Ocular Morbidity Pattern Among Adults in Butajira Town, Central Ethiopia.

Investigators

Dr. Asrat Tadesse, Ophthalmology Resident, AAU, CHS, SoM, Department of Ophthalmology

Dr. Alemayehu Woldeyes, Assistant Professor of Ophthalmology, AAU, CHS, SoM, Department of Ophthalmology

Nov, 2025
Addis Ababa, Ethiopia

Contents

List of Tables

List of Figures

Abbreviations and Acronyms

AOR……..Adjusted Odds Ratio

BCVA…….Best Corrected Visual Acuity

CI……Confidence Interval

MGD……..Meibomian Gland Dysfunction

NGO……Non-Governmental Organization

NVICs……Non -vision impairing conditions

OD…… Oculus Dexter

OS……...Oculus Sinister

PVA…….. Presenting visual acuity

SAFE……Surgery, Antibiotics, Facial cleanliness, Environmental Improvement

SPSS……Statistical Package for Social Science

VI……..Visual Impairment

VICs…… Vision Impairing Conditions

WHO……World Health Organization

Abstract

Background:

Ocular morbidity, encompassing all eye diseases with or without visual impairment, remains a major cause of preventable visual loss, particularly in low-resource settings. Identifying its prevalence and associated factors is crucial for guiding effective eye care interventions.

Objective:

To determine the prevalence, pattern, and determinants of ocular morbidities among adults aged 40 years and above in Butajira town, Ethiopia.

Methods:

This study employed a community-based cross-sectional study design from March to April 2025 among 410 adults selected using multistage cluster sampling. Data were collected through interviewer-administered questionnaires and comprehensive ocular examinations performed by a senior ophthalmology resident. Data were entered in to EpiData and then transported to SPSS version 27 for analysis. Bivariate analysis was first performed, then factors which are significant on bivariate analysis were further analyzed using multivariable logistic regression.

Results:

Overall prevalence of ocular morbidity was 61.2% (95% CI: 56.5–65.9). The leading causes were trachoma (11.0%), refractive error (8.8%), cataract (7.3%), meibomian gland dysfunction (4.4%), and glaucoma (3.9%). Ocular morbidity increased significantly with age ($P < 0.05$). Females were more affected by trachoma and MGD (adjusted OR = 1.47, 95% CI: 1.04–3.36, P = 0.038), whereas Male participants were more likely to have glaucoma (adjusted OR=2.16; 95% CI: 1.05-4.45; p=0.034). The prevalence of visual impairment and blindness were 13.4% and 2.9%, respectively.

Conclusion:

Ocular morbidity is highly prevalent in Butajira, with most conditions being preventable or treatable. Strengthening primary eye care services, promoting regular screening, and improving community awareness particularly among older adults and women—are vital to reduce avoidable visual impairment and blindness.

Keywords: Ocular morbidity, Visual impairment, Blindness, Cataract, Trachoma, Refractive error, Glaucoma, Meibomian gland dysfunction, Community-based study, Butajira, Ethiopia.

1. Introduction

1.1 Background

Ocular morbidity refers to having an ocular disease or a symptom of ocular disease, or to the amount of ocular disease(s) within a population.
Ocular morbidity is a broad term encompassing all eye disorders, including conditions that impair vision as well as those that do not. Although many non-vision-impairing and mild vision-impairing conditions-such as minor ocular trauma, allergic or infectious conjunctivitis, early refractive errors, and presbyopia-do not cause blindness or require specialized ophthalmic care, they often lead to discomfort and increased utilization of eye care services. [1]

In epidemiology, pattern describes the distribution of health-related events according to time, place, and person. Temporal distribution may be examined over different intervals, such as years, seasons, weeks, or days, depending on factors that influence disease occurrence. Spatial distribution considers geographic differences, including urban-rural variation and specific settings such as workplaces or schools. Person-related factors refer to demographic and socioeconomic characteristics, as well as behavioral and environmental exposures, that affect the risk of disease, injury, or disability.
The distribution of ocular diseases differs globally and is shaped by racial, geographic, socioeconomic, and cultural factors. [1]

