexible in their methods of work and particularly in problem solving. Lessons learnt in one situation can therefore be adopted and appropriately applied in a new situation
- As their name implies, INGDO's try to work in a direct way, avoiding delay and obstruction due to unnecessary bureaucracy. This does not always work but is certainly one of their objectives.
- INGDO's develop appropriate low-cost technologies, and try to keep administrative overheads to a minimum aiming to promote cost-effective strategies.

In summary therefore, the INGDO's can be an important source of finding, technical expertise, management skills and implementation of cost-effective service delivery. (Garms and Foster 1996).

National Health Promotion Policy

Background

The Nigerian health system is said to have been performing poorly in the recent past. The dismal performance of the health system is illustrated by the Nigerian Demographic and Health Survey (DHS 2003). To address the weakness of the health system, Nigeria is currently undergoing a process of Health Sector Reform. As part of this process the Federal Ministry of Health has developed the following seven strategies thrusts:

- Improving the stewardship role of government

- Strengthening the National Health System and its Management
- Improving availability of Health Resources and their Management
- Reducing the Burden of disease
- Improving Access to Quality Health Services

Health Promotion

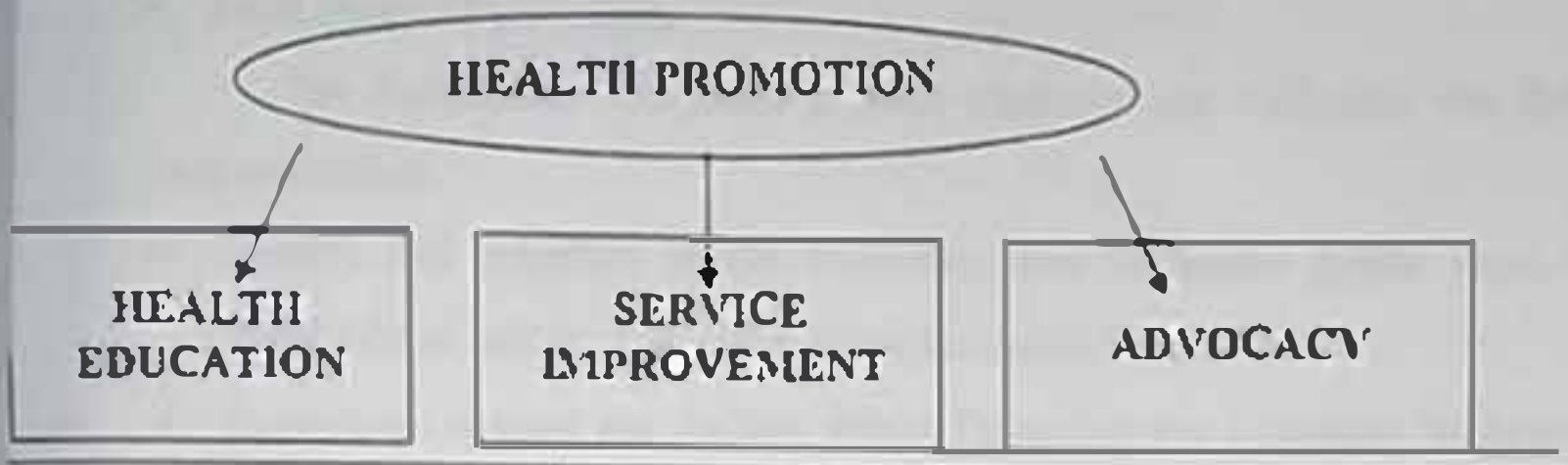
The concept of Health promotion is broader than health education. There has been growing realization that health education can influence knowledge, but on its own may not result in behaviour change. The concept of Health Promotion was defined at the landmark First Global Conference on Health Promotion in Ottawa in 1986. The OTTAWA Charter defined Health Promotion as consisting of five elements:

- Development of healthy public policy
- Creation of supportive environment for Health
- Strengthening of community action
- Development of personal skills
- Reorientation of health services

These five elements can also be simplified into three basic components (see fig1). The first component is health education with individuals and communities. The second component involves reorientation of health services to improve their accessibility, acceptability and appropriateness. The third component is advocacy to influence policy makers to adopt healthy public policies and enact/enforce laws that promote health and consumer rights. Over the years, the concept has been further refined, most recently in the Bangkok Declaration 2005.

Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve their health. It is a core function of public health and contributes to the work of tackling communicable and non-communicable disease and other threats to health. Sixth Global Conference on health Promotion, Bangkok, Thailand, August 2005.

Figure 1: Three components of Health Promotion



Communication directed at families and communities to influence	Improvement in quality and quantity of services	Agenda setting & individuals, advocacy for health public policy
Awareness/knowledge	Accessibility	Policies for health
Decision making	Case Management	Income generation
Belief/attitudes	Counselling	Removal of obstacles
Employment	Patient Education	Discrimination
Individuals and community	Outreach	Inequalities
Action/behaviour change	Social marketing	Gender barriers
Community participation		

The national Health Policy identifies the following action by individuals, families, countries and government as being essential for the promotion of health:

- Improved child care practices including uptake of immunization, exclusive breast feeding, complementary feeding, uptake of child health services and meeting the needs of physically challenged children

Community Level Health Promotion

Community Level Committee

A health promotion Committee will be set up at the community level. The Ward Health Committee or Village Health Committee established in the National Health Bill/National Health Policy shall be expanded to include community members from the following areas of interest:

- Traditional Rulers
- Councillors
- Women's Associations
- Youth Organisations
- Informal Health Providers
- Health Provider including TBAs/VHWs
- Teachers

- Town Unions
- Faith Based Organisation

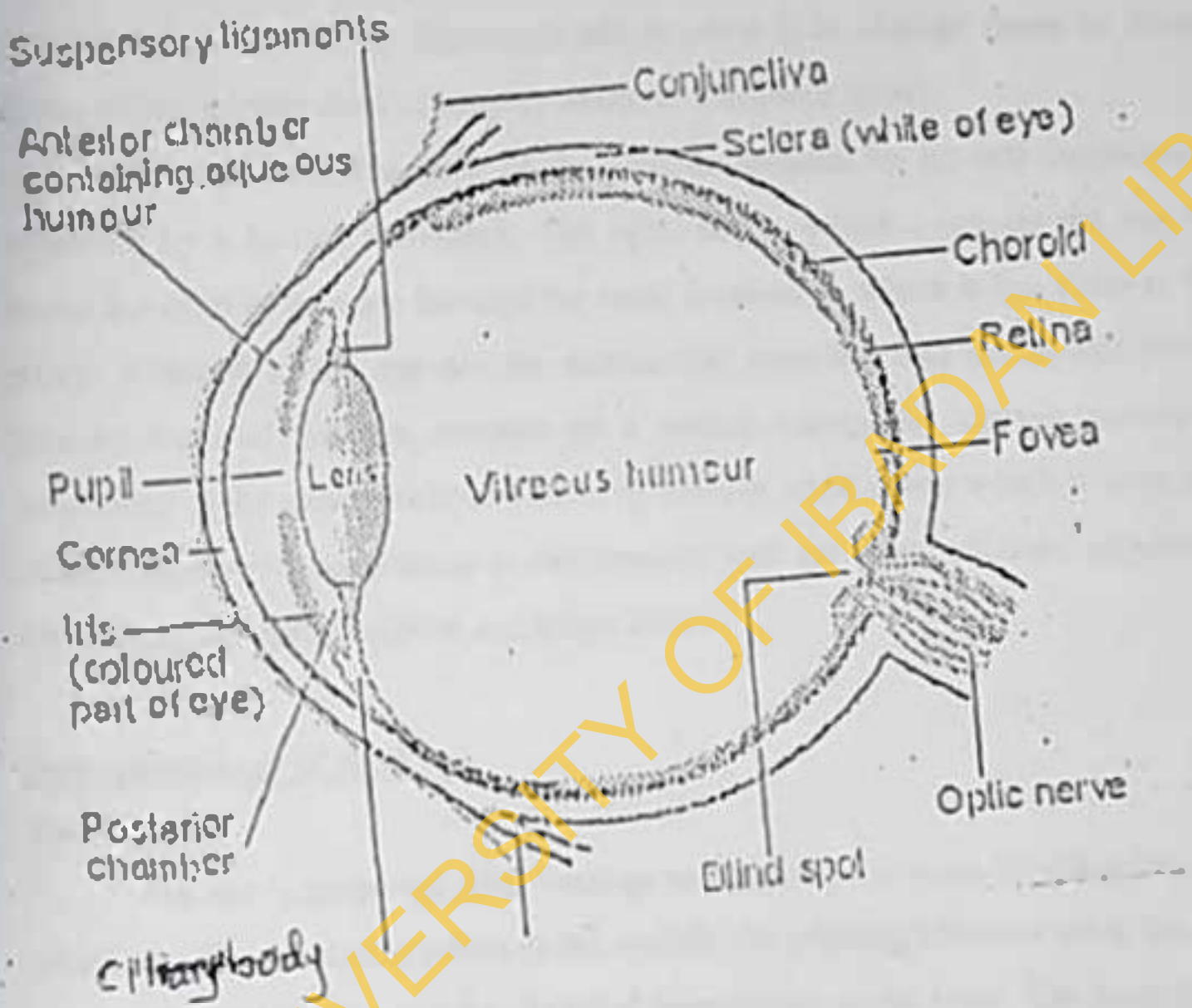
The Committee will meet at least quarterly and undertake the following responsibilities:

- Identify and prioritize Health Promotion and Consumer Rights needs in the Ward/village and develop action plans for Health Promotion
- Implement, monitor and evaluate Health Promotion and Consumer Right activities
- Co-ordinate the Health Promotion activities of different stakeholders to ensure that Health Promonion messages are consistent and do not contradict each other.
- Advocate with local stakeholders to increase their involvement in Health Promotion.
- Liaise with Health Promotion staff in the LGAs.
- Mobilize resources for Health Promotion from the local community and the LGA.

The Health Promotion unit at the LGA will provide support to the Health Promotion and Consumer Rights activities at Ward/village level. (National Health Promotion Policy 2006).

Figure 2

Structure of the Eye



Anatomy of the Eye

The eye is an organ of sight, a nearly spherical hollow globe filled with fluids (humors). The outer layer or tunic (sclera. or white, and cornea) is fibrous and protective. The middle tunic layer (choroids, ciliary body and the iris) is vascular. The innermost layer (retina) is nervous or sensory. The fluids in the eye are divided by the lens into the vitreous humor (behind the lens) and the aqueous humor (in front of the lens). The lens itself is flexible and suspended by ligaments which allow it to change shape to focus light on the retina, which is composed of sensory neurons (Feinberg 2004).

The eye lies in the front of the orbit surrounded by fat and connective tissue and is supported by a fascial hammock. The optic nerve, which connects the eye with the brain leaves the orbit at its apex through the optic foramen in which it lies close to the ophthalmic artery. Attached to the eye are six extraocular muscles, four rectus and two oblique. The exposed front of the eye consists of a central transparent convex portion. The cornea, surrounded at the corneo-scleral limbus by opaque white sclera which is covered by the loose bulbar conjunctiva continuous at the fornices with the more adherent palpebral conjunctiva which lines the eyelids (Crick and Khan 2003).

Pathophysiology of the Eye

The Eyelid

The eye is protected from damage by foreign substances by a number of mechanisms which are: The protective effect of the eyelids, the washing effect of tears, the structure of the conjunctiva and cornea and the chemical composition of the tears. The eyelids protect the eye by blinking, lubricating the eye with tears and the motion of cilia (microscopic hair like structures) on the surface of the eye's cells. The action of cilia removes small particles such as bacteria from the eye. The eyelid contains glands, which secrete mucus and fluid with antibacterial effect. The lacrimal or tear gland located within the orbit just above the outer corner of the eye produces fluid containing protecove enzymes (Walker 2002)

The Cornea

The transparent cornea forms the window of the eye. Corneal transparency is due largely to the special arrangement of cells and collagenous fibrils in an acid mucopolysaccharide environment and also an absence of a nucleus (Scheie and Albert 1976).

The cornea functions as a refracting and protective membrane and a window through which light rays pass on route to the retina. See Figure 1. In the corneal epithelium there is rich network of nerve fibers with bare ends. Whenever they are exposed, they produce a sensation of pain. The large number of nerves and the location of their endings account for the severe pain that results from even minor abrasions of corneal epithelium.

The Sclera

The Sclera (See figure 1) is the fibrous outer protective coating of the eye. It is dense and white and continuous with the cornea anteriorly and with the dural sheath of the optic nerve posteriorly (Vaughan and Asbury 2003). A few strands of sceleral tissue pass over the optic disc. The sieve like structure is known as the lamina cribrosa. Around the optic nerve, the sclera is penetrated by the long and short ciliary arteries and the long and short cilary nerves. The outer surface of the sclera is covered by a thin layer of fine elastic tissue, the episclera, containing numerous blood vessels that nourish the sclera. The brown pigment layer on the inner surface is the lamina fusca which is continuous with the sclera and choroids. The nerve supply to the sclera is from the ciliary nerves.

The Iris

The iris is the anterior extension of the ciliary body. It presents a relatively flat surface with a round aperture in the middle called the pupil. See figure 1. It forms the posterior wall of the anterior chamber and the anterior wall of the posterior chamber. The iris is in contact with the lens and aqueous posteriorly and with the aqueous anteriorly. It has two zones on its anterior surface, the ciliary and papillary zone. The sphincter and dilator muscle, which serve to constrict and dilate the pupil, are in the iris stroma. When the iris is cut, it seldom bleeds, and the wound remains with no tendency to heal.

The Ciliary Body

The ciliary body is roughly triangular in cross section, extends forward from the anterior termination of the choroids to the root of the iris. It consists of two zones; the corona ciliaris, the corrugated anterior 2mm; and the pass plana, the smoother and flatter posterior 4mm. The surface of the cornea ciliaris consists of many elevations and depressions. There are two layers of ciliary epithelium, the external pigmented and the internal non pigmented, both of which continue as pigmented layers over the posterior surface of the iris. The pigment epithelium represents the forward extension of the pigment epithelium of the retina. The

ciliary muscle consists of longitudinal, radial, and circular portions. Its function is to contract and relax the zonular fibers. This results in altered tension on the capsule of the lens, which gives the lens variable focus for both near and more distant objects in the field of vision. The blood vessels to the ciliary body come from the major circle of the iris. The sensory nerve supply is through the ciliary nerves, (Vaughan and Asbury 2003). According to Scheie and Albert (1976), the ciliary epithelium produces aqueous humor, and the ciliary muscle enables accommodation, or the changing of the focus of the eye, to take place.

The Lens

The lens is a biconvex, avascular, colourless and almost completely transparent structure, about 4mm thick and 9mm in diameter. It is suspended behind the iris by the zonule, which connects it with the ciliary body. Anterior to the lens is the aqueous; posterior to it is the vitreous. The lens capsule is a semi permeable membrane which will admit water and electrolytes. The lens nucleus is harder than the cortex. With age, subepithelial lamellar fibers are continuously produced, so that the lens gradually becomes larger and less elastic throughout life. The nucleus and cortex are made up of long concentric lamellas. The lens is held in place by a suspensory ligament known as the zonule (zonule of zinn). The sole function of the lens is to focus light rays upon the retina. The lens consists of about 65% water, about 35% protein and a trace of minerals common to other body tissues. Potassium is more concentrated in the lens than in most tissues. There are no pain fibres, blood vessels, or nerves in the lens. See figure 1.

The Vitreous

The vitreous is about 99% water. The remaining 1% includes 2 components, collagen and hyaluronic acid, which gives it its specific physical character. It is a clear, a vascular, gelatinous body that comprises two-thirds of the volume and weight of the eye. It fills the space bounded by the lens, retina, and optic disc. It plays an important role in maintaining the transparency and form of the eye. If the vitreous were removed, the eye could collapse. See figure 1.

The Retina

The retina covers the inner aspect of the posterior two-thirds of the wall of the globe. (Figure 1) It is a multilayered sheet of neural tissue closely applied to a single layer of pigmented epithelial cells which in turn is attached to the Bruch's membrane. The retina is

0.1mm think at the ora serrata and 0.23mm thick at the posterior pole. It is thinnest at the fovea centralis, the center of the macula. The retina is normally transparent and some of the incident light is reflected at the vitreoretinal interface. The retina is composed of highly organized, delicate tissue consisting of 9 histologic layers. The fovea centralis, which lies about 3.5mm lateral to the optic disk, is specialized for fine visual discrimination. The retina receives its blood supply from 2 sources. The choriocapillaries which supplies the outer third of the retina including the outer plexiform and outer layers, the photoreceptors and the pigment epithelium. The inner two thirds of the retina receives branches of the central retinal artery. The retina proper consists essentially of the somata and processes of three layers of nervous elements placed one on the other, and forming synapses in the so called molecular zones. They are: the visual cells (rods and cones), the bipolar cells and the ganglion cells. (Vaughan and Asbury 2003).

