

**FACTORS PREDISPOSING TO BACTERIAL CONJUNCTIVITIS AMONG PATIENTS RECEIVING EYE HEALTH SERVICES IN THE EYE CLINIC AT JINJA REGIONAL REFERRAL HOSPITAL. A CROSS-SECTIONAL STUDY.**

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Page | 1 **ABSTRACT**

**The purpose of this study**

To investigate the social factors predisposing to bacterial conjunctivitis of respondents aged 5-20 years of age receiving eye care services in the Jinja regional referral hospital eye clinic.

**The objectives**

To determine the social factors influencing the prevalence, management, and possible complications of bacterial conjunctivitis.

**The study method**

A descriptive cross-sectional study design was used employing both quantitative and qualitative methods of data collection. 60 patients were employed, and it took a short period for data analysis and interpretation.

**Principle findings**

This study established the factors predisposing to bacterial conjunctivitis; those staying in crowded areas 37(20.79%), those in only dirty areas 58(32.58%) both dusty and crowded areas 97 (54.49%). The majority of patients were going to eye care centers for management 78(43.82%).

**Conclusion**

The study established that there are several social factors including exposure to infected persons, contact lens wear, sinusitis, and exposure to excretion from people with STDs. This also established that the young generation was more affected by bacterial conjunctivitis.

**Recommendations**

The Ministry of Health should equip all hospitals, and health centers to enable ophthalmic clinical officers and ophthalmic assistants to diagnose bacterial conjunctivitis the government through the Ministry of Health train and recruit more health workers to create more awareness among people about the causes, the predisposing factors and preventive measures of bacterial conjunctivitis.

**Keywords:** Social Factors, Predisposing, Bacterial Conjunctivitis, Jinja Regional Referral Hospital

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**Background to the study.**

Bacterial conjunctivitis is an infection of the eyes' mucus membrane, the conjunctiva, which extends from the back surface of the eyelids (palpebral and tarsal conjunctiva), into the fornices, and onto the globe (bulbar conjunctiva) until it fuses with the cornea at the limbus (Brad H. Feldman et al.,2023).

Bacterial conjunctivitis is classified into; Acute, Hyperacute, and Chronic. Acute bacterial conjunctivitis is primarily due to *Staphylococcus aureus*, *Streptococcus pneumoniae*, and *Haemophilus influenzae*. Other pathogens responsible for acute diseases are *Pseudomonas aeruginosa*, *Moraxella lacunata*, *Streptococcus viridans*, and *Proteus mirabilis*. The organisms may be spread from hand-to-eye

contact or through adjacent mucosal tissue colonization such as nasal or sinus mucosa.

Hyperacute conjunctivitis is primarily due to *Neisseria gonorrhoea*, which is a sexually transmitted disease. *Neisseria meningitidis* are also differential and are important to consider as they can lead to potential fatal meningial or systemic infection.

Chronic conjunctivitis is primarily due to *Chlamydia trachomatis*. However, chronically ill, debilitated, or hospital patients can become colonized with other virulent bacteria responsible for chronic conjunctivitis (Brad H. Feldman et al.,2023). *Staphylococcus aureus* and *Moraxella lacunata* may also cause chronic conjunctivitis in patients with associated blepharitis (Brad H. Feldman et al.,2023).

The signs and symptoms of bacterial conjunctivitis include redness in the white of the eye, swelling of the conjunctiva and eyelids, tearing, foreign body sensation, itching, irritation or burning, discharge (pus or mucus), crusting of eyelids or lashes especially in the morning (Centers for Disease control and prevention, 2021) & (Prakalapakorn SG et al, 2020).

Bacterial conjunctivitis can be diagnosed simply by examining the eyes, taking a medical history, slit lamp examination, visual acuity tests, gram staining of the crusts from the eyelashes, and eye culture to confirm it.