In many low and middle income countries, a large proportion of ocular conditions are either preventable or amenable to treatment. However, ophthalmic services in these settings particularly in rural areas remain limited, resulting in poor access to eye care for much of the population. Consequently, undiagnosed and untreated eye conditions increase the risk of avoidable visual impairment and blindness. Ocular morbidity broadly refers to the range of eye diseases and disorders affecting a defined population. [2]

The World Health Organization (WHO) estimated in 2023 that 2.2 billion people have vision impairment worldwide, of whom 1 billion cases are preventable or unaddressed [3]. Major causes include cataract, uncorrected refractive error and uncorrected presbyopia [3]. The Global Burden of Disease Study reported 43.3 million blind and 295 million with moderate-to-severe vision impairment in 2020 [4]. Over 80% of vision loss is preventable or treatable. Access to basic eye care remains limited in many low and middle income countries. [3-4]

Recent data shows marked geographic variation in ocular disease patterns, with substantial differences in both underlying causes of visual impairment and prevalence across regions. Sub-Saharan Africa have one of the highest age standardized burdens of blindness and moderate to severe visual impairment worldwide, the predominant causes are cataract and uncorrected refractive error. Similar pattern is observed in South and Central Asia, where these conditions remain the leading causes of vision loss, and overall prevalence exceeds that reported in many other regions.4-6]

According to the International Agency for the Prevention of Blindness (IAPB) Vision Atlas 2024, sub-Saharan Africa bears one of the highest burdens of vision loss globally, with an estimated 5.08 million blind individuals and 20.4 million living with moderate-to-severe visual impairment (MSVI). Cataract remains the leading cause of blindness, followed by uncorrected refractive error, glaucoma, trachoma, and onchocerciasis in endemic areas. [7]

A large proportion of data estimation comes from Rapid Assessment of Avoidable blindness (RAAB) surveys carried out across multiple African countries. This surveys generate standardized, population based data on the causes of and magnitude of visual impairment. Country-level findings from RAAB and the IAPB Vision Atlas show that Nigeria has approximately 1.3 million blind and 24 million visually impaired individuals, while Ethiopia reports a blindness prevalence of around 1.6%. Other countries including Kenya, Ghana, Tanzania, Uganda, Rwanda, Cameroon, Gambia, Mali, Eritrea, and Botswana report blindness prevalence ranging between 1% and 2.5%, predominantly due to cataract and glaucoma. [8]

2. Methods and Materials

2.1 Study design and Population

The study employed a community-based cross-sectional design study from March to April 2025 in Butajira town, located in the Gurage Zone, about 132 km south of Addis Ababa, the capital city of Ethiopia. The town had a total estimated population of 77,483 in 2023, distributed in 3 kebeles with approximately 11,937 households.

The study included all eligible individuals aged 40 years and above who were permanent residents of Butajira town and selected using a random sampling procedure. Individuals who were medically unstable and with communication barriers or those not permanent residents were excluded from the study.

2.2. Sample size determination

The required sample size was determined using a single proportion formula with assumptions of an ocular morbidity prevalence of 40.0 % based on a study from Southwest Ethiopia. With a 95% confidence interval, 5% margin of error, and an additional 10% non-response rate, the final required sample size was 410.

2.3. Sampling procedure

A three-stage multistage cluster sampling technique was used. In the first stage kebeles were chosen; in the second stage, villages within each kebele were selected; and in the third stage, households were randomly selected within each village. A proportional allocation method was applied to distribute the total sample size among the selected kebeles. Within each household, eligible participants were invited to participate. **Figure 1**

All eligible individuals was present in the selected households were included in the study until the required sample size was reached

If no eligible individual was found, the next household was taken, and return visits were made to initially missed households.