The Optic nerve

The optic nerve is not a true nerve like a peripheral nerve, but is actually a nerve fiber tract whose fibers are derived from the ganglion cells of the retina. The optic nerve fibers are separated by scattered neuroglia cells. In this respect the fibers resemble the white substance of the brain and spinal cord, which also is formed by myelinated fibers devoid of any neurolemal sheaths. Since the optic nerve is the second neuronal pathway (tract) along the path of conduction, it is subject to the same diseases that affect such tracts in the central nervous system and reacts similarly to disease processes (Figure 1).

Anatomy of the conjunctiva

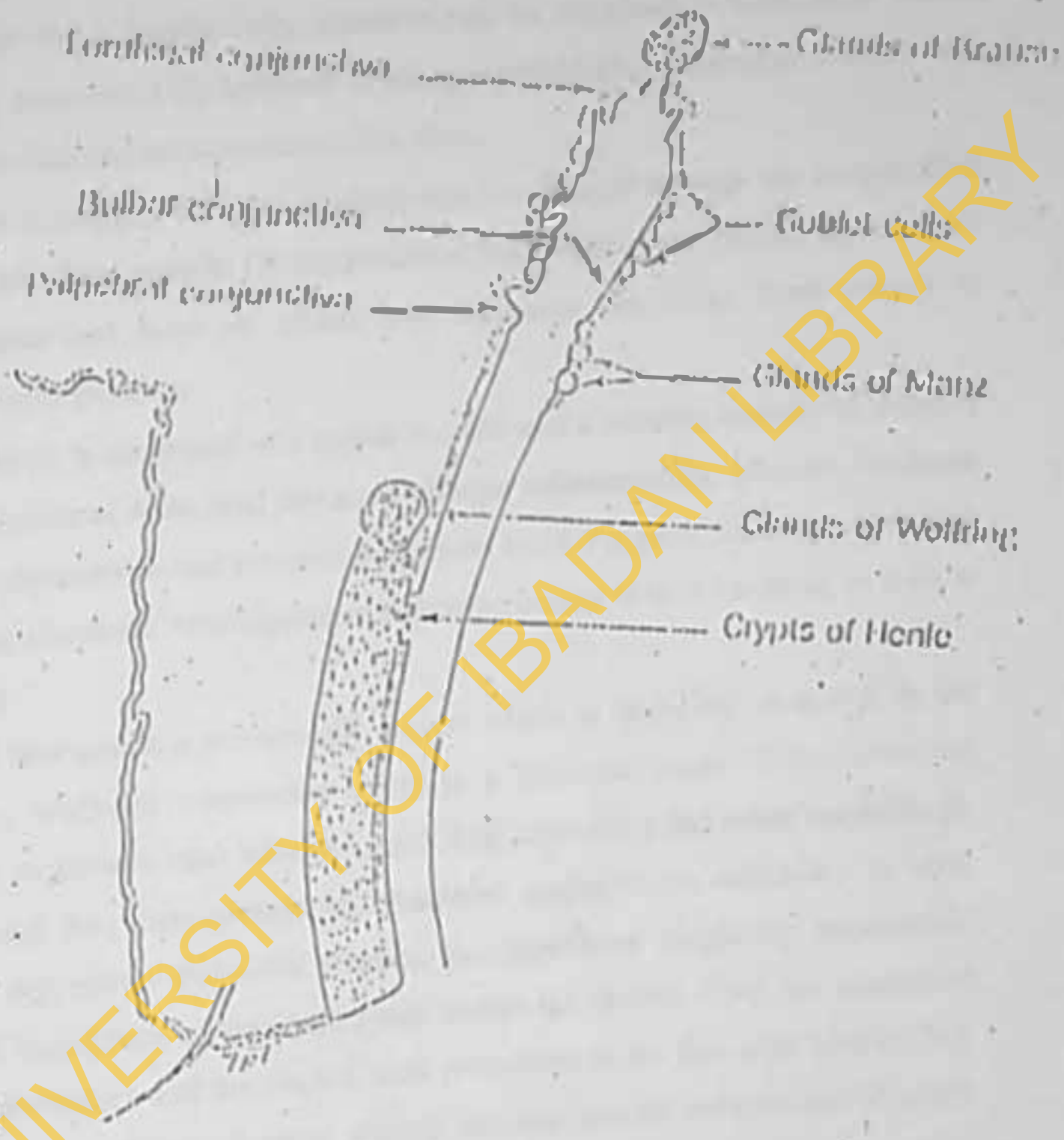
The conjunctiva as described by Vaughan and Asbury (2003) is the thin transparent mucous membrane that covers the posterior surface of the lids and the anterior surface of the sclera. It is continuous with the skin at the lid margin and with the corneal epithelium at the limbus. Kanski (2003) indicated that clinically, the conjunctiva is divided into three parts There are prepabral. This starts at the mucocutaneous junction of the lid margins and firmly adherent to the tarsal plates. Fornicea- This is loose and redundant so that it swells easily and may be thrown into folds. Bulbar-This portion covers the anterior sclera. The stroma of the bulbar conjunctiva is loosely attached to the underlying tenon's capsule, except at the limbus, where the attachment is firm.

The conjunctival epithelium is between two and five cell layers thick. Basal cuboidal cells evolve into flattened polyhedral cells as they reach the surface with chronic exposure and drying the epithelium may become keratinized.

The stroma (substantia propria) consists of richly vascularized connective tissue separated from the epithelium by a basement membrane. The adenoid superficial layer does not develop until about 3 months after birth, hence the inability of the newborn to produce follicular conjunctival reaction. The deep thicker fibrous layer is continuous with the tarsal plates and belongs to the subconjunctival tissues rather than the conjunctival Glands. The mucin secretors are of the following three types (see figure 2). Goblet cells, located within the epithelium, are most dense inferonasally. Crypts of Henle are located along the upper third of the superior tarsal conjunctiva and along the lower third of the inferior tarsal conjunctiva. Glands of manz encircle the limbus. Accessory lacrimal glands of krause and wolfring are located deep within the substantia propria.

Figure 3

Anatomy of the Conjunctiva and Its Glands



Pathophysiology of the Conjunctiva

The clinical features which should be considered in the differential diagnosis of conjunctival inflammation are: Symptoms, type of discharge, conjunctival appearance, presence of membrane and presence or absence of lymphadenopathy. Many of the symptoms of conjunctivitis are not specific such as lacrimation, irritation, stinging, burning and photophobia. Pain and a foreign body sensation may be the result of associated corneal involvement. Itching, however is the hallmark of allergic conjunctivitis although it may occur in patients with blepharitis and keratoconjunctivitis sicca.

The discharge is composed of the exudates that has filtered through the conjunctival epithelium from dilated blood vessels. On the surface of the conjunctiva, variable amounts of epithelia debris, mucus and tears are added. The discharge can range from watery to mucopurulent and grossly purulent.

Watery discharge is composed of a serous exudate and a variable amount of reflexly secreted tears. It is typical of acute viral and acute allergic inflammations. Mucoid discharge is typical of vernal conjunctivitis and keratoconjunctivitis sicca. Purulent dischange occurs in severe acute bacterial infections. Modcopurulent discharge occurs in mild bacterial as well as Chlamydia infections.

Conjunctival injection is a non-specific feature which is frequently maximal in the fornices. A velvety, beefy-red conjunctiva suggests a bacterial cause. Subconjunctival hemorrhages usually occur with viral infections, including adenovirus and acute hemorrhagic conjunctivitis, although they may present with bacterial conjunctivitis secondary to strep pneumonia and H. aegypticus. Follicular reaction has significant diagnostic importance. Follicles consists of hyperplasia of lymphoid tissue within the stroma. They are associated with accessory vascularization and are usually most prominent in the fornical conjunctiva. Clinically they appear as multiple, discrete, slightly elevated lesions reminiscent of small grains of rice. Each follicle is encircled by a tiny blood vessel and the size of the lesion, which can vary from 0.5 to 5mm, is related to the severity and duration of the inflammation. The four main causes of follicles are viral infections, Chlamydial infections, parinaud oculoglandular syndrome and hypersensitivity to topical medication. Papillary reaction is more non-specific and of less diagnostic value than a follicular response.

Papillae are composed of hyperplastic conjunctival epithelium thrown into numerous folds or projections with central vessels and a diffuse infiltrate of chronic inflammatory cells, including lymphocytes, plasma cells and eosnophils. Papillae can develop only in the palpebral conjunctiva and the bulbar conjunctiva at the limbus, where the overlying

conjunctival epithelium is attached to the underlying structures by fibrous septa. Papillae are most frequently seen in the upper palpebral conjunctiva as a line mosaic-like pattern of elevated polygonal hyperaemic area separated by paler channels. The central fibrovascular core produces a glomerulus-like appearance on reaching the surface. With prolonged inflammation, the fibrous septa which anchor the papillae to the underlying tissue may rupture, leading to either papillary confluence, as bacterial infections or the formation of giant papillae typical of vernal of conjunctivitis. The main causes of papillae are: chronic blepharitis allergic conjunctivitis, bacterial infection, contact lens - related problems, superior limbic keratoconjunctivitis and floppy eyelid syndrome.

Oedema (Chemosis) occurs whenever the conjunctiva is severely inflamed. Transudation of fibrin and protein-rich fluid through the walls of the damaged blood vessels produces a translucent swelling of the conjunctiva. In the fomiceal conjunctiva, large redundant folds form and in particularly severe cases, the chemotic conjunctiva may protrude through the closed eyelids.

Scarring may indicate trachoma, ocular cicatricial pemphigoid, atopic conjunctivitis, and the prolonged use of topical medications.

Membranes: Pseudomembranes consists of congulated exudates adherent to the inflamed conjunctival epithelium. Characteristically, they can be easily peeled off leaving the epithelium intact. The four main causes are severe adenoviral infection, ligneous, gonococcal conjunctivitis and Stevens-Johnson syndrome. True membranes form when the inflammatory exudates permeates the superficial layers of the conjunctival epithelium. Attempts to remove the membrane may be accompanied by tearing of the epithelium and bleeding. The main causes are infections resulting from beta-haemolytic streptococci and diphtheria.

Lymphadenopathy: Lymphatic drainage of the conjunctiva is to the preauricular and submandibular nodes which corresponds to the drainage of the eyelids. Lymphadenopathy is a feature of viral infections. Chlamydial infections, severe gonococcal infections and Parinaud syndrome (Kanski 1999).

The conjunctiva forms a natural barrier to the invasion of foreign matter such as: air borne particles of smoke, bacteria, allergens, the damaging effects of sun and wind. The conjunctiva responds to irritation by increased blood flow. This causes the eye to be red and the production of tears to increase (Walker 2002).

Assessment and Diagnosis

It is best to think of four different groups of patients who may suffer acute red eyes.

1. New born babies (0 – 28 days)
2. Children (6 months – 6 years)
3. Patients of any age
4. Following trauma

Acute conjunctivitis

Symptoms :"Red eye "(conjunctival hyperemia), discharge, eyelids sticking (worse in morning), foreign body sensation , less than 4 week duration of symptoms.

Gonococal Conjunctivitis

Signs

Critical severe purulent discharge, hyper acute onset (within 12 to 24 hours) others, conjunctival papillae, marked chemosis , periauricular adenopathy eyelid swelling. A follicular response is not seen with neonatal conjunctivitis

Viral Conjunctivitis

Symptoms

Itching, burning foreign body sensation; history of recent upper respiratory tract infection or sick contact. It usually staits in one eye and involves the fellow eye a few days later.

Signs

Critical Inferior palpebral conjunctiva follicles, palpable preauricular lymph node.

Other. Watery, mucous discharge, red and edematous, eyelids, palpable preauricular node, pin- point subconjunctival haemorrhages, membrane/pseudomembrane.

Subepithelia infiltrates (SEIs) may develop 1 to 2 weeks after the onset of the conjunctivitis.

Allergic Conjunctivitis

Symptoms. (e.g. hay fever)

Itching, watery discharge, and a history of allergies are typical

Vernal/Atopic

Itching, thick ropy discharge, seasonal (spring/summer) recurrent history of atopy. Usually seen in young patients, especially boys.

Signs

Critical Large conjunctivitis papillae seen under the upper eyelid or along the limbus (Limbal vernal)

Other superior corneal "Shield" ulcer (a well-delineated, sterile, gray – white infiltrate), limbal or palpebral raised white dots (Horner – Trantas dots) of degenerated eosinophils,

Bacteria conjunctivitis

Symptoms

Redness, foreign body sensation itching is much less prominent.

Signs

Critical Prevent discharge of mild to moderate degree other. Conjunctival papillae, chemosis, typically without preauricular adenopathy

Ophthalmia Neonatorun

Signs

Critical - purulent, mucoulent or mucoid discharge from an orbit eyes in the first month of life, with diffusc conjunctival injection. Other eyelid, edema, chemosis.(Derck, Kunimoto, Kanitkhar and Makar 2004).

Table 3: Diagnosis of conjunctivitis

	Bacteria conjunctivitis	Viral conjunctivitis	Allergic conjunctivitis
Occurrence	Common	Common	Common
Discharge	Purulent	Watery with mucus	Usually minimal, may be watery
Symptoms	Discomfort, vision is decreased if cornea is involved	Discomfort, vision is decreased if cornea is involved	Itching without pain
IOP	Not affected	Not affected	Not affected
Pupil	Normal	Normal	Normal
Conjunctival	Red, often with papillary reaction	Diffusely red with follicles	papillary reaction
Involvement	One or both eyes	Usually both eyes	Usually both eyes
Lymph nodes	No adenopathy	Preauricular adenopathy	No adenopathy
Staining with fluorescence	Usually no staining	sometimes punctate staining	Usually no staining

Definition of Conjunctivitis

The word conjunctivitis has been defined in various terms based on the outlook of each group. Conjunctivitis is defined by the medical Encyclopedia as an inflammation or infection of the membrane lining the eyelids (conjunctiva) (Medline 2004). Conjunctivitis according to Silverman et al (2003) is one of the most common non-traumatic eye complaints resulting in presentation to the clinic. The term describes any inflammatory process that involves the conjunctiva. However to most patients, conjunctivitis (often called pink eye) is a diagnosis in its own right.

Conjunctivitis has also been defined as an inflammation or infection of the transparent membrane of (conjunctives) that lines the eyelid and part of the eyeballs. Conjunctivitis may make one feel as if one has got something in one or both of ones eyes that one just can't get it out. When one wakes up in the morning, ones eyes may seem to be pasted shut from the discharge coming from the eyes. The whites of ones eyes also may begin to look pinkish, and one may not see as clearly as one did before". (CNN.com 2004)

According to Morrow (1998), conjunctivitis refers to any inflammatory condition of the membrane that lines the eyelids and covers the exposed surface of the sclera. It is the most common cause of "Red eye". The inflammation can be hyperacute, acute or chronic in presentation and infectious or non infectious in origin. Schwab (1999) said conjunctivitis is a general term (often used imprecisely) that covers numerous types and causes of conjunctivitis. "Conjunctivitis" is one of the most common ocular diagnoses recorded for patients presenting to rural outpatient clinics in many developing nations. Dr. Reddy's home

page of children's health defines conjunctivitis or "Pink eye" as an irritation of the eye (Pediatric Resource 2003). Article on Medinfo (2003) defines acute conjunctivitis as redness and soreness (inflammation) of the clear covering (the conjunctiva), which coats the white of the eye and lines the inside of the eyelids. This comes on relatively quickly and last for a fairly short time. Vaughan and Asbury (2003) defined conjunctivitis as an "inflammation of the conjunctiva" and described it as the most common eye disease worldwide. It varies in severity from a mild hyperemia with tearing to a severe conjunctivitis with copious purulent discharge. The cause is usually exogenous but rarely may it be endogenous.

Crick and Khaw (2003) defined conjunctivitis as inflammation of the conjunctiva that is characterized by injection of blood vessels (hyperaemia), oedema (chemosis), cellular infiltration and exudation usually containing mucus, which may not be infected.

Kid's health article on infections reiterated that conjunctivitis is commonly known as pink eye because of the inflamed tissues that are seen when the eyelid is pulled back and it is the most common infectious disease of the eye that affects children (Kids Health. 2003).

Conjunctivitis has also been defined as an "inflammation of the membrane (conjunctiva) that covers the eye and lines the inner surface of the eyelid" (conjunctivitis-health information 2003). Faal , Hagan , Bob-Egbe , Ofili , Oladepo et al (2002) simply define conjunctivitis as the commonest cause of red eye. It can occur in all eyes and has many causes, bacterial, virus, chlamydial and allergies. Lehman (1999) in a study on an uncommon cause of ophthalmia neonatorum: Neisseria meningitidis defined ophthalmia neonatorum as conjunctivitis appearing during the first month on life.

Causes of Conjunctivitis

There are three most common causes of conjunctivitis. See table 3. These are: viral, allergic and bacteria (St Lukes Eye. Com 2003). According to article from pedintric on call (2001), the most common cause of conjunctivitis is a viral infection. Other causes are bacterial infection, allergic reactions and Opthalmia neonatorum (conjunctivitis seen in the newborns).