The mainstay of treatment for bacterial conjunctivitis is topical antibiotic therapy, to reduce the duration of symptoms and the likelihood of contagion. For mild and non-vision threatening bacterial conjunctivitis, older generation antibiotics are used and for moderate to severe bacterial conjunctivitis, the latest generation antibiotics like fluoroquinolones are used. Systemic antibiotics are indicated for *Neisseria gonorrhoeae* and Chlamydial infections. Surgical interventions are required only when indicated for the treatment of causative conditions such as hordeolum, and nasolacrimal duct obstruction. Steroids used in combination with antibiotics are also used in the treatment of bacterial conjunctivitis (Karen K Yeung et al, 2019).

Bacterial conjunctivitis is the second most common cause of infectious conjunctivitis and is responsible for the majority (50-75) % of cases in children. It is one of the most commonly encountered eye problems in medicine. Most cases are acute, self-limited, and not a major cause of morbidity (Brad H. Feldman et al.,2023). However, because of its high prevalence, it has a large societal impact in terms of missed days of school or work (Cao Thang Eye Hospital, 2024).

Epidemiologically, bacterial conjunctivitis globally has an estimated incidence of 1,350 cases per 100,000 populations annually. In sub-Saharan countries commonly affects children less than 1 year old (80,000 cases per 100,000 patients) than in children greater than 4 years of age (1,200 cases per 100,000 patients). The study aimed to identify the Predisposing social factors to bacterial conjunctivitis among patients receiving Eye care services at the Eye Clinic in Jinja Regional Referral Hospital.

## METHODOLOGY

### Study Design

In this study, the researcher employed a cross-sectional study design. It involved quantitative methods to determine the factors predisposing patients to bacterial conjunctivitis in Jinja JRRH.

### Study area

The study was conducted at the Eye Clinic of Jinja Regional Referral Hospital. The Hospital is located in the Eastern region of the country in Jinja Central Division, Jinja City near the source of the Nile. It was founded in 1962 and has a bed capacity of 600. The hospital serves several clients/patients across the region some of whom are referred from other District Hospitals and Health Centre IVs, while others are self-referred. Among the services provided include; comprehensive specialist services, involvement in health research and teaching in addition to daily immunization, HIV testing and counseling, reproductive health services, and safe male circumcision, etc.

The hospital has 15 wards which include surgical female /male, Medical female/ male, T.B, Eye, Urological, Grade A, A Annex, Psychiatric and Children's ward, Intensive care unit, Postnatal, Special Units, Gynecological, and maternity ward.

The study was conducted due to the increasing cases of Bacterial conjunctivitis among patients and it's easily accessible by the researcher. The study was carried out from August 2022 to March 2023.

### Study Population

The study population was carried out among patients aged 5 years and above, and adults not greater than 20 years receiving eye health care in the eye clinic at JRRH.

### Sample Size Determination

Using Button's (1965) formulae to calculate the sample size, 60 respondents were selected and interviewed during the study.

$$S=GR/O$$

Where S=Sample Size

G=Number of people interviewed per day

R=Maximum number of days for data collection

Maximum time the interviewer spends on each respondent

$$\text{There } S=5 \times \frac{6}{0.5}$$

$$= 60 \text{ respondents}$$

### Sampling Technique

The study was a non-probability consecutive sampling process and all clinicians at JRRH eye clinic were sensitized about bacterial conjunctivitis.

### Sampling Procedure

Page | 3 Patients' demographic data was registered at the reception regardless of the presenting ocular complaints. Whenever a patient with bacterial conjunctivitis was identified by any clinician during the research, he/she directed the patient to the principal investigator or any of the assistants for assessment.

### Data Collection Method

Interviews were used as the method of data collection using an interview guide with well-structured questions.

### Data Collection tools

Data was collected using an interviewer-administered questionnaire. This sought demographic and clinical data of each patient who presents with bacterial conjunctivitis. It will also seek predisposing factors of bacterial conjunctivitis.