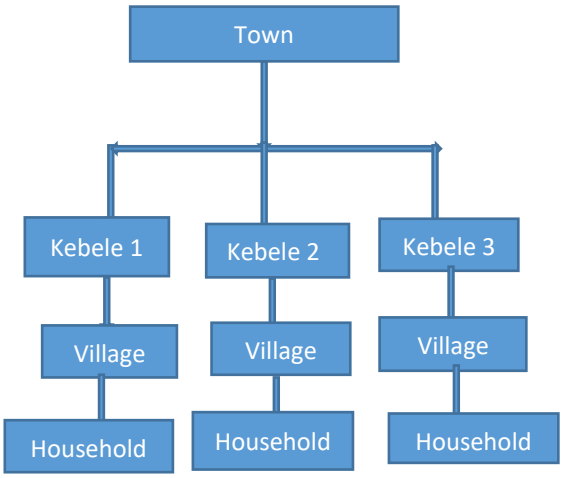


Figure 1.Cluster sampling structure of the study population

2.4. Study variables

Dependent variables: Ocular morbidity, Visual impairment, Blindness, and Eye care utilization

Independent variables:

Socio-demographic: Age, sex, education, occupation.
Clinical: Presenting complaints, specific ocular conditions.
Health service–related: Barriers to eye care utilization.

2.5. Operational definitions

Eye care utilization: Refers to the act of seeking and receiving eye health services from a recognized eye care facility within the past 12 months, regardless of the reason for the visit. [9]

Glaucoma: was defined by (vertical cup-to-disc ratio ⩾0.7, inter-eye asymmetry⩾ 0.2 , or the presence of neuroretinal rim thinning/notching, disc hemorrhage, or retinal nerve fiber layer defect) with or without elevated intraocular pressure (>21 mmHg).[10]

Ocular morbidity: Refers to the presence of one or more clinically detectable eye disorders or abnormalities affecting any part of the eye or its adnexa at the time of examination, regardless of whether they cause visual impairment.[11]

Permanent resident: was defined as an individual who had continuously lived in Butajira town for at least six months or more prior to the date of data collection. [12]

WHO Classified visual impairment as: - Mild-PVA in the better eye <6/12-6/18, Moderate-PVA in better eye <6/18-6/60, Severe-PVA in better eye <6/60-3/60 and Blindness-PVA <3/60.[3]

2.6. Data collection and analysis

Data were collected using interviewer administered questionnaires and comprehensive ocular examinations conducted by a fourth-year ophthalmology resident. The collected data were coded, cleaned, and entered into EpiData version 3.1 before being exported to SPSS version 27 for statistical analysis.

Descriptive statistics were used to summarize frequencies and proportions. Bivariate and Multivariate analysis were then performed to identify factors associated with ocular morbidity and visual impairment.

Variables that demonstrated statistical significance in the bivariate analysis were subsequently included in the multivariable logistic regression model. P -value of less than 0.05 was used to define statistical significance.

2.7. Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of the Department of Ophthalmology, College of Health Sciences, Addis Ababa University. Official permission was granted by the Butajira Town Health Bureau prior to data collection. All participants provided verbal informed consent before enrollment in the study. Participant confidentiality was ensured by omitting personal identifiers, including names and addresses. Participants found to have ocular conditions during the study were referred to the nearest eye care facility for appropriate management.

3. Results

3.1. Socio demographic characteristics

In total, 410 individuals aged 40 years and above participated in this community-based cross-sectional study. There were proportional gender distribution. Most of them where in age range 40-49 years.
Nearly half of participants (47.3%) were illiterate, and most of the women were house wife and most of men were merchant. **Table 1**

Table 1.Socio demographic characteristics of study participants

	Variables	Count	Percent
Gender	Female	212	51.7%
	Male	198	48.3%
Age in years	40-49	177	43.2%
	50-59	102	24.9%
	60-69	70	17.1%
	≥70	61	14.9%
Educational level	Illiterate	194	47.3%
	Read and write	69	16.8%
	Primary education	82	20%
	Secondary education	43	10.5%
	College and above	22	5.4%
Occupation	House wife	182	44.4%
	Merchant	114	27.8%
	Government employer	54	13.2%
	Farmer	35	8.5%
	Retired	16	3.9%
	Daily laborer	9	2.2%
	Total	410	100%