Bacterial Conjunctivitis

Many different bacteria can cause conjunctivitis, but the most common are streptococcus pneumonia, Haemophilis influenzae and staphylococcus aureus (Kid's health 2004). Liesegang (2002) says that majority of cases of acute conjunctivitis in children are bacteria in origin. Common clinical findings in children with bacterial conjunctivitis are burning, stinging, foreign body seosation, ocular discharge and matting of the eyelids. Symptoms and signs may present either unilaterally or bilaterally. The discharge may be serous, mucoid or mucopuralent. The incidence of bacterial conjunctivitis is higher in harmotan months and the patient often has an associated upper respiratory tract infection. Other organisms causing conjunctivitis in children include staphylococcus aureus, streptoccus pyogenes, moraxella species, gram negative rods (e.g. Pseudomonas and Escherichia coli), N. Menigitidis. N Catarhalis and H aegypticus. According to Sowka (2004), patients with bacterial conjunctival infections present with infection of the bulbar conjunctiva, episclera vessels and perhaps papillae of the palpebral conjunctiva. Conjunctivitis called "Apollo" occurs mainly in epidemics Faal et al (2002). Currie (2001) on childhood infection in the tropical North of Australia indicates high rates of infections in Aboriginal children living in remote communities. In addition to the burden of respiratory infection, diarrheal disease and skin sepsis, there are high rates of acute rheumatic fever, outbreaks of post streptococcal glomcnilonephritis and gonococcal conjunctivitis, endemic trachoma and various intestinal parasites.

Viral Conjunctivitis

This occurs mainly in epidemics (Faal et al 2002). It is self limiting, with no visual sequelae. However, self-medication with harmful substances like Sugar water, battery acid, herb solution and steroids, does lead to development of corneal ulcerations and subsequent visual loss. The two most common self-limiting forms of viral conjunctivitis are epidemic keratoconjunctivitis and pharyngoconjunctival fever (Sowka 2004).

Liesegang (2002) states that Epidemic keratoconjunctivitis is an acute follicular conjunctivitis that is usually unilateral at onset and associated with preauricular lymphadenopathy. The infection is commonly caused by adenovirus types 8, 11, or 19. Initial complaints are foreign body sensation and periorbital pain. In severe infections particularly in infants, a conjunctiva membrane and marked swelling of the eyelids occur. The infection is easily transmitted and occurs in epidemic outbreaks.

According to Press and Moore (1993) in general, viruses are the most common cause of external eye infections in children beyond infancy. Healthy infants, particularly those that are breast fed, possess a significant immunity passed on from their mother that provides a considerable level of defence against many of the typical ocular viral diseases. Older children are usually susceptible to frequent viral illnesses of all types once this passive maternally based immunity is lost. Epidemics of various adenoviruses are frequently encountered in schools.

Allergic Conjunctivitis

Allergic conjunctivitis occurs more frequently among those with allergic conditions. This may be caused by intolerance to substances such as cosmetics, perfumes or drugs. When related to allergies, the symptoms are often seasonal. (St Lukes Eye com 2003). The eyes may become irritated in many ways. Often substances floating in the air can bother the eyes: these include smoke and dust, which irritate the eyes directly, or air borne allergens such as plant pollens and animal dandles (which irritate the eyes indirectly) (Morrow 1998). Allergic conjunctivitis results in excessive tearing from the eyes, itching and redness. It may sometimes be associated with a running nose (Pediatric Oncall 2001). Sowka (2004) states that itching and conjunctival injection are the two hallmarks of an allergic reaction.

Types of Conjunctivitis

Ophthalmia Neonatorum

This is conjunctivitis of the newborn. It is acute red, discharging eyes in a baby during the first 28 days of life. It is a notifiable disease. (Faal et al 2002). The baby usually contracts the infection from the mother's birth canal. But infection outside the birth canal may occur from dirty hands. The causative organisms are Neisseria gonorrhea (the most virulent), staphylococcus and Chlamydia. The mother brings the child and complains that yellowish discharge comes out of the eye. The eyelids are swollen and they stick and the eye is red.

Chlamydial and Gonococcal Conjunctivitis

Gonococcal infection is a rare cause of ophthalmia neonatorium which is transmitted from the mother during delivery (Kanski 1998). Chlamydial conjunctivitis typically affects sexually active teens and young adults and is the most frequent infectious cause of conjunctivitis in the US (Sowka 2004). Women seem to be more susceptible than men. The incidence of infection seems to be directly related to sexual activity and geography, with urban populations having higher incidences. The overall incidence in pregnant women is 4 to 10 percent. Infants whose mothers have untreated chlamydial infection have 30 to 40 percent chance of developing neonatal chlamydial conjunctivitis. Systemic signs and symptoms may include a history of virginitis, pelvic inflammatory disease or urethritis. Newborn infants may acquire the infection by passing through an infected birth canal.

Trachoma

Trachoma is a form of conjunctivitis caused by Chlamydia trachomatis. Trachoma is common in Nigeria especially in the North (Abiose 1980). Riodan-Eva (1992) stated that trachoma causes bilateral Kerato-conjunctivitis generally in childhood and when severe causes blindness. Trachoma is said to be the leading cause of blindness after cataracts. It is presently confined to the countries mainly in Africa, Middle East and Asia. About 150 million are thought to have active infection and 5.6 million are blind and 10 million need surgery to prevent blindness. (WHO). Thylefors (1992) said that trachoma and associated cornea infection are responsible for 25% of world blindness. Trachoma can be spread through unwashed face, dirty hands, sharing wash cloths or eye pencils with infected persons and having flies carrying germs from one person to the other. Thylefors also asserted that poverty and ignorance helped spread trachoma but that with proper health education and with the provision of amenities like simple latrines in the community, the disease can be remarkably reduced

Xerophthalmia

Xerophthalmia is a common eye condition of public health concern. This is due to vitamin A deficiency and it is a major cause of childhood blindness all over the world (Gilbert 1993). Faal et al (2002) asserted that nutritional cornea ulcer is commoner in children between 6 months and 6 years of age. These children are usually malnourished, have vitamin A deficiency (VAD) and are immunologically depressed. The associated conditions they present with include malnutrition-marasmus, kwashiorkor, measles and malabsorption states. The mother may present an ill child with red eyes. The child may have undue

sensitivity to light, may have measles or may just be recovering from a recent attack of measles or have diarrhea. Children on admission for these conditions may develop corneal ulcers, which could be missed and neglected, as the focus is usually on other problems hence the need to regularly examine their eyes. Measles is an acute disease characterized by fever, cough, conjunctivitis, erythematous maculopapular rash and pathognomonic enanthem. Vaccination had resulted in reduced complications and mortality. (Gendrel 1997).

Preventive approaches include Foods rich in Vitamin A which include yellow vegetable and fruits such as mangoes, pawpaw, tomatoes, pumkin leaves, yellow sweet potatoes, palm oil, milk, egg yolks and butter (IEF 1975); vitamin A supplements especially for all children aged 6 months to 6 years.

Signs and Symptoms of Conjunctivitis

The symptoms and signs of bacterial conjunctivitis are; red eyes, discharge of pus and pain (Wood 1999). The spectrum of organism causing conjunctivitis varies around the world. The signs and symptoms of viral conjunctivitis are watery discharge, red eye and itching. The signs and symptoms of Allergic (vernal) conjunctivitis are red eye, excessive lacrimation and itching. Geographical, genetic and environmental factors are influential in this disease. Liesegang (2002) describes clinical findings in children with bacteria or viral conjunctivitis as burning, stinging, foreign body sensation, ocular discharge and matting of the eyelids. In a study by Kositrukvongs (2001) on allergic conjunctivitis, the majority of the patients had perennial allergic conjunctivitis, 95% of the patients had associated allergic diseases, especially allergic rhinitis while 66% of the patients had a family history of atopy. Symptoms persisted throughout the year and generally triggered by exposure to house dust. Common allergens causing sensitization were house-dust mites, house dust cockroaches and grass pollen. Environmental control and avoidance of these allergens should be stressed in the management of these conditions. Abu-el-Asar (2002) in a study on immunology of trachomatous conjunctivitis, Trachoma, a chronic follicular conjunctivitis caused by infection with chlamydial trachomatis, is a leading cause of preventable blindness. The blinding complications are associated with progressive conjunctivitis scarring.

Prevalence of Conjunctivitis

The red eye forms a big proportion of the eye problems seen in the developing countries. For example, in the Bawku Hospital eye unit, Ghana, in 2004 a total of 21,391 patients were seen as outpatients, out of which 8,931 were red eyes of one type or another,

representing over 40% of the total number of patients screened Baba (2004). Ehlers and Mabeck (1996) reported that "conjunctivitis" is a frequent reason for consulting a doctor.

Lamers (1991) identifies conjunctivitis as the third most common childhood conditions that teachers, parents and care givers see in children between the ages of 4 and 10. In a study by Ratelle (1993) on neonatal chlamydial infections in Massachusetts, almost all the infants 39 (89%) had conjunctivitis despite the fact that ocular prophylaxis with erythromycin were documented for 34 infants. This study reinforces the importance of primary prevention of neonatal infections through prenatal screening in the third trimester, treatment of infected mother and their sexual partner(s) and active follow up. According to Rice (2000) conjunctivitis or pink eye, is the common eye infection in the United States. Noting that children under age 5 are the most susceptible and that the early school and child care setting is the ideal place for these germs to thrive. Another study conducted by Wafula (2000) to estimate the effect of improved stoves on prevalence of ARI and conjunctivits among children below five years and women aged between 15 and 60 years showed that the prevalence of conjunctivitis was significantly higher in house hold with traditional three-stone stoves than in households with improved stoves. Another study was carried our on aeroallergens sensitization patterns amongst atopic Zimbabwean children. The result showed that eczema (33.9%) was the most frequent clinical diagnosis especially in those less than 24 months of age, followed by asthma (25.5%), allergic conjunctivitis (24.0%) and allergic rhinitis (15.6%).Dinakaran and Desai (2000) in a study stated that meningococcal conjunctivitis, although rare may be complicated in ocular damage and systemic spread.

Vernal Keratoconjunctivitis was the most common conjunctiva disease seen over a 2 year period (January 1997-December 1998) at the University of Benin Teaching Hospital, Benin-city, Nigeria. In the study, 109 patients were seen with vernal Keratoconjunctivitis and the age range of patients were 5 months to 38 years and of these patients 54.1% were children. In another study at the University College Hospital, Ibadan eye diseases constituted one of the commonest problems presenting to the general practice clinic, conjunctivitis had a prevalence of 32.9%, (Scott and Ajaiyeoba 2003). Ajaiyeoba (1987), found a high prevalence of conjunctivitis among children in Ibadan.

In a study by Ajaiyeoba (2003) on prevalence of atopic diseases in Nigerian children with Vernal keratoconjunctivitis (VKC) newly presenting to two hospitals in Ibadan, Nigeria, the overall prevalence of atopic conditions was 19.8% amongst cases of VKC. According to Rabiu and Abiose (2001) the prevalence of trachoma in children was 11.8% in a study on the magnitude of trachoma and barriers to uptake of lid surgery in a rural community in Northern

Nigeria. Adeoye (2002) identified allergic conjunctivitis (15.9%) as among the common ocular presentations in a study of analysis of Eye diseases in private practice. However, Ukpomwan (2003) stated that vernal conjunctivitis was the most common conjunctiva disease seen over a 2 year period at the University of Benin Teaching Hospital. In a survey conducted by Idoh et al (2004) on visual Screening in School children in Benin city, Edo State, Nigeria, many children presented with red itchy eyes of allergic conjunctivitis.

Iyamu and Enabule (2003) in a survey on Ophthalmic Neonatorum in Benin-city, Nigeria with (Emphasis on gonococcal Ophthalmia) said the incidence of gonococcal Ophthalmia neonatorum for the period of study was 8.9 (cases per 1,000 live births). Ezenwa (1996) in studies of risks associated with technological development in Nigeria, identified conjunctivitis, dermatitis chronic bronchitis and bronchial asthma accounting for 91% of the 855 reported cases. Fatusi (1996) in a study of the occupational health status of sawmill workers in Nigeria, asserted that most of the workers had high prevalence of conjunctivitis, skin irritation and hearing difficulties.

Treatment and manngement of conjunctivitis

Home management:

According to an article by West (1994) on Hispanic mothers belief and practice regarding selected child health problems on their sources of advice and help with children's illnesses, namely; fever, cough, diarrhea, conjunctivitis, skin rash, minor wounds and burns, their beliefs about problem etiology varied. The finding were 32% of the mother's used or would use health professionals as initial source of advice or help with children's problems. Majority of the subjects (81%) admitted to using home remedies to manage children's problems, 17% sought help of a folk healer . In an outbreak of conjunctivitis in Algeria which affected 40,000 people, (BBC News 2003). Most of the victims came from Boumerdes area which was struck by a massive earthquake. Doctors said the spread of the eye infection was being exacerbated by the poor hygienic conditions that prevailed in the areas struck by the earthquake. To curb the spread of the infection, the health authorities announced that all those infected were to be given free medication in public hospital. They also urged the public to exercise high level of hygiene. They also said people should avoid shaking hands, while those already infected were quarantined.

Alternative Treatment:

In a survey of 107 African traditional healers in Chikwawa district, Malawi, 68 of healers treated at least one of six common eye conditions. The most common eye condition treated was cataract, followed by conjunctivitis/inflammatory trachoma, (Courtright 1995). The size of the healers practice, literacy, and great distance to health facility were positively associated with the provision of eye care. Traditional healers have considerably more eye care interactions with the rural population than existing health personnel in Chikwawa district. Collaborations with healers in eye care programmes is advocated and recommendations are provided. Chana (1997) mentioned other traditional eye medicines practiced in children. The practices are herbal concoction instilled into the eyes of a child for nivial complaints. A herbal was implanted under the eyelid of a child with mild allergic conjunctivitis and this led to fulminating panophthalmitis. Herbal ocular "Medicines" are responsible for estimated 8-10% of corneal blindness in Africa. This permanent damage is the result of herbs with a very high Pouvoir Hydrogene (pH) or the introduction of microorganisms that could lead to suppurative keratitis and endophthalmitis. Extract of lemon peals are used for serious eye infections whereas juice from tomatoes leaves is used in milder conditions. The most common eye diseases treated in children are allergies, conjunctivitis and trachoma. In the case of trachoma, one healer in Kenya used the rough leaf of Ordia sinesis to rub on the tarsal conjunctiva until it bled. Another chewed the leaves of boscia coreacea, and juice obtained along with the saliva applied to the conjunctival sac, a procedure causing irritation, pain and possible chemical burns. Also observed were cases of gonococcal conjunctivitis among children and these followed instillation by the traditional healer of his own infected urine into the eyes of children presenting with trivial ocular complaints.

Belief and attitudes to conjunctivitis

According to Nwosu (2002) in a study on belief and attitude to Eye diseases and blindness in rural Anambra state, Nigeria, 94.6% of respondents would advise a relation with eye diseases/blindness to go to hospital and kinsman were likely to contribute to treat the blind (93.3%) and exclude him from tax and levies (58.7), but recommending herbs, consulting herbalists and or seer and offering sacrifices to the gods were other options. While 87% persons would accept eye glasses, only 59.7% would submit to surgery if necessary 18.4% persons saw eye surgery as frightening and (8.66%) viewed it as useless. Also in another retrospective study by Anochie and Graham Douglas (2000) in University of Port Harcourt Teaching Hospital, Nigeria, chemical conjunctivitis with its potential of causing blindness resulted from instillation of palm oil, crude oil, herbal concoctions and Onion leaves into the eyes. In a study on malaria chemoprophylaxis and child bearing women in a peri-urban Nigerian community: knowledge attitude and socio-cultural factors for acceptance, the study revealed that respondents with higher educational level had significantly better knowledge of antimalaria chemoprophylactic s and higher level of usage. Level of education was found to be an important influencing factor of the positive attitude, Abdulraheem and Akanbi (2002).

Conceptual Framework

The PRECEDE Model

The PRECEDE model is a planning and diagnostic framework developed by Green, Kreuter, Deeds and Partridge in 1980. It consists of a series of sequential steps for diagnosing the causes of a problem and consequently selecting the most appropriate health intervention for solving the identified problem. The model is a standard scientific approach to planning programmed in health education It involves identifying both behavioral and non-behavioral causes of a problem, although, much emphasis is laid on the behavioral aspect in the model The associated behaviours to the health problem are analyzed and various factors that influence such behaviors (antecedent factors) are identified. Afterwards different approaches for tackling the problem are highlighted. See figure 4.

THE PRECEDE model presents a framework comprising six phases which include:

Phases 1-2: - Epidemiological and social diagnosis

Phase 3: _ Behavioural diagnosis

Phase 4.5 - Educational diagnosis

Phase 6 – Administrative diagnosis

Phases 1-2 comprise the epidemiological and social diagnosis. It presents the effect of both health and non health problems on the quality of life, with much emphasis on health problems, which are identified through various sources such as review of literature or documents, surveys and interviews. The epidemiological diagnosis deals with the incidence, prevalence and distribution of the health or social problems while the social diagnosis aspect focuses on social problems that have negative impact on health. In this study these epidemiological diagnosis include prompt treatment of conjunctivitis infection amongst mothers and incidence of conjunctivitis infections in children. The social diagnosis includes adequate Eye-clinics, unemployment, level of education and cultural practices.