### Data collection procedure

The study started by creating rapport with the respondents and reassuring them about confidentiality. The questions were read and interpreted for the respondents to understand. Responses were given in the local language and written in English by the researcher and his assistants at the end the respondents were thanked for their co-operation.

### Piloting the study

The assistants were trained on how to apply data collection tools correctly. The study tools were pre-tested and pilot testing was done to identify and correct errors.

### Quality control

The assistants were trained on how to apply data collection tools correctly. The study tools were pre-tested and pilot testing was done to identify and correct errors.

### Pre-testing of the questionnaire

This aimed at evaluating the validity and reliability of the questionnaire. The data tool was therefore revised to suit realities by reconstructing questions and eliminating grammar errors and useless questions.

### Research assistants

Assistance was obtained from two research assistants who were selected according to their level of education, communication skills ability to speak the local language, and knowledge about the research topic. They were first trained and oriented about the data collection process and then involved in the pre-testing of the questionnaire.

### Data processing, analysis, and presentation

Data collected was processed both qualitatively and quantitatively by tallying and using a non-programmable scientific calculator and was presented by the use of tables, figures, and statements.

### Ethical consideration.

On approval of the research proposal by the school, a letter of introduction was provided by the principal of the ophthalmic clinical officers' training school, and it was delivered to the hospital director JRRH who then introduced the researcher to the in charge of the eye clinic. The in-charge then introduced the researcher to the respondents to get their consent. The respondents were assured of absolute confidentiality.

## RESULTS

### Social factors predisposing to bacterial conjunctivitis data of the respondents.

The study was to determine the social factors predisposing to bacterial conjunctivitis among patients aged between 5 to 20 years.

The characteristics assessed were; exposure to infected individuals, contact lens wear, exposure to excretion from people, and social-cultural beliefs.

According to the socio-demographic data of respondents on age, half of the respondents that are 55% were between 5-10 years old, 33.3% were between 11-15 years and 11.6% were between 16-20 years old.

Concerning tribe, the highest numbers of respondents were Basoga with a percentage of (58.3%), Baganda with a

percentage (of 11.60%), Bagishu with a percentage of (20%) and finally others with a percentage of (10%).

percentage of 18.3%, and finally the tertiary level with a percentage of 13.3%.

Data on the sex of respondents established that the majority 38(63.3%) were Females and the minority were Males with a percentage of (36.6%).

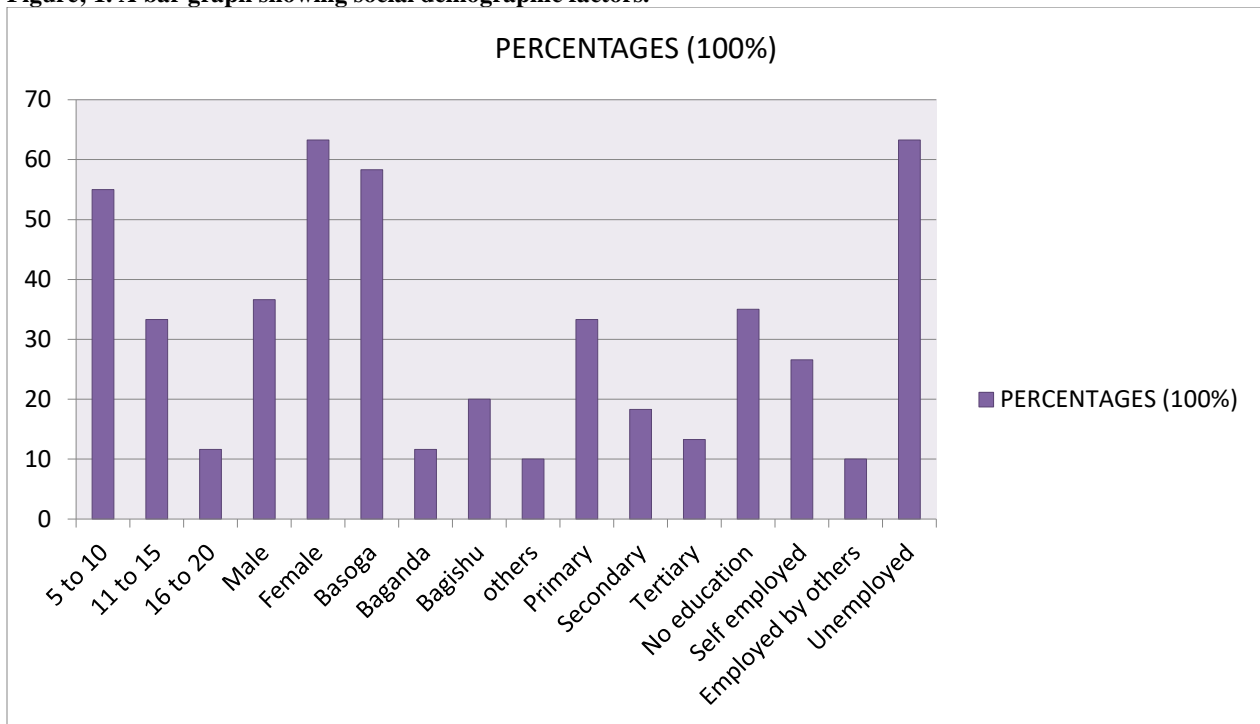
Regarding occupation, the most affected population were unemployed with a percentage of 63%, followed by self-employed with a percentage of 26.6%, and then those employed by others with a percentage of 10%.