3.2. Prevalence and Distribution of Ocular morbidity

In this study, the overall prevalence of ocular morbidity was 61.2% (95% CI: 56.5%-65.9%). Trachoma (45 cases, 11%) is the leading ocular morbidity followed by refractive error (36 cases, 8.8%) and cataract (30 cases, 7.3%).Less frequent conditions included Age-related Macular degeneration, Diabetic retinopathy and strabismus. **Table 2**

Table 2.Distrbiution of Ocular morbidities among study participants

Ocular Morbidities	Frequency	Percent
Normal	159	38.8
Trachoma	**45**	**11.0**
Trachomatous corneal opacity	26	6.3
Trachomatous Trichiasis (TT)	9	2.3
Active Trachoma	10	2.4
Refractive error	36	8.8
Cataract	30	7.3
Meibomian gland dysfunction/Blepharitis	18	4.4
Glaucoma	16	3.9
Pterygium/Pinguecula	14	3.4
Pseudophakic/Aphakic	14	3.4
Dry eye syndrome	13	3.2
Pseudo-exfoliation syndrome	10	2.4
Age related macular degeneration	10	2.2
Allergic conjunctivitis	8	1.7
Non trachomatous corneal opacity	7	1.2
Lid and Orbital Disorders	5	1.2
Diabetic Retinopathy	5	1.2
Strabismus	4	1.0
Macular Scar	3	0.7
Bullous Keratopathy	3	0.7
Naso lacrimal duct obstruction	3	0.7
Phthisis bulbi	2	0.5
Optic atrophy	2	0.5
Episcleritis	2	0.5
Retinitis pigmentosa	1	0.2
Total	410	100.0

3.3. Association of ocular morbidity with Age and Sex

In this study, the prevalence of refractive error, cataract, trachoma, MGD/Blepharitis and Glaucoma increased significantly with age. **Table 3**

Sex differences were observed. Females had a higher prevalence of refractive error, MGD/Blepharitis, trachoma (P<0.05) and Cataract (P=0.54) .whereas males were more affected by glaucoma (P = 0.021).**Table 4**

Table 3.Association between Age and Major Ocular morbidities.

	Age(yrs.) of study Participants						
Ocular Morbidities	40-49	50-59	60-69	≥ 70	Total	χ^2	P-value
Trachoma	6(13.3%)	8(17.8%)	14(31.1%)	17(37.8%)	45	12.5	0.006
Refractive error	5(14.0%)	8(22.2%)	10(27.7%)	13(36.1%)	36	10.4	0.015
Cataract	5(16.7%)	5(16.7%)	8(29.2%)	12(37.5%)	30	18.2	<0.001
Meibomian gland dysfunction/Blepharitis	2(11.2%)	4(22.2%)	6(33.3%)	6(33.3%)	18	9.8	0.020
Glaucoma	1(6.5%)	2(12.5%)	6(37.5%)	7(43.8%)	16	15.9	<0.001

Table 4.Association between Sex and Major Ocular morbidities.

	Sex of study participants				
Ocular Morbidities	Male	Female	Total	χ^2	P-value
Trachoma	19(42.2%)	26(57.8%)	45(100.0%)	3.62	0.038
Refractive error	14(38.9%)	22(61.1%)	36(100.0%)	4.12	0.028
Cataract	14(46.7%)	16(53.3%)	30(100.0%)	0.38	0.54
Meibomian gland dysfunction/Blepharitis	7(38.9%)	11(61.1%)	18(100.0%)	3.92	0.032
Glaucoma	9(57.2%)	7(42.8%)	16(100.0%)	5.33	0.021

Multivariable logistic regression analysis:

As age increased the prevalence of cataract and refractive error increased. Trachoma and MGD are more common in women and elderly. Men had higher prevalence of glaucoma than women. **Table 5**

Table 5.Multivariable Logistic Regression of factors associated with major ocular morbidities (n=410)