Phase 3 consists of behavioral diagnosis aspect of the model. It recognized that the identified health problems are influenced by both behavioral and non-behavioral causes. However, the model focuses more on health related behaviors in this study that have a negative impact on health and so on. Which a health education intervention is necessary in order to elicit a positive effect on the quality of life.

Phases 4-5 present the educational diagnosis, which includes the behavioral antecedents of the PRECEDE model. It recognizes three components of antecedent factors that have an influence on health related behaviors. These include the predisposing, enabling and reinforcing factors.

Phase 6 Comprise the administrative diagnosis Phase during which the health education intervention or strategy that would influence behavior is identified. The intervention is directed at the most important factor identified in the educational diagnosis (predisposing, enabling, reinforcing factors) that can elicit a positive change in behavior giving the consideration to available resources. Example of such strategy is training, communication (interpersonal and mass media) and health talks. The antecedents are described as follow:

Predisposing factors

These are things, with which individuals come into a sinuation such as health knowledge, attitudes and values, health beliefs, nonns and perceptions. In this study, these are the awareness of conjunctivitis by mothers and their knowledge of conjunctivitis. Beliefs are values they hold towards conjunctivitis, the level of education of mothers and their age.

The predisposing factors are characterized by their motivational force prior to the decision to take a given health action (Green 1981).

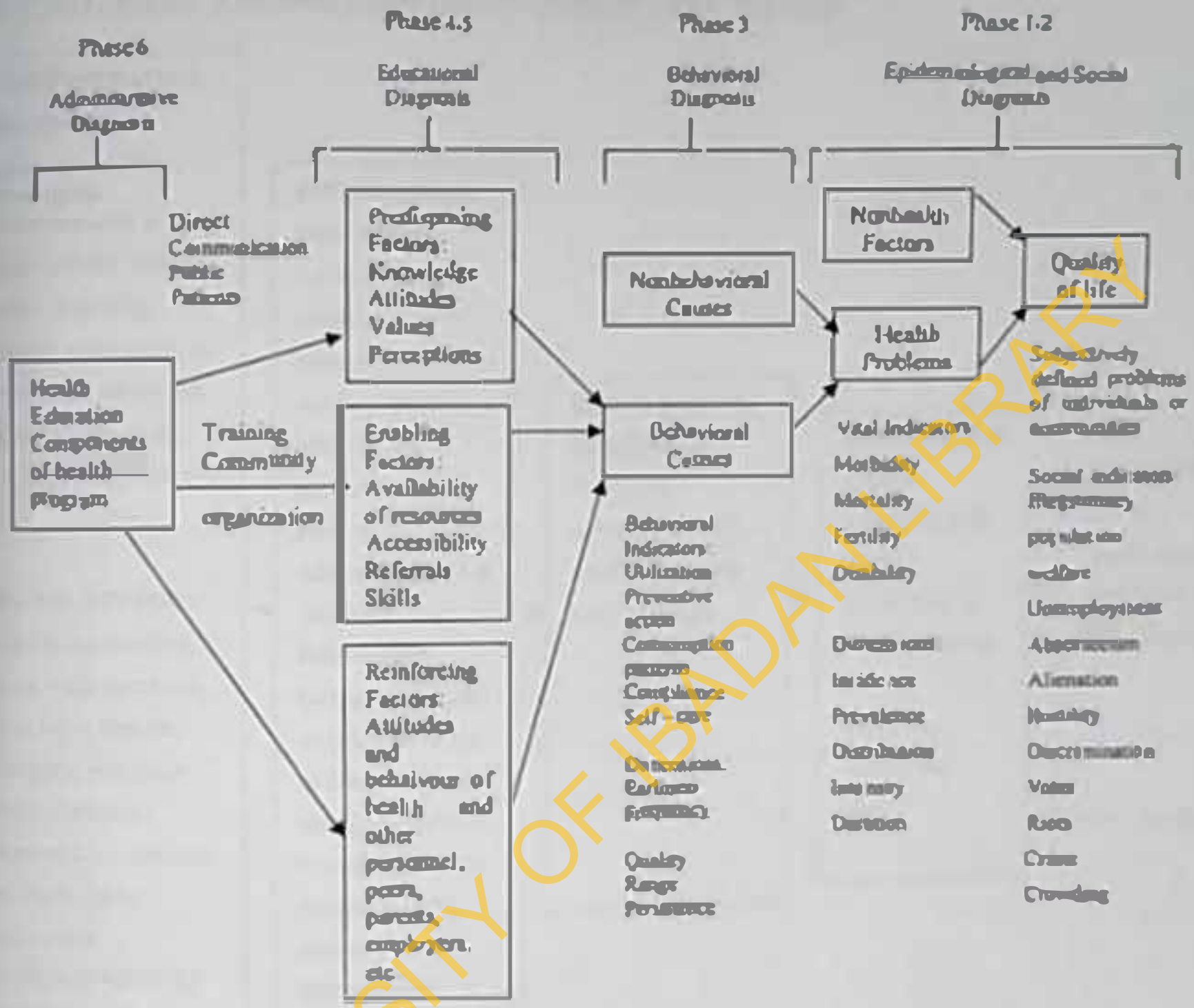
Enabling Factors

These are modifiable through educational processes and include skills and other resources required by mothers, health care providers to act perform or function in the situation. Availability and accessibility of health services, time, money, information, education and communication (IEC) materials and personnel make up the enabling factors in this study. See figure 5.

Reinforcing Factor

This set of factors is becoming more prevalent in health education where the assumed causes of behavior are largely social or peer influence (Green 1981). They are to be most influential in relation to the development of behavior conducive to health. Reinforcing factors determine whether a behavior that is motivated and enabled will persist once it has been tried. In this study reinforcing factors include; attitude and behaviors of friends, peers, family members towards conjunctivitis.

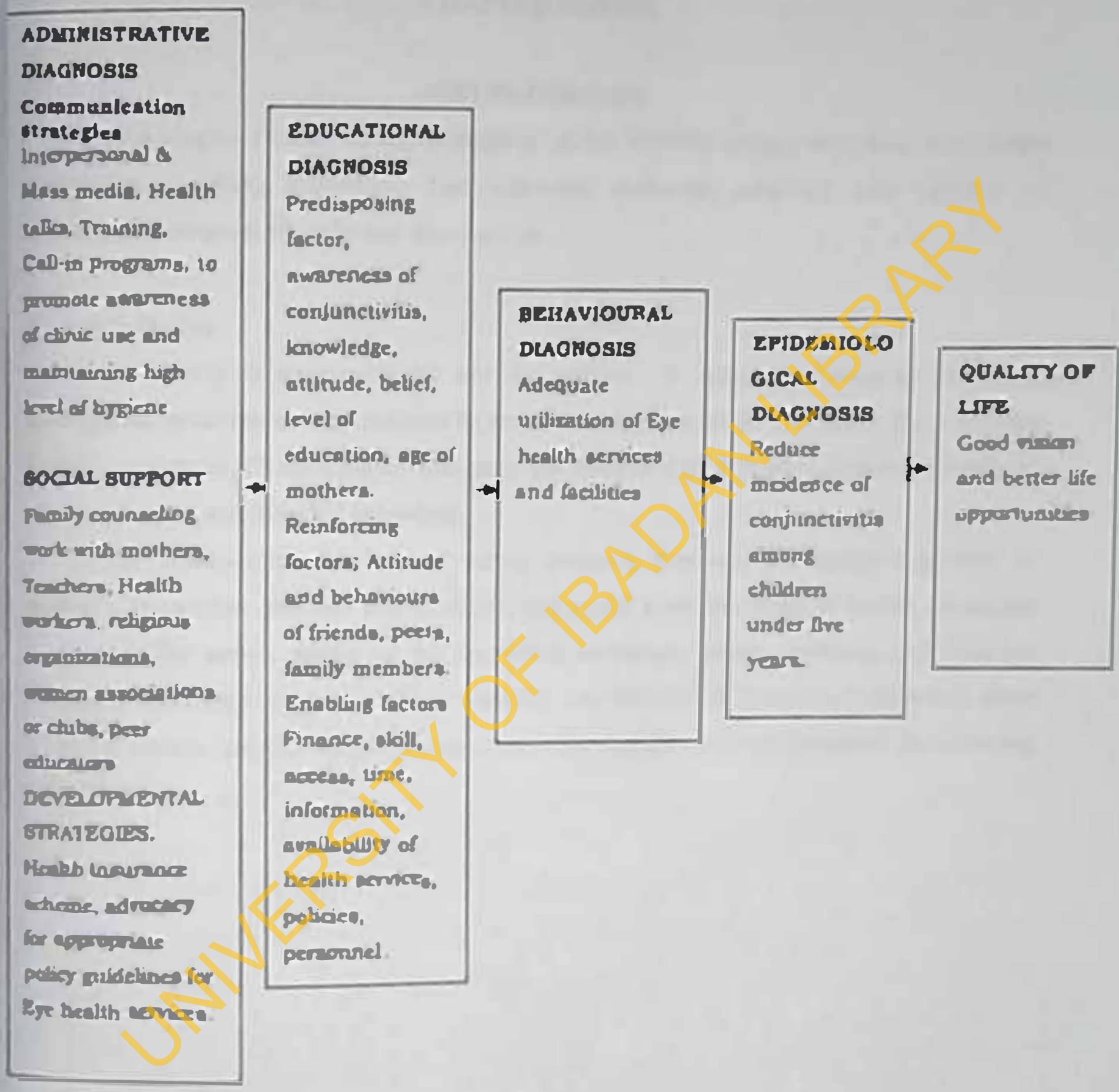
Figure 4: PRECEDE MODEL



(Source: Green, et al, 1980)

Figure 5

PRECEDE MODEL APPLIED TO HOME MANAGEMENT OF CONJUNCTIVITIS BY MOTHERS AMONG CHILDREN UNDER FIVE YEARS.



CHAPTER THREE

METHODOLOGY

This chapter focuses on the description of the research design, the study area, target population, sampling procedure, data collection methods, reliability and validity of instrument, limitation of study and data analysis.

Research Design

This study is cross-sectional and descriptive. It seeks to document the home management practices of conjunctivitis by mothers in children under five years old in Eti-Osa Local Government of Lagos State. The interview method was utilized to document mothers' reports of actual and intended behaviour.

The cross-sectional nature of survey research provided a diagnostic picture of mother's knowledge attitudes and practices that could form the basis of health education planning. The survey draws on the theoretical construct, frame questions and decision making by mothers when their children were ill. The PRECEDE theory postulates that three classes of factors (predisposing, enabling and reinforcing factors) have potential for affecting behaviour.

Description of the Study Area

The study was conducted in Eti-Osa Local Government Area (LGA) of Lagos state. Created on the 3rd May 1989 from Lagos Island Local Government, Lagos State. Population of the local government is 251,300 inhabitants (1991 census population) the population of women of reproductive age is 55,286 (22%) and children under five years old is 50,260 (20%). The population of children under 1 year old is 10,052 (4%) and children under 2 years old 20,104 (8%)

The LGA has landmark of 125km with Lagos lagoon to the North and the Atlantic Coastline to its South. Its eastern and western boundaries are located at Sangotedo Village and Mcgregor canal respectively. It consists of Lekki Peninsular, Ikoyi, Highbrow Victoria Island and 42 rural communities.

Eti-Osa is made up of four developmental areas; Ikoyi/Obalende, with headquarter/secretariat at Obalende. Iru/Victoria Island, with headquarter/Secretariat at Victorial Island. Eti-Osa East, with headquarter/secretariat at Ajo and Eti-Osa West, with headquarter/Secretariat at Igbo-Efon.

The LGA is made up of land and Riverine area with difficult terrain. The Riverine area Tarkwa Bay is accessible by speed boat. Other areas with difficult terrain are Oku Aja, Ogombo and Okumokpo and these are accessible by Jeep. The annual growth rate is 3%.

The LGA is made up of 40% urban and 60% rural dwellers. It belongs primarily to the Yoruba tribe with other tribes present. Traditionally, the communities are governed by Oba's and Baales. There are five Oba's in the LGA.

The climate is that of the tropical rain-forest zone. There are two raining seasons, with the heaviest rains falling from April to July and a weaker rainy season in October and November. There is a brief relatively dry spell in August and September and a longer dry season from December to March Monthly rainfall between May and July averages 300mm (12in), while August and September is down to 73mm (3inches) and January as low as 35mm (1.5 inches). The main dry season is accompanied by harmattan winds from the Sahara Desert, which is strong. According to BCC weather, the average temperature in January is 27°C (79°F) and for July it is 25°C (77°F). On average the hottest month is March with a mean temperature of 29°C (84°F), while July is the coolest month.

The people are engaged primarily in trading, fishing and hunting. Most of the nations wealth and economic activity are concentrated here. Many of the country's largest banks and financial institutions are located here. Ikoyi Island, houses the headquarters of the state government and all other government buildings. It also has many hotels and one of Africa's

largest golf courses. Originally a middle class neighbourhood , in recent years, it has become a fashionable enclave for the upper middle class to the upper class. Victoria Island, another town in the LGA is a wealthy enclave that is one of the homes to Nigeria's ruling elite and the countries wealthiest. It also boasts a sizeable commercial district including Nigeria's largest malls and movie theatres. A large number of Nigeria's foreign expatriate community lives there.

There are numerous private Nursery, primary and secondary school as well as government schools in the LGA. There is the Pan-African University which is primarily a business school, offering MBA programs located in Eti-Osa East developmental region.

There are about 50 private hospitals in the LGA with no government hospital and a military hospital in Victoria Island. There are about 25 pharmacies/chemists/dispensaries with most of them located in the Ikoyi/Obalende developmental region

There are 10 primary health care centers located in Ajah, Sangotedo, Badore, Ado, Ikota, Ajiran, Igboefon, Itu, Obalende and Ikoyi. See Appendix 3. There are numerous herbalists healers. The people of Eti-Osa like and eat a lot of fish. The common reported health problems of the children in the LGA is malaria, cough, catarrh and pneumonia because of the coastal area. Teenage pregnancy is also common in the LGA. The community members believe in going to the traditional birth attendants (TBA's) to have their babies. The people in the community don't believe in family planning so they have many children. Conjunctivitis outbreak is common in children during the harmattan season. The prevalence rate of those that visit the hospitals and health centers is about 15% as most patronize the traditional healers who are more accessible to the people.

Also because of poor personal hygiene and the sandy nature of the area, children often present with red eyes. Most of the mothers in the communities instill breast milk into the eyes of the children when they have conjunctivitis.

Water supply is a problem in the LGA. The main sources of supply are boreholes and shallow wells. About 10% of the people in Eti-Osa have access to borehole. There is poor sanitation in the rural communities and fewer people have access to clean water, thus conjunctivitis is common in children in the LGA.

Study Variables

The study variables consist of knowledge about conjunctivitis that is cause of, mode of transmission of conjunctivitis, method of preventing conjunctivitis and consequences of

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conjunctivitis infection. Belief of mothers about conjunctivitis, which include seriousness, vulnerability and effective treatment options. Perceived susceptibility, which includes history of conjunctivitis and perceived threat of conjunctivitis infection.

Study Population

The study population consisted of mothers of children under five years old who are primary caretakers and therefore most likely to be around when their children have conjunctivitis.

Sample Size Determination

The UNICEF/WHO procedure was used for calculating sample size.

The study sample size estimates was based on the following assumptions.

Prevalence of 50%

Estimated non-response rate of 10%

An absolute derivation of 5% as a measure of precision for the study populations. The sample size(s) determined at 95% confidence interval (i.e. z= 1.96), with 5% precision, d 0.05 is calculated using the formula.

$$n = \frac{Z^2 pq}{d^2}$$

n = sample size

p = proportion

q = 1-p

d = precision

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

$$n = \frac{0.2604}{0.0025}$$

$$= 384.16$$

The minimum sample size is 384. However, 10% of this value is added for attrition, thus bringing the sample size to 422.

Inclusion criterion

The inclusion criterion was all women with children under 5 years old.

Sampling Procedure

A multistage sampling technique was used in selecting the sample for this study. This involves the following stages-

i. Stratification of Eti-Osa local government area into developmental region.

ii. Balloting to select a sub region from each developmental region.