Concerning education level, the uneducated scored the highest percentage of 35%, followed by the primary level with a percentage of 33.3%, the secondary level with a

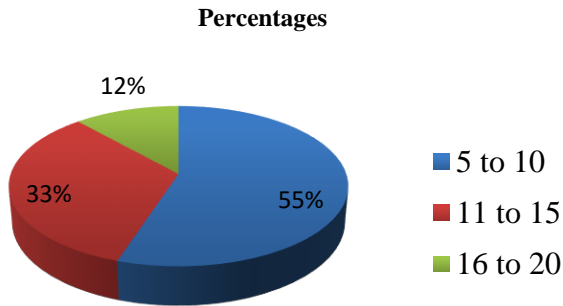
**Table 1: Social demographic factors.**

FACTORS	VARIABLES	FREQUENCY (N=60)	PERCENTAGES (100%)
Age	5 to 10	33	55
	11 to 15	20	33.3
	16 to 20	07	11.6
Sex	Male	22	36.6
	Female	38	63.3
Tribe	Basoga	35	58.3
	Baganda	07	11.6
	Bagishu	12	20
	Others	06	10
Level of Education	Primary	20	33.3
	Secondary	11	18.3
	Tertiary	08	13.3
	No education	21	35
Occupation	Self-employed	16	26.6
	Employed by others	06	10
	Unemployed	38	63.3

**Figure; 1. A bar graph showing social demographic factors.**



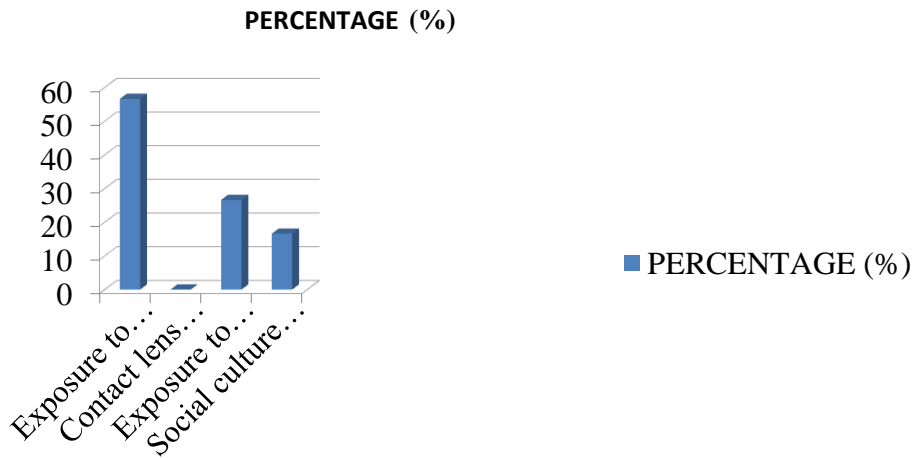
**Figure 2: pie chart showing the relationship between age and bacterial conjunctivitis.**