Ocular Morbidities	Significant Predicator	AOR	95% CI	P-value
Trachoma/MGD	Female Sex ,Elderly	1.47	1.04-3.36	0.038
Refractory error	Age ≥ 50 years	2.21	1.28-3.81	0.004
Cataract	Age ≥ 60 years	3.45	1.82-6.56	<0.001
Glaucoma	Male Sex	2.16	1.05-4.45	0.034

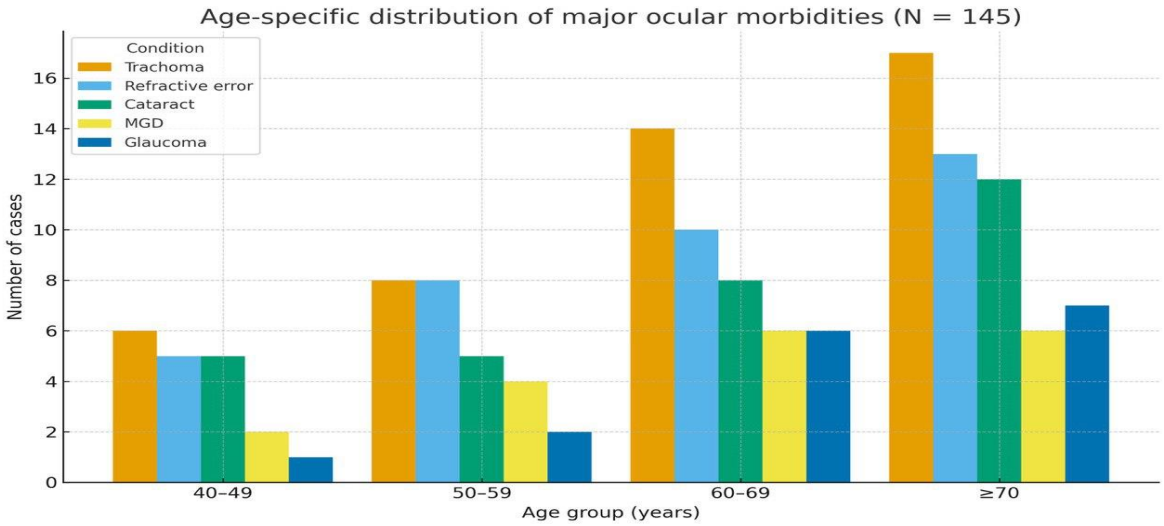


Figure 2.A clustered bar chart: Distribution of Ocular morbidities by Age

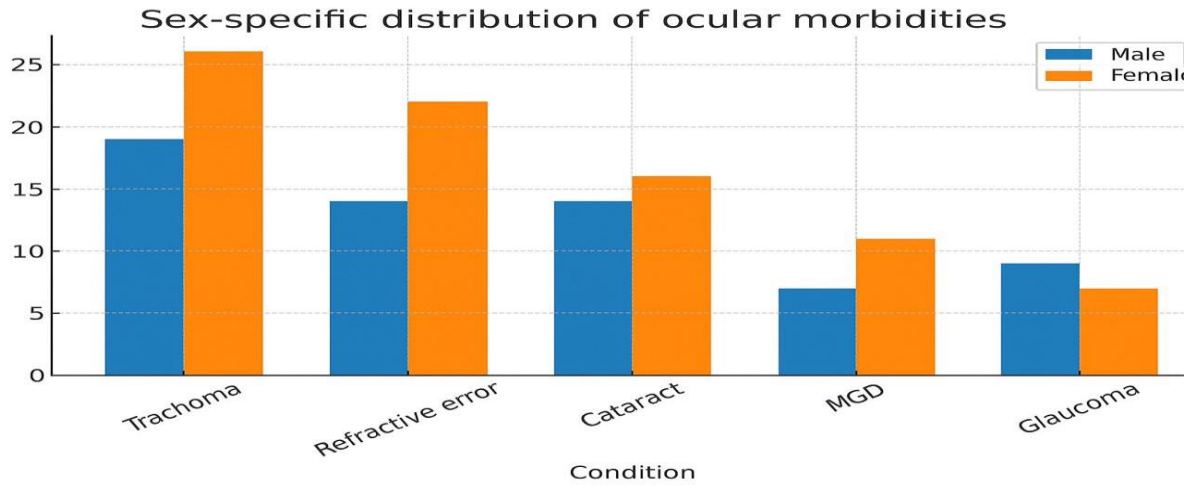


Figure 3.A clustered bar chart: Distribution of Ocular morbidities by Sex

3.4. Association of ocular morbidity with Occupation and Education

Trachoma was significantly higher among farmers and refractive error was more common among housewives and government employees. **Table 6**