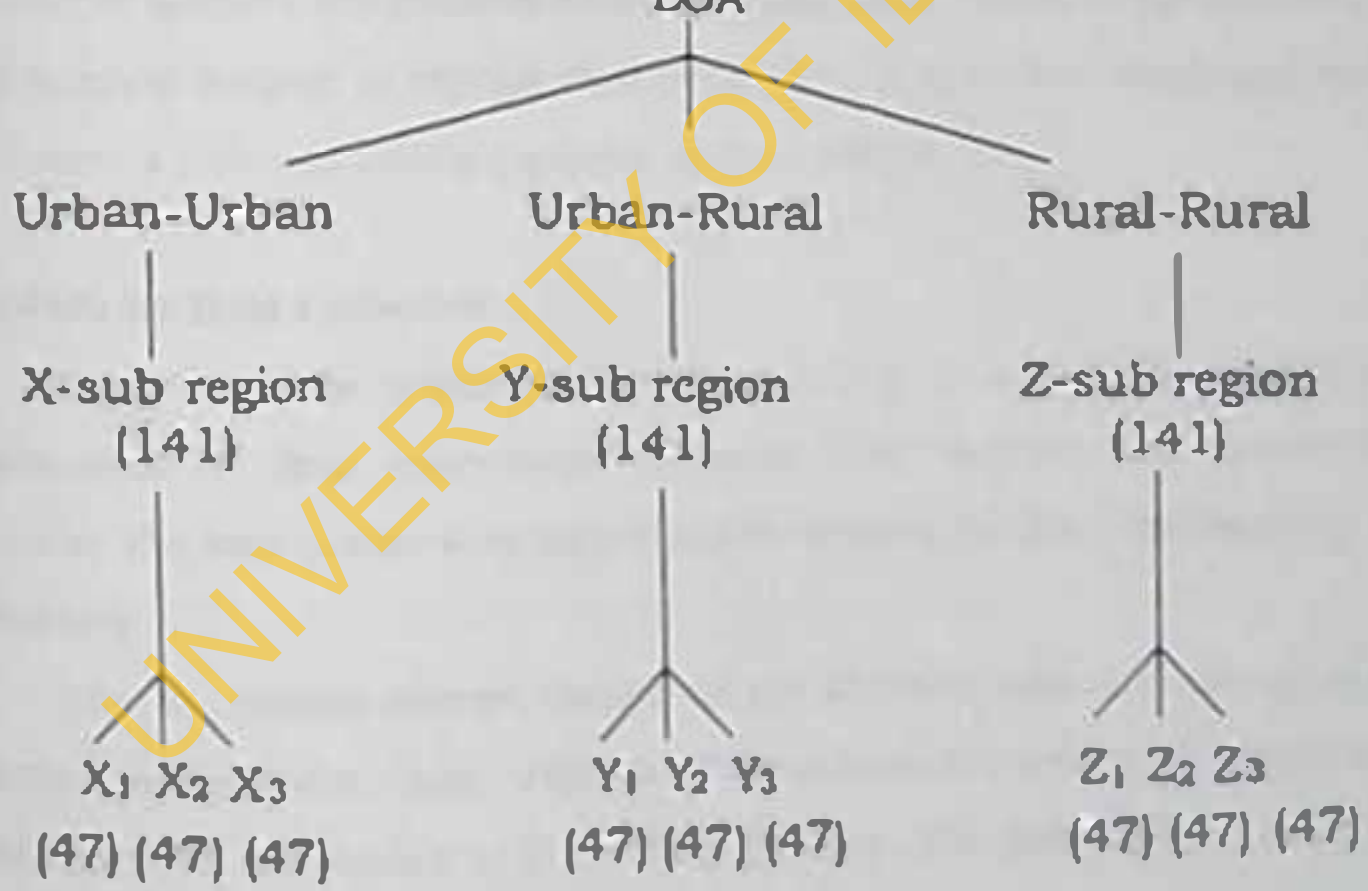
iii. Identification of a landmark in each sub region.

iv. Selection of three streets by random sampling.

v. Selection of houses by systematic random sampling.

vi. Toss a coin to go right or left (Head is right, tail is left).

vii. A mother was interviewed per household. In situations where there was more than one woman with a child under five years, the respondent was chosen by simple ballot method.



X - Urban-urban Sub region - Ikoyi/Obalende development area

Y - Urban-Rural Sub region - Iru/Victoria Island and Eti-Osa West developmental area

Z - Rural-rural Sub region - Eti-Osa East Developmental region

Instruitient for Data Collection

The quantitative method of data collection was used. This referred to the use of questionnaire, which was semi-structured (see appendix one). The questionnaire elicited information on the home management practices of mothers in children under 5 years old.

The questions were written in simple English and translated into Yoruba with the help of a research assistant. The questionnaire was laid out in four (4) sections for ease of administration.

Section A: Sought information on the demographic characteristics of mothers including age, religion, level of education, marital status, ethnic group and occupation. Section B: Elicited information on mother's knowledge about conjunctivitis, including the local name for this condition, the causes of conjunctivitis and the care for conjunctivitis. Section C: was concerned with mother's attitude to conjunctivitis, which includes intended and reported behaviour of mothers and perceive efficacy of treatment. Some of the questions were open ended to allow mothers to express their perceptions in their own wards and thereby obtain and preserve a local and valid perspective on the problem.

Procedure for Data Collection

A pre-test of the questionnaire was carried out in a local government with similar characteristics by three interviewers to assess comprehension and acceptability of the questions. The interviewers were trained and the training included the objectives and aims of the research.

After the pre-test relevant changes of modifications such as re-arranging the position of some questions were made. Prior to administration, the researcher sought and obtained permission from the Baale's or Community Leaders. The purpose was to explain to them why the research was being undertaken.

The administration of the questionnaire took place from the 1st of November to the 6th of November, 2004 by five trained interviewers. The survey period was from early in the mornings to the evenings, a time it was expected that respondents would be home. Each interview lasted 15 – 20 minutes. On each day the interviewers have given adequate questionnaires each and instructed to cover one enumeration area at a time. This was to ensure that all the residential buildings in an enumeration area were visited. At the end of

each day's session, the researcher went through the questionnaires administered to check responses and to make sure the questionnaires were properly filled.

Reliability of Instrument

In order to ensure reliability, the items on the questionnaire were made as simple as possible. Training was conducted for research assistants to ensure they had adequate understanding of the instruments prior to commencement of data collection. The objectives and importance of the study were thus explained to the research assistants. The sampling procedure was also explained. The items on the questionnaire were translated to Yoruba so as to standardize the questions for all members of the research team.

A pre-test of both the Yoruba and English versions of semi structured questionnaire was carried out on twenty five mothers of children under five years old in Oniyanrin and Yemetu area of Ibadan by three trained research assistants to assess comprehension, reliability and acceptability of questions. These research assistants were well versed in the two languages.

After the pre-test, relevant changes and modifications such as re-arranging the position of some questions were made to questions 12, 13, 14 and 15 of the questionnaire.

Validity of Instrument

In order that validity may not be affected by non-probability choice of respondents at second at second stage of sampling, a large size was chosen to overcome the problem of bias and error.

Pre-testing the questionnaire also guaranteed validity and it also helped the interviewers to improve their understanding of the questions

Also the questionnaire was reviewed several times by the supervisor who has wealth of experience on this field for content and construct validity.

Ethical Consideration

The following steps were taken to address the ethical issues in the study.

Informed consent was obtained from each participant before enrolling her into the study. To this end, a consent form was developed and applied.

Confidentiality assurance: some questions asked from the respondents were sensitive and personal. Hence, the questionnaire was anonymous as names were not written on it neither were there any identification in it such as address of respondents.

Method of Data Analysis

The data collected were coded serially. Data was entered into the computer using SPSS statistical package. Data was analysed using appropriate test to determine statistical significance of the findings. The findings were collated, analysed, summarized and presented in tables, graphs, charts and histograms.

CHAPTER FOUR

RESULTS

The results of this study are discussed under 4 sub-headings namely socio demographic characteristics, awareness and knowledge of Conjunctivitis, attitude of respondents and management practices of conjunctivitis.

Socio Demographic Characteristics of Respondents

Four hundred and twenty two mothers were interviewed. The ages ranged from 15-70 years, with mean age of 34.5 years (± 8.20). One hundred and ninety respondents (45.0%) belong to the Yoruba ethnic group, 122 (28.9%) are Ibos, 34 (8.1%) are Hausas and 76(18%) belong to the other ethnic groups. Religious affiliation showed that 255(60.4%) of the mothers were Christians, 161(38.2%) Muslims and 6 (1.4%) practice traditional religions. Marital status of respondents showed that 353 (83.6%) were married, 42(10%) were single, 14(3.36%) were divorced, 5(1.2%) were widowed and 8(1.9%) were separated.

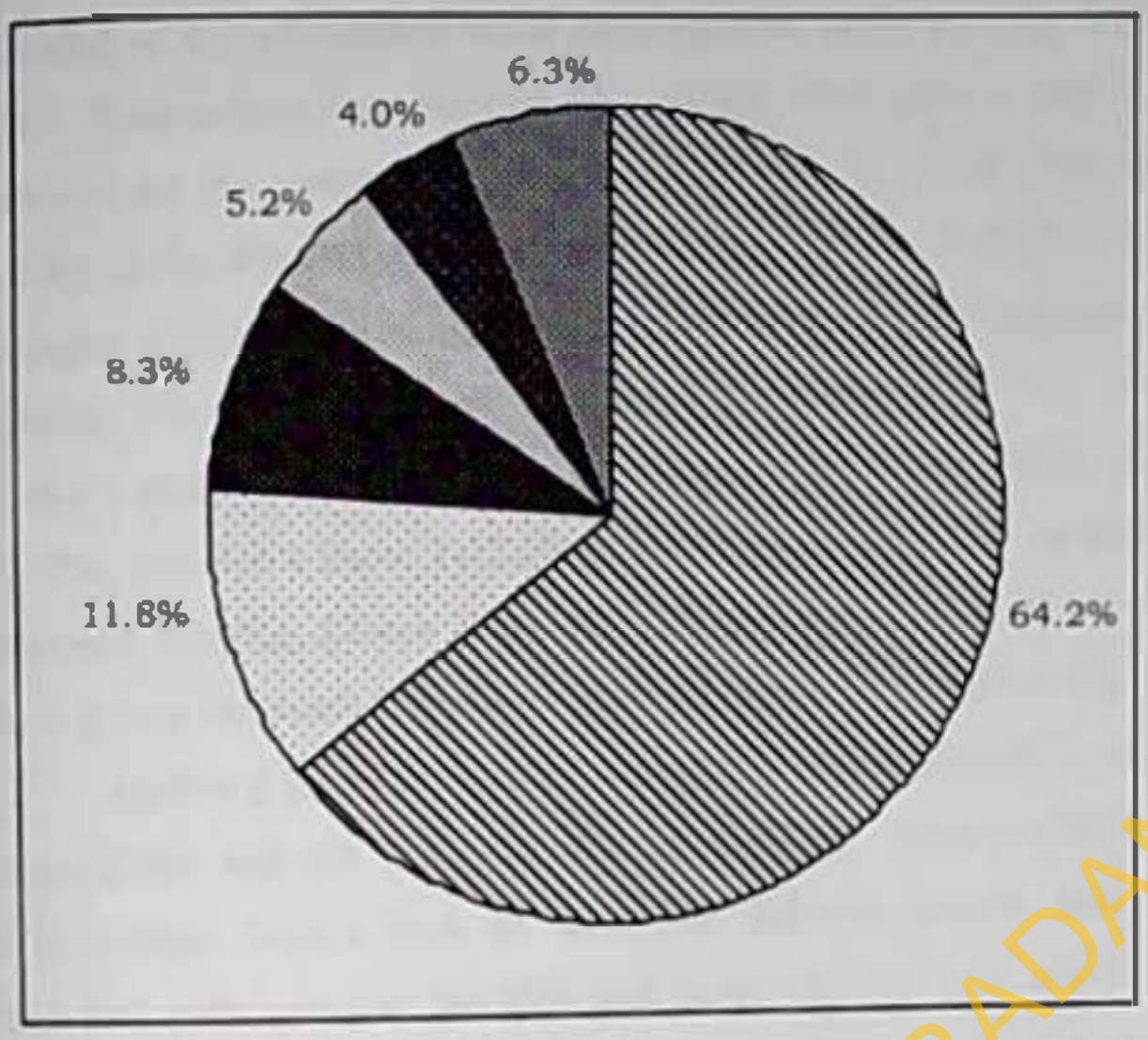
Educational level of respondents showed that 235 (55.7%) had been educated up to secondary level, followed by 94 (22.3%) who had been educated to primary school level. 62 (14.7%) had tertiary level of education and 31 (7.3%) have never had any formal education. (See table 4).

The occupational distribution of respondents showed that 271(64.2%) were traders, 50(11.8%) were full time housewives, 35 (8.3%) were tailors, 22(5.2%) were hairdressers, and 17(4.0%) civil servants. Other occupation mentioned included; schooling 9 (2.1%), applicant/unemployed 4(0.9%), teaching 5 (1.2%), Clergy 2 (0.5%), nursing 1 (0.2%), supplier 1(0.2%), farming 1(02%), Geologist 1 (0.2%), catering 1 (0.2%), shoemaker 1 (0.2%), and driver 1(0.2%). See figure 6. When asked the type of water used for domestic purposes in their community 285(67.5%) said they use pipe borne water, 89(21.1%) use well, 30(7.1%) said borehole and 18(4.3%) use stream water.

Table 4: SOCIO DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Age Distribution of Mothers (in years)	Frequency	Percentage
15-29	135	32.0
30-39	205	48.6
40-49	70	16.6
50-59	11	2.6
60 and above	1	0.2
Total	**422**	**100.0**
Ethnic Group		
Yoruba	190	45.0
Ibo	122	28.9
Hausa	34	8.1
Others	76	18.0
Total	**422**	**100.0**
Religion		
Christianity	255	60.4
Muslims	161	38.2
Traditional	6	1.4
Total	**422**	**100.0**
Marital status		
Married	353	83.6
Single	42	10.0
Divorced	14	3.3
Widowed	5	1.2
Separated	8	1.9
Total	**422**	**100.0**
Education		
Primary	94	22.3
Secondary	235	55.7
Tertiary	62	14.7
No Formal Education	31	7.3
Total	**422**	**100.0**

Figure 6: Occupational Distribution of Respondents



Awareness and Knowledge about Conjunctivitis

Respondents were asked if they had heard about conjunctivitis, and 414 (98.1%) responded in the affirmative while 8(1.9%) said they have not heard about conjunctivitis before. Respondents from various ethic groups mentioned various local names. The names mentioned by the Yoruba ethnic groups were *Apollo* 156(36.9%), Iba 7(1.6%), *Oju Pipon* 5(1.1%), *Ororo* 4(0.9%), Ipin 4 (0.9%) and don't know 17 (4.0%). Iba means yellow fever, oju pipon means when your eyes are red, ororo means groundnut oil and ipin means discharge. The Igbo ethnic group mentioned Apollo 96(22.7%), itching of eyes 1(0.2%), Alubala 1 (0.2%) and don't know 22 (5.2%). The Hausa ethnic group mentioned Apollo 22(5.2%) and don't know 11(2.6%). Other ethnic groups mentioned Apollo 44(10.4%), *Chinomdo* 1(0.2%), *Ufiwen Epien* 1(0.2%), and don't know 30(7.1%) (See table 5). All the ethnic groups mentioned Apollo as the local names for conjunctivitis.

Mother's knowledge of conjunctivitis was measured by asking them what causes conjunctivitis and the cure. To this amongst the Yoruba ethnic group 73(38.4%) said environmental factors such as dust, and airborne disease and smoke from firewood, 28(14.7%) said seasonal, 8(4.2%) said fever, 5(2.6%) said infection, 5(2.6%) said worm, 4(2.1%) said bacteria/virus, 3(1.5%) said too much sun, 3(1.5%) said lack of proper care, 2(1.0%) said dirty water, 2(1.0%) said looking at infected person, 2(1.0%) said flies, 1(0.4%) said typhoid, 1(0.4%) said when a child sleeps upward, 1(0.4%) said itching and 43(22.6%) said I don't know. (See table 6). According to the Igbo ethnic group, the causes of conjunctivitis were, 38(33.1%) said environmental factors such as dust, wind, airborne disease and smoke from firewood, 17(13.9%) said seasonal, 11(9.0%) said bacterial/virus, 4(3.2%) said diseases, 2(1.6%) said God's anger, 2(1.6%) dirty water, 1(0.8%) said infection, 1(0.8%) said lack of proper care, 1(0.8%) said typhoid, 1(0.8) said itching, 1(0.8%) said heredity and 41 (33.6%) said I don't know. (See table 7). To this amongst the Hausa ethnic group, 11 (32.3%) said environmental factors such as dust, wind, airborne disease and smoke from firewood, 10(29.4%) seasonal, 1(2.9%) said bacteria/virus, 1(2.9%) said diseases, 1(2.9%) said fever, 1(2.9%) said infection, 1(2.9%) said dirty water, 1(2.9%) said lack of proper care and 14(3.3%) said I don't know. (See table 8). According to the other ethnic groups 18(23.6%) said conjunctivitis is causes by environmental factors such as dust, wind, airborne disease and smoke from firewood, 2(2.6%) said looking at an infected person, 2(2.6%) said worm, 1(1.3%) said heredity, 1(1.3%) said bacteria/virus, 1(1.3%) said flies, 1(1.3%) said too much sun, 1(1.3%) said when a child sleeps upward, 1(1.3%) said diseases, 24(31.5%) said seasonal and 26(34.2%) said I don't know. (See table 9).