**Table 2 shows Social factors predisposing to Bacterial Conjunctivitis.**

FACTORS	NUMBER OF RESPONDENTS (N=60)	PERCENTAGE (%)
Exposure to infected individuals	34	56.67
Contact lens wear	00	00
Exposure to excretion from infected people	16	26.67
Social culture beliefs	10	16.67

**Figure 3: bar chart showing social factors predisposing to bacterial conjunctivitis.**



**Exposure to infected persons,**

A total of 60 respondents were involved in the study and study findings showed that 34 of them had had exposure to infected persons with bacterial conjunctivitis. This was due to its volatile patterns of spread which included; hand to eye, person to person through respiratory droplets, having contact with infectious tears, eye discharge, and fecal matter, among others.

Exposure to excretion from people with Sexually Transmitted Infections (STIs) had 16 respondents out of 60

involved in the study with a percentage of 26.67%. Gonococcal infections were found transmitted from the genital tract to the eyes by hand thus causing Bacterial conjunctivitis.

Social cultural beliefs had 10 respondents from the study with a percentage of 16.67%, lastly, contact lens wear had 0.0% in the study and this was because, in the study time, no contact lens wearer was received in the clinic.

## DISCUSSION.

Exposure to infected individuals with bacterial conjunctivitis was the main factor among social factors followed by exposure to excretion from people with sexually transmitted infections like Gonococcal. Social cultural beliefs and contact lens wear were also among the least social factors predisposing to bacterial conjunctivitis.

These findings also indicated that social factors including; exposure to infected individuals, contact lens wear, and exposure to excretion from persons with STIs predispose them to bacterial conjunctivitis. These findings agree with (Karen K Yeung et al, 2023) who stated that risk factors including exposure to infected individuals, fomite contact, contact lens wear, and exposure to agents of STDs predispose to bacterial conjunctivitis.

## CONCLUSIONS

This study specifically sought to identify the social factors that can predispose to Bacterial conjunctivitis. The study established that there are several social factors including exposure to infected persons, contact lens wear, sinusitis, and exposure to excretion from people with STDs. Given these findings, the study established that people of 05 to 20 years suffer from bacterial conjunctivitis especially those exposed to social factors discussed. This will hinder the school-going pupils and students' performance of work in that age bracket.

## RECOMMENDATIONS

The Ministry of Health should equip all hospitals and health centers with the necessary equipment to enable Ophthalmologists, Ophthalmic clinical officers, ophthalmic assistants, and eye health workers to diagnose bacterial conjunctivitis.

The Ministry of Health should educate people on how to promote and maintain eye health. This would be done through massive media advertisements and talk shows so that bacterial conjunctivitis is minimized and later eradicated.

The government of Uganda should also recruit more health workers to different health centers which could help to quicken diagnosis and management of ocular conditions.

The government of Uganda should equip communities with a safe and adequate water supply to communities, educate them on environmental hygiene which would lead to the promotion of eye health too.

The Ministry of Health should also give a chance ophthalmic clinical officers to go and further their studies and organize ophthalmic worker shops so that they add to their knowledge.

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## LIST OF ABBREVIATIONS

APIC: Association for Professions in Infection Control and Epidemiology.

JRRH: Jinja Regional Referral Hospital.

CDC: Center for Disease Control and Prevention.

WHO: World Health Organization.

NLD: Nasal Lacrimal Duct

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