Causes of conjunctivitis appears to cut across all ethnic groups as greater percentage of each group said conjunctivitis is caused by environmental factors such as dust, wind, airborne disease and smoke from firewood. A few of them said it is caused by bacteria/virus. The expected mean score for knowledge was 4 while the calculated mean score was 0.01, which is quite low meaning that mothers' knowledge of conjunctivitis is very low. On cure for conjunctivitis 317(75.1%) of mothers said there is traditional cure for conjunctivitis, 63(14.9%) said there is no traditional cure while 36(8.5%) said they don't know. When asked if respondents have had children under five year olds who had suffered from conjunctivitis prior to the study 210 (49.8%) said Yes while 213(50.2%) said No.

Table 5 : LOCAL NAME OF CONJUNCTIVITIS BY ETHNIC GROUPS

Ethnic Group	Local Name	Frequencies n=422	Percentage
YORUBA	Apollo	156	36.9
	Oju Pipon	5	1.1
	Iba	7	1.6
	Ororo	4	0.9
	Ipin	4	0.9
	Don't know	17	4.0
IGBO	Apollo	96	22.7
	Itching of Eyes	1	0.2
	Alubala	1	0.2
	Don't know	22	5.2
HAUSA	Apollo	22	5.2
	Don't know	11	2.6
OTHERS	Apollo	44	10.4
	Chinoindo	1	0.2
	Ukwen Epien	1	0.2
	Don't know	30	7.1
Total		422	99.4

• *Percentages are not up to 100% due to rounding*

Table 6: Causes of Conjunctivitis amongst Yoruba Ethnic Group

Ethnic Group	Causes	Frequencies n=190	Percentage
Yoruba	Environmental factors such as dust, wind air borne disease and smoke	73	38.4
	I don't know	43	22.6
	Seasonal	28	14.7
	Fever	8	4.2
	Infection	5	2.6
	Worm	5	2.6
	Bacteria/Virus	4	2.1
	Too much sun	3	1.5
	Lack of proper care	3	1.5
	Dirty water	2	1.0
	Diseases	2	1.0
	Teething	2	1.0
	Looking at infected person	2	1.0
	Flies	2	1.0
	Typhoid	1	0.5
	When a child sleep upward	1	0.5
	Itching	1	0.5

*Multiple ResPonses

Table 7: Causes of Conjunctivitis amongst Igbo Ethnic Group

Ethnic Group	Causes	Frequencies n=122	Percentage
Igbo	I don't know	41	33.6
	Environmental factors such as dust, wind air borne disease and smoke	38	33.1
	Seasonal	17	13.9
	Bacteria/Virus	11	9.0
	Diseases	4	3.2
	God's anger	2	1.6
	Dirty water	2	1.6
	Infection	1	0.8
	Lack of proper care	1	0.8
	Typhoid	1	0.8
	Itching	1	0.8
	Heredity	1	0.8

*Multiple Responses

Table 8: Causes of Conjunctivitis amongst Hausa Ethnic Group

Ethnic Group	Causes	Frequencies n=34	Percentage
Hnusa	I don't know	14	41.1
	Environmental factors such as dust, wind air borne disease and smoke	11	32.3
	Seasonal	10	29.4
	Bacteria/Virus	1	2.9
	Diseases	1	2.9
	Fever	1	2.9
	Infection	1	2.9
	Dirty water	1	2.9
	Lack of proper care	1	2.9

Multiple Responses

Table 9: Causes of Conjunctivitis amongst Other Ethnic Groups

Ethnic Group	Causes	Frequencies n=76	Percentage
Others	I don't know	26	34.2
	Seasonal	24	31.5
	Environmental factors such as dust, wind air borne disease and smoke from firewood	18	23.6
	Looking at infected person	2	2.6
	Worm	2	2.6
	Heredity	1	1.3
	Bacteria/Virus	1	1.3
	Flies	1	1.3
	Too much sun	1	1.3
	When a child sleep upward	1	1.3
	Diseases	1	1.3

*Multiple Responses

Attitude and beliefs of Respondents to Conjunctivitis

Mothers believe that conjunctivitis is a serious infection and that children are vulnerable to it. On belief about prevention, 219(51.9%) believe that conjunctivitis is not preventable and 203(48.1%) said it is preventable. Perception of severity to conjunctivitis was sought by asking mothers if they think children less than five years can go blind from conjunctivitis infection. To this 169(40.0%) said children less than 5 years cannot go blind from conjunctivitis. 166(39.3%) said children less than 5 years can go blind from conjunctivitis and 87(20.6%) said don't know. (See figure 7). When asked if they knew children under five year old who had gone blind from conjunctivitis infection, 165 (39.1%) of mothers said No, they did not know children who have gone blind from Conjunctivitis, 71(16.8%) said Yes they knew children who had gone blind from Conjunctivitis while 186(44.1%) respondents did not know. Respondents' perceptions of susceptibility were assessed by asking if children under five years old can have conjunctivitis. To this 357(84.6%) said Yes and 65(15.4%) said No. Mother's ability to recognize and detect conjunctivitis among children was assessed. All the mothers said they recognize and detect conjunctivitis through the presenting symptoms such as redness of the eyes 357(49.9%), itching 250(31.8%), purulent discharge 100 (12.7%) and tearing of the eyes 50(6.3%). Respondents expressed fairly negative attitude to conjunctivitis as only 39.1% said children could go blind from conjunctivitis. A general attitude of "it does not affect the vision" led to most of the respondents practicing self medication and use of herbal remedies.

Table 10: Traditional Treatment Practices for Conjunctivitis amongst Yoruba ethnic group

Ethnic Group	Reponses	Frequency n=190	Percentage
Yoruba	I don't know	46	24.2
	Sugar and Water Solution	20	10.5
	Urine	19	10.9
	Beach water/Sea water	17	8.9
	Breast milk	16	8.4
	Kafura	16	8.4
	Salt and Water	13	6.8
	Onion	11	5.7
	Salt and Lemon	3	1.5
	Concoction / Herbs	3	1.5
	Palm wine	3	1.5
	Salt and Sugar Solution	3	1.5
	Alum	2	1.0
	Cassava Juice	2	1.0
	Washing Eyes with Ice water	2	1.0
	Cocoa Leaves	2	1.0
	Sugar and Oil	2	1.0
	Battery water	2	1.0
	Petrol or Engine Oil	1	0.5
	Poporo leaf and Millet	1	0.5
	Snail Saliva	1	0.5

*Multiple responses

Table 11

Traditional Treatment Practices for Conjunctivitis amongst Igbo Ethnic Group

Ethnic Group	Reponses	Frequency n=122	Percentage
Igbo	I don't know	37	30.3
	Urine	17	13.9
	Sugar and Water Solution	15	12.2
	Breast milk	15	12.2
	Beach water/Sea water	2	1.6
	Salt and Water	2	1.6
	Onion	2	1.6
	Salt and Sugar Solution	2	1.6
	Salt and Lemon	2	1.6
	Efiri	2	1.6
	Palm wine	1	0.8
	Kafum	1	0.8
	Petrol or Engine Oil	1	0.8
	Cassava Juice	1	0.8
	Lead Pencil	1	0.8
	Sako	1	0.8
	Concoction / Herbs	1	0.8

*Multiple Responses

Table 12: Traditional Treatment Practices for Conjunctivitis amongst Hausa ethnic group

Ethnic Group	Reponses	Frequency n=34	Percentage
Hausa	I don't know	17	50.0
	Breast milk	6	17.6
	Urine	4	11.7
	Sugar and Water Solution	3	8.8
	Onion	2	5.8
	Beach water/Sea water	1	2.9
	Salt and Sugar Solution	1	2.9
	Cassava Juice	1	2.9
	Petrol or Engine Oil	1	2.9
	Sako	1	2.9

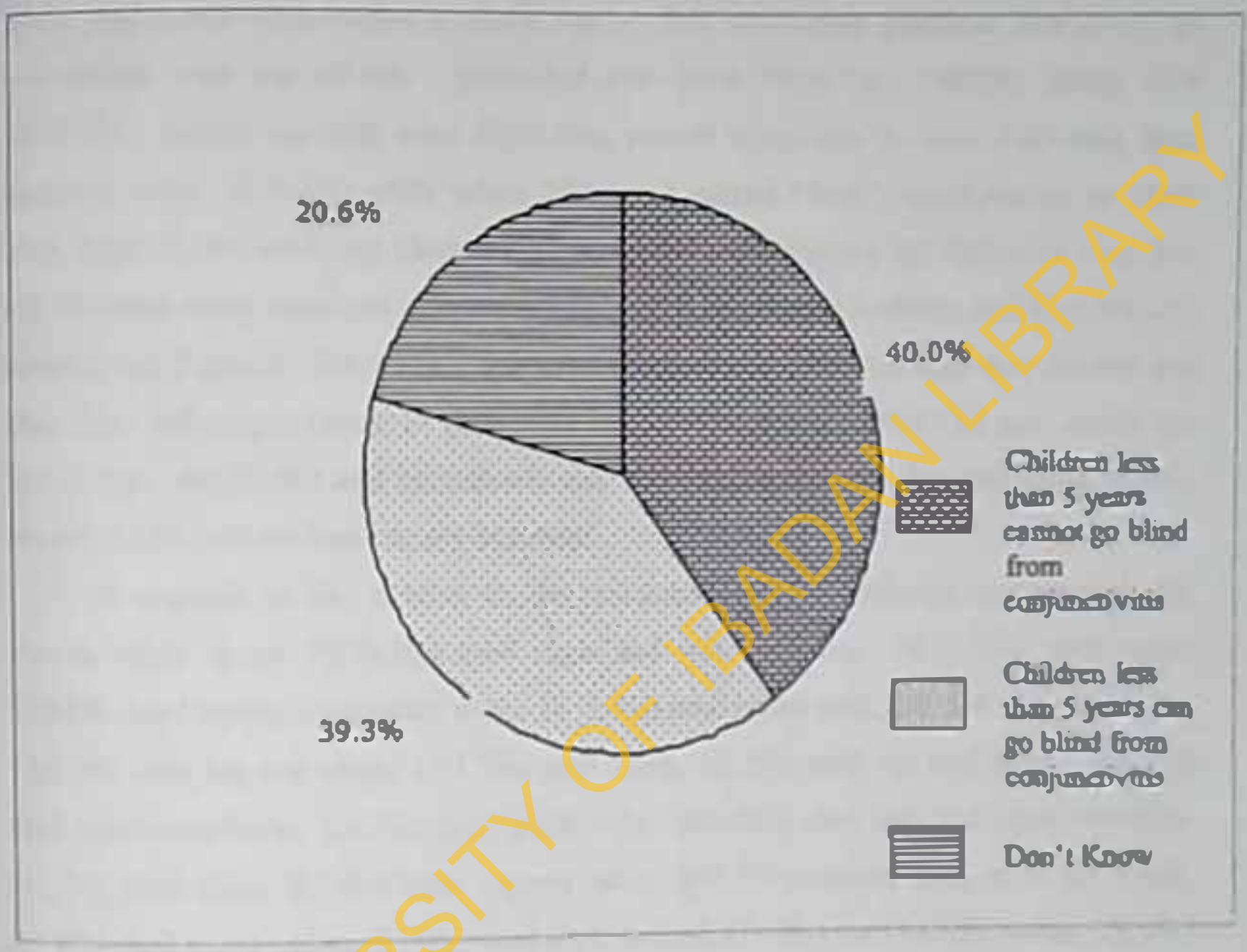
*Multiple responses

Table 13: Traditional Treatment Practices for Conjunctivitis amongst Other Ethnic Groups

Ethnic Group	Reponses	Frequency n=76	Percentage
Others	Sugar and Water Solution	27	35.5
	Urine	17	22.3
	I don't know	16	21.0
	Breast milk	9	11.8
	Beach water/Sea water	5	6.5
	Salt and Sugar Solution	3	3.9
	Salt and Water	2	2.6
	Onion	2	2.6
	Concoction / Herbs	1	1.3
	Palm wine	1	1.3
	Cassava Juice	1	1.3
	Washing Eyes with Ice water	1	1.3
	Lead Pencil	1	1.3
	Kafura	1	1.3

*Multiple responses

Figure 7: Mother's perception of severity of conjunctivitis in children



Managemcot practices of conjuuctivitis amiong mothers

Management of conjunctivitis was documented by asking what the respondents whose under 5 year old children had had conjunctivitis did during that episode. Reported management of conjunctivitis practices revealed that 264(62.5%) practiced self medication while only 114(27.0%) visited a health center. Self medication practices mentioned by respondents were use of non - prescribed eye drops 70(26.5%), instilled breast milk 40(15.1%), washed eye with urine 36(14.6%), poured water into the eyes 25(9.4%), used barbeach water 33(12.4%) while others 28(10.0%) rubbed "*Tiro*", mentholatum or black soap. Eight (3.0%) used iced block and alum, 8 (3.0%) used yeast, 8(3.0%) used Vaseline, 8(3.0%) used water, sugar and chloramphenicol, 18(4.3%) visited herbalist and 26(6.2%) did nothing, (see Figure 8). When asked how soon treatment was instituted after they noticed that their child had conjunctivitis, of those who instituted treatment, 200(47%) said within the first 3 days, 100(23.5%) said immediately and 75(17.6%) within the first one week. Fourty seven (11.13%) did not institute any treatment.

In response to the question on the traditional cure for conjunctivitis amongst the Yoruba ethnic group 20(10.5%) used sugar and water solution, 19(10.0%) used urine, 17(8.9%) used barbeach water/sea water, 16 (8.4%) used breast milk, 16(18.4%) used kafura, 13(6.8%) used salt and water, 11(5.7%) used onion, 3(1.5%) used salt and lemon, 3(1.5%) used concoction/herbs, 3(1.5%) used palm wine, 3(01.5%) used salt and sugar solution, 2(1.0%) used alum, 2(1.0%) used cassava juice, 2(01.0%) washed eyes with ice water, 2(1.0%) used cocoa leaves, 2(1.0%) used sugar and oil, 2(1.0%) used battery water, 1(0.5%) used petrol or engine oil, 1(0.5%) used poporo leaf and millet, 1(0.5%) used snail saliva and 46(24.2%) said I don't know.

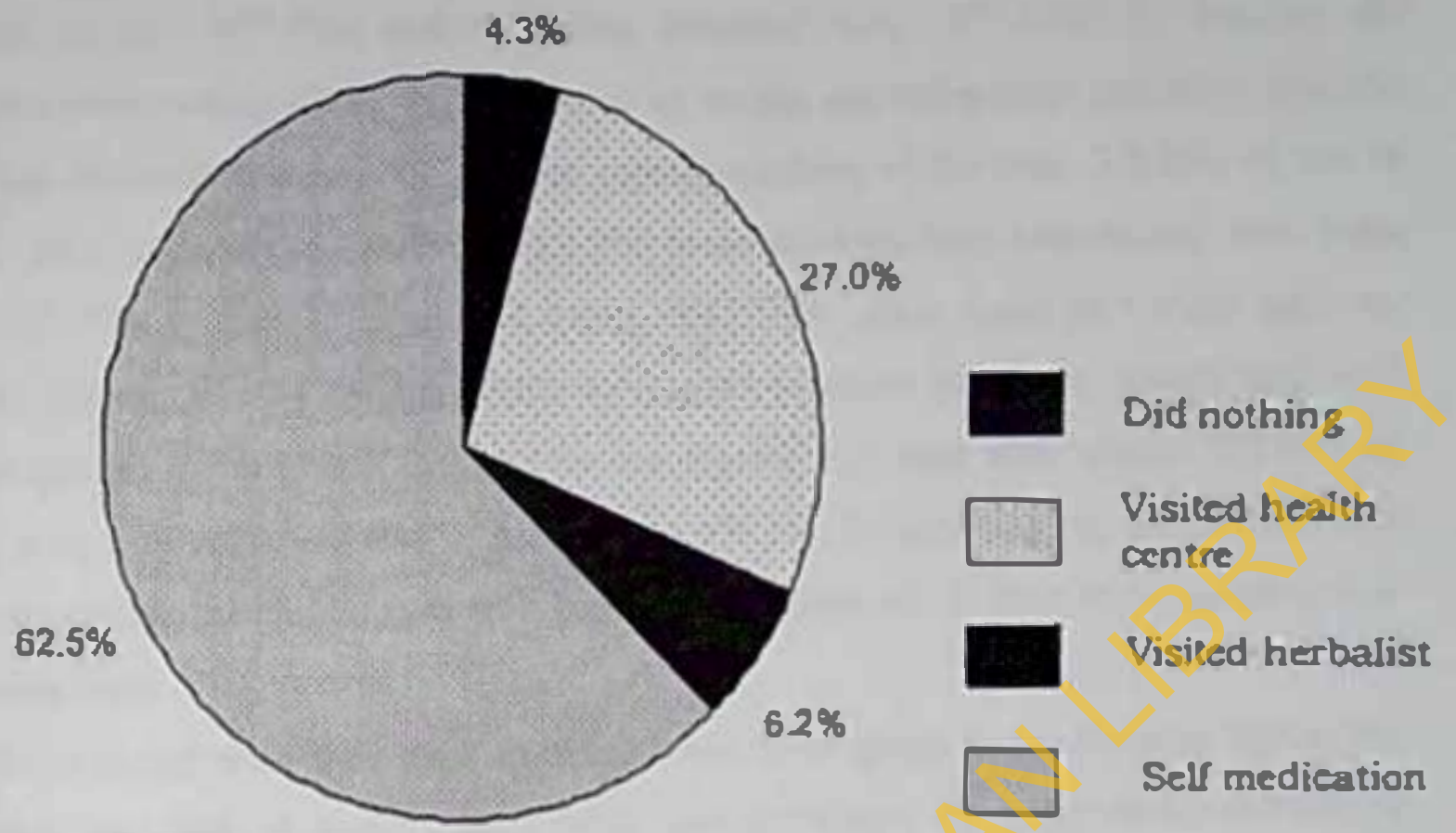
According to the Igbo ethnic group 17(13.9%) used urine, 15(12.2%) used sugar and water solution, 15(12.2%) used breast milk, 2(1.6%) used beach water/sea water, 2(1.6%) used salt and water, 2(1.6%) used onion, 2(1.6%) used salt and sugar solution, 2(1.6%) used salt and lemon, 2(1.6%) used efin, 1(0.8%) used palm wine, 1(0.8%) used kafura, 1(0.8%) used petrol or engine oil, 1(0.8%) used cassava juice, 1(0.8%) used lead pencil, 1(0.8%) used sako, 1(0.8%) used concoction/herbs and 37(30.3%) said I don't know.

The traditional treatment for conjunctivitis by the Hausa ethnic group were 6(17.6%) used breast milk, 4(11.7%) used urine, 3(8.8%) used sugar and water solution, 2(5.8%) used onion, 1(2.9%) used beach water/sea water, 1(2.9%) salt and sugar solution, 1(2.9%) used cassava juice, 1(2.9%) used petrol or engine oil, 1(2.9%) used sako and 17(50.0%) said I don't know. See table 12. In response to traditional treatment of conjunctivitis by other ethnic

groups 27(35.5%) used sugar and water solution, 17(22.3%) used urine, 9(11.8%) used breast milk, 5(6.5%) used beach water/sea water, 3(3.9%) used salt and sugar solution, 2(2.6%) used salt and water, 2(2.6%) used onion, 1(1.3%) used concoction/herbs, 1(1.3%) used palm wine, 1(1.3%) used cassava juice, 1(1.3%) washed eyes with ice water, 1(1.3%) used lead pencil. 1(1.3%) used kafura and 27(35.7%) said I don't know. See table 13.

The traditional treatment for conjunctivitis cuts across all the ethnic groups. They all believed that these treatments were effective in the management of conjunctivitis. The use of salt and water is to be encouraged. The used of wine, onion, palm wine, concoction/herbs battery water, petrol or engine oil, cassava juice, snail salvia should be discouraged as these are toxic to the eyes.

Figure 8: Steps taken by Respondents whose children had had conjunctivitis



In response to how good eye health can be maintained as shown in table 14, 20(9.1%) said by taking the child to the hospital, 1(0.1%) by eating good fruits, 19(8.6%) by use of eye drops and another 20(9.1%) said by eating balanced diet, 17(7.7 %) by keeping the environment/surrounding clean, 12(5.5%) said by seeing doctor/optician regularly, 9(4.1%) by avoiding dust/wind/smoke, 10(4.5%) by regular washing of the eyes, 7(3.2%) by use of herbs, 7(3.2%) by using eye lead/Tiro, 10(4.5%) avoid drinking dirty water/using clean water to bath, 3(1.4%) avoiding anyone who has it, 2(0.9%)by using sugar and water solution, 3(1.4%)by praying for the children, 2(0.9%) virginal infection should be treated very well during pregnancy before birth, 2(0.9%) by not sharing eye lead with others, 2(0.9%) by cleaning eyes with kajal, 2(0.9%) by using urine, 1(0.5%) by applying bar beach water and 1(0.5%) by rinsing the child's eyes with breast milk. Thirty-two (7.6%) of the mothers said they did not know.

When asked what they think prevent people from going to the hospital (table 15), 231(40.2%) said lack of money, 101(17.6%) said preference for local medication/Breast milk, 51(8.9%) said conjunctivitis is a minor infection, 52(9.1%) said ignorance, 12(2.1%) preference for chemist instead of hospital, 14(2.4%) said stinginess on the part of the mother, 27(4.7%) lack of time, 17(3.0%) stress/distance to health facilities, 4(0.7%)non-challant attitude of the parents, 23(4.0%) the unkind attitude of the health workers, 7(1.2%) lack of adequate treatment in some clinics, 2(0.3%) trado-medical options and 30(7.2%) said they do not know

Table 14: Methods of maintaining good eye health among respondents

Method of maintaining good eye health	Frequency n = 422	Percentage
Caring for children's eyes	40	9.5
Eating balanced diet	20	9.1
Taking the child to the hospital	20	9.1
Using eye drops	19	8.6
Using eyes glasses	19	8.6
Keeping surrounding clean	17	7.7
Seeing doctor/optician regularly	12	5.5
Don't know	11	5.0
Avoid drinking dirty water	10	2.4
Regular washing of eyes	10	4.5
Avoid dust, wind, smoke	9	2.1
Use of herbs regularly	7	3.2
Using of eye lead (tiro)	7	3.2
Praying for the child	3	1.4
Not sharing eye lead with others	2	0.9
Avoiding any one who has the disease	2	0.9
Cleaning eyes with kajal	2	0.9
Eating good fruits	1	0.5
Using sugar and water solution	2	0.9
Using urine	2	0.9
Vaginal infection should be well treated	2	0.9
Rinsing eye with breast milk	1	0.5
Apply bar beach water	1	0.2

- Multiple responses

Table 15: Reasons why people do not go to the hospital

Reasons why people do not go to the Hospitnl	Frequency n=422	Percentage
Lack of money	231	40.2
Preference for local medication/ breast milk	101	17.6
Ignorance	52	9.1
Conjunctivitis considered as minor infection	51	12.1
Fear of taking injection. test or drugs	33	7.8
Lack of time	27	4.7
Unkind attitude of health workers	23	4.0
Stress/distance to health facilities	17	3.0
Stinginess on the part of the mothers	14	2.4
Preference for chemist instead of hosoital	12	2.1
Lack of adequate treatment in some clinics	7	1.2
Non challant attitude by parents	4	0.7
Trado-medical options	2	0.3

- Multiple responses

Suggested Ways of Improving Eye Health Services

Amongst the multiple responses given by mothers in suggesting ways by which eye health services in Nigeria can be improved (table 16), 102(18.3%) said by providing free health services, 122(21.9%) provision of eye clinics, 86(15.4%) provision of health facilities/equipment/qualified health workers, 54(9.7%) making drugs available in hospitals, 54(9.7%) pasting posters on conjunctivitis to create awareness and through media, 42(7.5%) said through Immunization, 41(7.3%) mentioned educating nursing mothers on how to take care of their children's eyes, 29(5.2%) said drugs to be sold in the hospitals and hospital bills at subsidized rates, 9(1.6%) said public awareness should be created by the eye clinics through their patients, 7(1.3%) by keeping the environment/surrounding clean, 2(0.4%) mentioned provision of good water, 2(0.4%) said by provision of medi/trado drugs, 2(0.4%) said by enlightenment on balanced diet, 2(0.4%) by payment of salaries regularly, 2(0.4%) said workshops should be organized for nurses on quarterly basis on patient care, 1(0.2%) said finding other ways instead of using injections on patients and 1(0.2%) by eradicating fake drugs. Thirteen (3.1%) respondents said they did not know ways by which eye health services in Nigeria can be improved.

Table 16: Suggested ways by which Eye health services can be improved in Nigeria

Suggested ways	Frequency n=422	Percentage
Provision of Eye clinics	122	21.9
Free health services	102	18.3
Provision of health equipment and qualified health workers	86	15.4
Make drugs available in hospital	54	9.7
Mass media and poster pasting for awareness of conjunctivitis	54	9.7
Immunization	42	7.5
Educating nursing mothers on conjunctivitis management	41	7.3
Drug to be sold in the hospitals at subsidized rate	29	5.2
Public awareness of Eye clinics through patients	9	1.6
Keeping surroundings clean	7	1.3
Payment of health workers salaries regularly	2	0.4
Provision of good water	2	0.4
Provision of trado-medical drugs	2	0.4
Enlightenment on balance diet	2	0.4
Workshops on quarterly basis for nurses on treating patients	2	0.4
Eradicating fake drugs	1	0.2
Other means of treatment instead of injections	1	0.2

- Multiple responses

Hypothesis testing

Null Hypothesis 1 stated that, "there is no significant relationship between knowledge of mothers and mode of conjunctivitis management". The difference was not significant P = 0.26. Therefore the Null hypothesis was rejected and the alternative accepted which means that there is significant relationship between mothers' knowledge of conjunctivitis infection and mode of management. The higher the knowledge of conjunctivitis the better the management sought. See table 17.

Table 17: Knowledge of respondents about conjunctivitis management

Knowledge Of mothers'	Management of conjunctivitis		Total
	Facility Managed	Self managed	
High	4 (5.5%)		4(4.2%)
Low	69 (94.5%)	22 (100%)	91(95.8%)
Total	73(100%)	22(100%)	95(100%)

X^2=1.26; df= 1; P value =0.26

Null Hypothesis 2 stated that, "there is no significant relationship between mother's level of education and mode of conjunctivitis management". The difference is not statistically significant P = 0.094, (P > 0.05). The Null hypothesis was rejected and the alternative accepted meaning that the level of education affects the mode of conjunctivitis management. See table 18.

Table 18: Relationship between Mothers' level of Education and mode of Conjunctivitis Management

Educational Level Of mothers'	Mode of conjunctivitis management		Total
	Health Facility Managed	Self Managed	
Primary	22 (19.3%)	12 (37.5%)	34 (23.3%)
Secondary	66 (57.9%)	16 (50.0%)	82 (56.2%)
Tertiary	16 (14.0%)	1 (3.1%)	17 (11.6%)
No formal Education	10 (8.8%)	3 (9.4%)	13 (8.9%)
Total	114(100.0%)	32(100.0%)	146(100.0%)

X^2 = 6.4; df = 3; P value = 0.094

Null Hypothesis 3 stated that, "there is no significant relationship between mothers' perceived severity of conjunctivitis and mode of conjunctivitis management". The difference is not statistically significant P = 0.062, (P < 0.05). We reject the Null hypothesis meaning that perception of severity would affect mode of management of conjunctivitis. See table 19.

Table 19: Relationship between mothers' perception of severity of conjunctivitis and mode of conjunctivitis management

Mothers' Perception of severity (Go blind)	Mode of conjunctivitis management		Total
	Facility Managed	Self Managed	
High	48 (48.5%)	13 (54.2%)	61 (49.6%)
Low	51(51.5%)	11 (45.8%)	62 (50.0%)
Total	90(100.0%)	24 (100.0%)	123(100.0%)

$X^2 = 0.25$; df = 1; P value = 0.062

Null Hypothesis 4 stated that, "there is no significant relationship between mother's age and mode of conjunctivitis management". The difference is statistically significant P = 0.03 (P < 0.05). The Null hypothesis was accepted and the alternative was rejected. This means that mother's age would not affect the mode of conjunctivitis management. See table 20.

Table 20: Relationship between Mother's age and mode of Conjunctivitis Management

Age of respondent	Mode of conjunctivitis management		Total
	Facility Managed	Self Managed	
15 – 29 years	31 (27.2%)	8 (25.0%)	39 (26.7%)
30 – 39 years	62 (54.4%)	11 (34.4%)	73 (50.0%)
40 – 49 years	19 (16.7%)	10 (313%)	29 (19.9%)
50 – 59 years	2 (1.8%)	3 (9.4%)	5 (3.4%)
Total	114(100.%)	32(100.0%)	146(100.0%)

$X^2 = 8.96$; df =3; P value = 0.03

CHAPTER FIVE

DISCUSSION

Findings from the study are discussed in this chapter. The chapter consists of the following sections: Socio-demographic Characteristics, Awareness and knowledge about conjunctivitis, Attitude to conjunctivitis, Management practices among mothers, conclusions arrived at and recommendations made.

Socio-demographic Characteristics

Most of the respondents were currently married 353(83.6%), with a few being single, divorced, widowed and separated. Almost half of the mothers in the study area were in the age range of 30-39 years (48.6%) with mean age of 34.5 years; this is in agreement with the child bearing age of 15 to 49 years. Most of the mothers 271(64.2%) in this study were engaged in trading. This could be due to the fact that Lagos is a commercial city. More than half of the mothers 235(55.7%) had been educated up to the secondary level. According to (WHO 2000) women make better decisions about their health if they are educated. This is in agreement with the findings in the study where the level of education was found to affect the mode of conjunctivitis management. Almost half of the mothers 190 (45.0%) in this study belong to the Yoruba ethnic group. This is due to the fact that the location of the study area (Lagos), is a Yoruba speaking area. Other tribes were also represented as well as tribes from other countries.

Awareness and knowledge about conjunctivitis

Almost all the mothers (98.1%) in the study area had heard about conjunctivitis. This reflects the long experience with the disease. This supports the findings of Baba (2005) who noticed that conjunctivitis is the most common cause of red eye in Bawku Hospital Ghana.

The various ethnic groups in the study area all called conjunctivitis 'Apollo' which is in agreement with findings of Faal (2002) who reported that viral conjunctivitis occurs mainly in epidemics and is called 'Apollo'.

Even though awareness was high, the knowledge of the causation was low as only 19 (4.7%) knew that conjunctivitis is caused by bacteria or virus. 'Respondents' had inadequate knowledge of conjunctivitis, as the calculated group mean score of respondent's knowledge was 0.01 as against the expected mean score of 4. The study also found that the level of

knowledge do influence type of management practices and promptness. It was therefore not surprising that a large proportion of the respondents did not visit a health center.
They respondents attributed this to lack of money (40.2%), preference for local medication / use of breast milk (17.6%), conjunctivitis considered as a minor infection (12.1%) and ignorance (9.1%).

The poor knowledge of mothers can negatively affect the management of conjunctivitis in children under 5years old. There calls for health education of mothers on knowledge of causation and management options.
Many (49%) of the respondents could identify conjunctivitis thought redness of the eye and this is in congruence with Kids Health (2003) which states that conjunctivitis is commonly known as pink eye.

The skill for mothers to learn is to look at their child's eye and if there is redness, this should trigger action to prompt treatment at the primary level. This will reduce the risk that mothers may first try traditional remedies, which can, and do lead to blindness.

Attitude to conjunctivitis

The attitudinal disposition of the respondents to conjunctivitis was found to be negative. A general attitude of "it does not affect the vision" led to the practice of self medication by most of the respondents and also the use of herbal remedies.

It has been said many patients do not present their problems until it affects the vision and probably swelling of eyes. The attitude towards eye health is a factor that can be associated with eye health status. Therefore the "it does not affect the vision" general attitude does not encourage quick intervention that could positively influence eye health practices and status. From the findings in this study the steps taken by mothers whose children had conjunctivitis was poor, as every 27% visited a health center. The behavioural diagnosis of this problem includes lack of periodic eye check-up among children as well as non-utilization of health centers. These factors should be given priority in any eye health educational intervention.

Some of the respondents did not institute treatment immediately because they felt it would not lead to blindness. This does not tally with the findings of Senaratne and Gilbert (2005) in which they stated that accurate diagnosis and prompt treatment at the primary level of conjunctivitis is very important as it instills confidence in the community and reduces the risk of that people may first try traditional remedies, which can and do lead to blindness.

Level of education was found to be an important factor influencing positive attitude according to a study by Abdulrahcem and Akanbi (2002) in child bearing women in peri-urban Nigeria community.

In this study most of the respondents who have average level of education that is secondary level expressed fairly negative attitude towards conjunctivitis.

This attitudinal disposition was in congruence with the actual knowledge of the respondents about conjunctivitis. The studies also found out that the level of education affected the mode of conjunctivitis management. This suggests that education tends to influence people's knowledge of treatment and utilization of health facilities.

This supports the view that better educated people are more aware of health problems, have great access to information about health practices and can use information about health practices and use the information more effectively to maintain and achieve a good health status (Grossman, 1972 quoted in Fetene, 1983).

It should be noted that being aware of information alone is enough. There is the need to acquire the skills necessary to translate knowledge to action. This is because people are more likely to perform a behaviour if they feel capable of performing it.

The implication is that the mains media should still be used to create large-scale awareness, and this should be supported by home and community-based teachings.

On mother's perception of susceptibility of their children to conjunctivitis, 84.4% said children could have conjunctivitis infection and 15.4% said No.

This finding is at variance with the findings on mothers' perception of child's susceptibility to conjunctivitis and mode of management in which the perception of susceptibility did not influence type of management or the promptness of action. This is in agreement with the study of Ajaiyeoba (1987), In which he found high prevalence of conjunctivitis among children in Ibadan.

Management practices among mothers

With respect to mother's treatment seeking behaviour for conjunctivitis, 62.5% practiced self medication other forms of treatment reported were visiting a health center, visiting herbalist and doing nothing. Few of the self medication practiced by mothers like using Vaseline, pouring water into the eyes and taking yeast are not harmful. Others like using non-prescribed eye drops, instilling breast milk, using bar-beach water, sugar and chloramphenical Tiro, mentholatum or black soap and washing the eyes with urine are

harmful to the eyes. Some of these non-prescribed drugs and other remedies may be used at the same time as they are undergoing treatment by eye health care workers.

Many of these preparations may produce irritation and redness of the conjunctiva Some may be toxic like uriine and cause corneal damage and permanent blindness Every opportunity should be used to educate people and discourage the use of these harmful eye remedies, for example health education in communities, schools, women's groups and clinics.

With regards to the traditional care for conjunctivitis by mothers in children under five years. 7.6% of the mothers used salt and water solution, which is harmless and should be encourage. However most of the traditional remedies used were harmful. The use of urine, palm-wine, onion, petrol or engine oil, salt and lemon, sugar and oil, battery water, snail saliva and concoction herbs are toxic to the eyes. The preparation put in the eye can cause corneal ulcer or worsen existing ones and end up as scars or eye perforation leading to blindness. These findings in congruence with findings of Chana (1997) in which these herbal remedies have been fund to cause irritation, pain and possible chemical burn.

The urine used by traditional healers could have some form of Gonorrhea and this could lead to conjunctivitis due to Gonococcus which would could be sight threatening if prompt treatment is not given. The finding on management practices among mothers is also in agreement with Schwab (1999) on traditional eye medication in which he stated that "educating the public about the importance of seeking care for red or painful eye (and among the application of damnging traditional eye medications) is very important in preventing ulceration of the cornea and cornea scaring".

Traditional healers are highly respected in each community. They should not be stigmatized by health care practitioners, rather they can be trained to avoid certain practices that are harmful to the eye and instead utilize treatments that are known to be beneficial. One of the greatest impediments to reducing blindness in rural area is the problem of access to services. Even when the services are readily available many patients do not use them Healers can be a bridge between the community and district eye care provider. We recognize that some eye care practices are damaging, collaboration could be a route to induce change. Some traditional healer practices could be beneficial (e.g Face washing) and should be encouraged. Marginalizing or criticizing traditional healer will not make them disappear or cease treating eye diseases.

The results of the study indicate that most of the respondents believe in the efficacy of the traditional remedies they used. This is shown in the number of the respondents who

reported utilization of the remedies and their positive beliefs about their effectiveness. Mother's also suggested that eye health services could be improved in Nigeria by provision of more eye clinics and free health services. This finding contradicts the documented actual reported practices that respondents engaged in this study as 27.0% of respondent's utilized health services available.

Implication for health education

The PRECEDE model was used to interpret the situation found in the study. The model postulates the factors predisposing, enabling and reinforcing have the potentials for affecting behaviours. Under the predisposing factors are knowledge, attitude, values, and perceptions. It was observed from the findings that respondents had low knowledge of conjunctivitis. In the light of this finding it is important to educate respondents on causes and recognition of conjunctivitis. The knowledge of this disease may encourage early intervention when noticed. It is also important to emphasize relation of conjunctivitis to dirty environment. There is need to maintain a high level of hygiene. The need for regular eye check-up in children is another important issue that the respondents need to know, as regular check up could lead to quick discovery of conjunctivitis or already developed disease and the institution of preventive intervention.

The respondent's attitude is another factor that needs to be influenced under the predisposing factor; the "it does not affect vision" attitude of conjunctivitis is not good for health education promotion and should be discouraged. The respondents need to develop positive attitude that personal hygiene should be practiced especially washing of hands and face with clean water. With respect to enabling factors lack of money was reported as one of the reason why mothers do not go to the hospital and also ignorance. These may constitute a banier. It is possible that a larger percentage of the respondents would have visited the health centers if the above baniers were reduced considerably. Another factor is that traditional remedies are almost always available and cheap. This may be the major deciding factor in their choice. Health services should be accessible to the community, information, education, communication (IEC) materials and personnel should be available to the respondents.

In this study reinforcing factors include, attitude and behaviour of friends, peers, family members towards conjunctivitis. Health education must assess these reinforcing factors and involve them in any behaviour change process.

Implication for eye health promotion and education

The most important issue is that mother's practice self-treatment. Since self-treatment is a normal part of life (Deria, 1981), health educators must ask how this behaviour can be made more appropriate and safe. In order to improve mother's level in self-treatment behaviour, the strategies for achieving this must be planned. The role of elders, husbands, friends and relatives can be enhanced by training some of them as Community Based Workers (CBWs.)

They should help identify and refer people with eye related problems to CBHWS and eye care facilities. Traditional practitioners, CBHWS should work together as "Friends of the Eyes". In many communities, volunteer village health workers are being selected and trained. They are often respected community members who have been chosen by their peers to perform first line preventive and curative duties.

They could reinforce clinic message during home visits and community meetings. The village health workers as a trusted neighbour could be called into the house by the mother next time the child has conjunctivitis so that he/she could explain the issues to the father.

As a result of low level of information among mothers, a challenge therefore exists on how best to organize Eye health education to ensure that mothers receive information and how to recognize conjunctivitis, to prevent blindness from vitamin A deficiency in children, adequate nutrition for children and the need to maintain a high level of hygiene. Teaching them to form the habit of face washing in children with clean water. Also they should not instill anything in the eyes of the children that has not been prescribed for them by health workers.

Health teaching to prevent blindness should also be taught to mothers. The government, non-governmental organizations (NGO's) and stakeholders could organize workshop sessions for women groups in the community to educate mothers generally.

The issue of mother's time also needs to be addressed. These discourage mothers from utilizing the clinic. Prompt action at home could then be explained as a way of saving time.

Eye health education strategies to promote Eye health of the respondents can include the use of direct communication through Teaching, Seminars and demonstrations.

These strategies can be selected and used at various levels:

(a). Family Level:

The parents / Teachers Association (PTA) can be used to reach the family heads or representatives. Discussions on family health living in which eye care measures are emphasized can be included in the agenda of PTA meetings.

Parents can be presided to pass the facts about eye health and hygiene practices to other members of the family, especially mothers and children.

(b). Group Level:

The school is the most important at this level. In this regard, the teachers should be trained on Eye health using the training of trainers (teachers) approach. School nurses who must have been prepared with adequate knowledge and skill on eye health could be used as resource persons for this training, after the training, the teachers could be monitored to ensure that they pass the information acquired to the school children.

(c). Community Level:

Primary eye care workers and ophthalmic nurses within the community will need to organize seminars for family heads, ward leaders, opinion leaders and traditional healers on eye health.

The use of electronic media for example, radio and television, to disseminate information on several aspects of eye health is important. The seminar should focus on causes and prevention of conjunctivitis, simple eye care and first aid management.

Conclusion

The study attempts to document the home management practices of mothers whose children had conjunctivitis in Eti-Osa Local Government Area of Lagos State. The major forms of first line treatment reported were self treatment with non-prescribed eyedrops and traditional remedies, visiting a health centre, visiting herbalist as well as doing nothing. Mother's had inadequate knowledge of conjunctivitis. The perceived outcomes of these management practices were that they were effective in the treatment of conjunctivitis. It was also found that mother's age did not affect the mode of management of conjunctivitis. Therefore the concern would be to discourage the use of traditional remedies and self treatment documented in this study. Based on these findings, there is need to improve home management practices of conjunctivitis through basic training of mothers on causes, recognition and appropriate self treatment seeking behaviour for conjunctivitis.

Recommendations

In the light of the findings of this study, the following recommendations are made:

1. Basic training of mothers' on causes, recognition and appropriate self treatment seeking behaviour.
2. Community health workers, traditional healers and school teachers should be given basic training on first aid management, early diagnosis and prevention of conjunctivitis.
3. Community awareness about prevention of blindness should be raised for example, it could be in the teaching syllabus of primary and secondary schools.
4. Mobile Eye care programmes should be integrated into existing primary health care programmes at district hospitals.
5. Mass education by health care practitioners and Government agencies to enlighten the public about simple methods of managing conjunctivitis through radio and television jingles in conjunction with the LG authorities.
6. Greater emphasis must be given to the issue of integrating the traditional healers into primary eye care system. These first line providers of health are easily accessible and acceptable to the rural populations and can make vital contributions at community level in rural areas.

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APPENDIX I

HOME MANAGEMENT OF CONJUNCTIVITIS BY MOTHERS AMONG CHILDREN UNDER FIVE YEARS IN ETI-OSA LOCAL GOVERNMENT AREA OF LAGOS STATE, NIGERIA.

QUESTIONNAIRE

Dear Respondent,

Good day, I am one of the students of Health Promotion and Education of University of Ibadan. I am conducting a research on the above topic. This questionnaire is designed to access knowledge, attitude and home management of conjunctivitis in children under five years old by mothers.

Also, the survey will try to identify hindrances to effective management of conjunctivitis. The information given here is strictly for research purposes only and confidentiality is guaranteed as your name or that of your child is not required. I would like you to express your candid opinion in answering these questions so as to make this study a success. However, your participation in this study is voluntary and not compulsory.

Thank you.

SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS

TICK IN THE RIGHT BOX

1. Age: 1. 15-29 [ ] 2. 30-39 [ ] 3. 40-49 [ ]
   4. 50-59 [ ] 5. 60 and above [ ]
2. Marital Status: Married [ ] Single [ ] Divorced [ ]
   Widowed [ ] Separated [ ]
3. Religion: Christianity [ ] Islam [ ] Traditional [ ]
   Others (Specify) [ ]
4. Ethnic group: Yoruba [ ] Igbo [ ] Hausa [ ]
   Others (specify): .....
5. Occupation: .....
6. Educational background: Primary [ ] Secondary [ ]
   Tertiary [ ] No formal Education [ ]

SECTION B: KNOWLEDGE ABOUT CONJUNCTIVITIS

7. Have you heard about conjunctivitis before?
   1. Yes [ ] 2. No [ ]
8. What is the local name for this condition?
   .....
9. Can you identify a child under five year old with conjunctivitis?
   1. Yes [ ] 2. No [ ]
10. If yes, how can you identify conjunctivitis in children under five years old.
    .....
11. What do you think causes conjunctivitis?
    .....
12. Do you have a child or children who are less than 5 years old who have suffered from this condition prior to this study?
    1. Yes [ ] 2. No [ ]
13. If yes what did you do when you first noticed that your child had this problem?
    1. Nothing [ ] 2. Visited Health Center [ ]
    3. Visited herbalist [ ] 4. Others, specify .....

→ If no go to question no. 15

14. How soon did you institute treatment after you noticed that your child had conjunctivitis?

1. Immediately [ ] 2. First 3 days [ ]

3. First 1 weak [ ] 4. Did nothing [ ]

15. Is there any traditional cure for this problem in your community?

1. Yes [ ] 2. No [ ] 3. I don't know [ ]

16. If yes, what were the traditional cures that you have practice before for this problem or suggested by community members.

_____

→ Probe for further ways

17. What type of water do you have in your community?

1. Well [ ] 2. Pipe borne water [ ] 3. Stream [ ]

Others Specify: .....

SECTION C: ATTITUDE TO CONJUNCTIVITIS

18. Do you think children less than five years can go blind from conjunctivitis infection?

1. Yes [ ] 2. No [ ] 3. I don't know [ ]

19. If yes, do you know children who are blind form conjunctivitis infection?

1. Yes [ ] 2. No [ ] 3. I don't know [ ]

20. Are these problems preventable?

1. Yes [ ] 2. No [ ]

21. If yes, how can you maintain good eye health?

(State).....

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22. In your own opinion what do you think prevent people from going to the hospital to treat conjunctivitis (Please list).....

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23. Suggest ways by which eye health services in Nigeria can be improved? (Please list)

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APPENDIX 2

ITOJU AISAN OJU HIHUN ATI PIPON OMODE TI KO JU ODUN MARUN LO LAARIN AWON IYA NI IJOBA IBILE ETI-OSA NI IPINLE EKO

IBEERE

Emi ni okan ninu awon akeko lati eka ipolongo ilera ti Unifasiti ilu Ibadan. Mo nse iwadi nipa aisan ti a daruko loke. A gbe awon ibeere wonyi kale lati gbeyewo nipa imo ati ise ati itoju ti awon iya nse labele fun awon omo ti odun won ko ju odun marun lo ti won ni aisan. Ati wipe, iwadi yio gbiyanju lati wadi awon isoro ti o ndoju ko itoju ti o peye fun aisan. Gbogbo idahun ti a ba gba wa fun eto iwadi nikan o si tun je nkan asiri nitonpe a ko ni gba oruko yin sile tabi ko oruko omo yin. Maa fe ki e se gbogbo ero okan yin lati dahun awon ibere wonyi ki iwadi yi ba le yori si rere. Ikopa yin ninu iwadi ki ise pelu agbara, o je ohun afinulindo se.

Ese Pupo.

APA KINNI: SOCIO DEMOGRAPHIC CHARACTERISTICS.

Fa igi si eyiti o ba yin mu.

1. Ojo ori: 1. 15 -29 [ ] 2. 30-39 [ ]3. 40-49 [ ]
   4. 50-59 [ ] 5. 60 and above [ ]
2. Igbeyawo: Tigbeyawo [ ] Apon [ ] Ko oko [ ]
   Ojo [ ] Pinya [ ]
3. Esin: Kristieni [ ] Musulumi [ ] Esin Ibile [ ]
   Omiran (se alaye) .....
4. Eya: Yoruba [ ] Igbo [ ] Hausa [ ]
   Omiran (se alaye) .....
5. Ise ojo: .....
6. Iwe ti a ka: Ile- Iwe alakobere [ ] Ile-iwe girama [ ]
   Ile-iwo Giga [ ] Nko lo ile iwe [ ]

APA KEJI: IMO NIPA ARUN OJU HIHUN ATI PIPON

7. Nje e ti gbo nipa arun oju pipon ati hihun ri?
   1. Beeni [ ] 2. Beeko [ ]

8. Kini oruko ibile fun arun yi .....

9. Nje ati e le mo omo ti oni arun oju pipon at hinun mo?

1. Beeni [ ] 2. Beeko [ ]

10. To ba jee Beeni, bawo la se le mo omo ti oni arun oju pipon at hinun mo?

.....

11. Kini e ro wipe o nfa arun yi?

.....

12. Nje e ni omo tabi awon omo ti ko ti ju omo odun marun lo ti aisan yi ti se ri?

1. Beeni [ ] 2. Beeko [ ]

13. Kini awon nkan ti ose nigbati o koko mo pe omo re ni iru isoro yii?

1. Ko se nkankan [ ] 2. Lo si ile igbogun [ ]

2. Lo si odo Babalawo [ ] 4. Oliran (se alaye) .....

——————→ Ti o ba je beeko lo si ibeere 15

14. Nigba wo ni o bere si se itoju omo re ni igba ti o ti mo pe oni arun oju pipon ati hihun?

1. Lesekese [ ] 2. Leyin ojo keta [ ]

3. Leyin ose kan [ ] 4. Nkomo [ ]

15. Nje oogun ibile ti o le wo aisan yi san wa bi?

1. Beeni [ ] 2. Beeko [ ]

16. Ti o ba je beeni iru oogun ibile wo ni o nwo aisan yi san?

.....

——————→ To Pinpin .....

17. Iru omi wo ni e nlo in agbegbe yi?

1. Kanga [ ] 2. Omi ero [ ] 3. Omi odo [ ]

Omiran (Se alaye) .....

APA KETA

IHA TI A KO SI ARUN OJU HIHUN ATI PIPON.

18. Nje e ro wipe omode ti ojo ori won ko ti ju odun marun lo le fo loju inpase arun yi?

1. Beeni [ ] 2. Beeko [ ]

19. Ti o ba je beeni nje e mo iru awon omode ti oju won ti foo nipase arun yi?

1. Beeni [ ] 2. Beeko [ ] 3. Nkomo [ ]

20. Nje a le dena iru awon isoro yii?

Beeni [ ] 2. Beeko [ ]

21. Ti o ba je beeni bawo ni e se moju to eto ilera oju daradara?

So ona .....

.....

.....

22. Ni ero okan yin kini o ndi awon eniyan lowo lati lo si ile iwosan fun itoju arun oju yinyun ati pipon?

Ejowo e kaa

.....

.....

.....

.....

.....

23. E fun wa ni imoran bi ase le mu ilosiwaju ba eto ilera oju ni ile Naijiria. E jowo e so.

.....

.....

.....

.....

APPENDIX I

MAP SHOWING PHCS IN ETI-OSA LOCAL GOVERNMENT