Cataract, MGD, and glaucoma did not differ significantly across occupations (P= 0.84).

Cataract and corneal opacity were more frequent among illiterates, while refractive error was higher among the educated. However, the association between education and ocular morbidity was not statistically significant ($\chi^2 = 74.8$, df = 92, P = 0.91).

Table 6.Distribution of major Ocular morbidities among different Occupation

Occupation of Study Participants							
Ocular Morbidities	Farmer	Government employer	House wife	Merchant	Daily laborer	Retired	Total
Trachoma	13(28.9%)	2(4.4%)	8(17.8%)	4(8.9%)	3(6.7%)	15(33.3%)	45(100.0%)
Refractory error	6(16.8%)	8(22.2%)	7(19.4%)	6(16.7%)	2(5.5%)	7(19.4%)	36(100.0%)
Cataract	6(20.0%)	4(13.3%)	6(20.0%)	6(20.0%)	0(0.0%)	8(26.7%)	30(100.0%)
Meibomian gland dysfunction/Blepharitis	4(22.2%)	3(16.7%)	4(22.2%)	1(5.6%)	0	6(33.3%)	18(100.0%)
Glaucoma	4(25.0%)	1(6.3%)	3(18.6%)	1(6.3%)	0(0.0%)	7(43.8%)	16(100.0%)

3.5. Presenting complaints

The most frequent presenting complaint was decreased vision, reported by 36.8% of participants, predominantly among females and older age groups. This was mainly due to trachoma, refractive error, cataract, glaucoma, and posterior segment disease. Foreign body sensation was reported in 64 cases (15.6%), often linked to trachoma, pterygium, dry eye syndrome, and blepharitis. Less frequent symptoms included red eye (2.4%), tearing (0.7%), and ocular pain (0.5%). Nearly half of participants (185, 45.1%) had no complaints. **Table 7**

Table 7.Distribution of chief ocular complaints by Age and Sex among participants

Chief Complaint	Male n (%)	Female n (%)	40-49 yrs.	50-59yrs	60-69 yrs.	≥70 yrs.	Total
Decreased Vision	65 (15.9%)	86 (21.0%)	40 (9.8%)	38 (9.3%)	42 (10.2%)	31 (7.6%)	151 (36.8%)
Foreign body sensation	25 (6.1%)	39 (9.5%)	18 (4.4%)	15 (3.7%)	17 (4.1%)	14 (3.4%)	64 (15.6%)
Red eye	5 (1.2%)	5 (1.2%)	3 (0.7%)	2 (0.5%)	3 (0.7%)	2 (0.5 %)	10 (2.4%)
Tearing	2 (0.5%)	1 (0.2%)	1 (0.2%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	3 (0.7%)
Ocular pain	1 (0.2%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	1(0.2%)	0 (0.0%)	2 (0.5%)
No complaints	100 (24.4%)	85 (20.7%)	114 (27.8%)	46 (11.2%)	38 (9.3%)	27 (6.6%)	185 (45.1%)
Total	198 (48.3%)	212 (51.7%)	177 (43.2%)	102 (24.9%)	102 (24.9%)	29(7.0%)	410 (100%)

3.6. Visual impairment and Blindness

The prevalence of visual impairment (VA < 6/18 to ≥ 3/60 in the better eye) was 13.4% (95% CI: 10.8%-16.0%).Visual impairment was more common among females (8.3%) than males (5.1%).The prevalence increased with age, reaching its peak among those aged 70 years and above (4.4%).**Table 8**

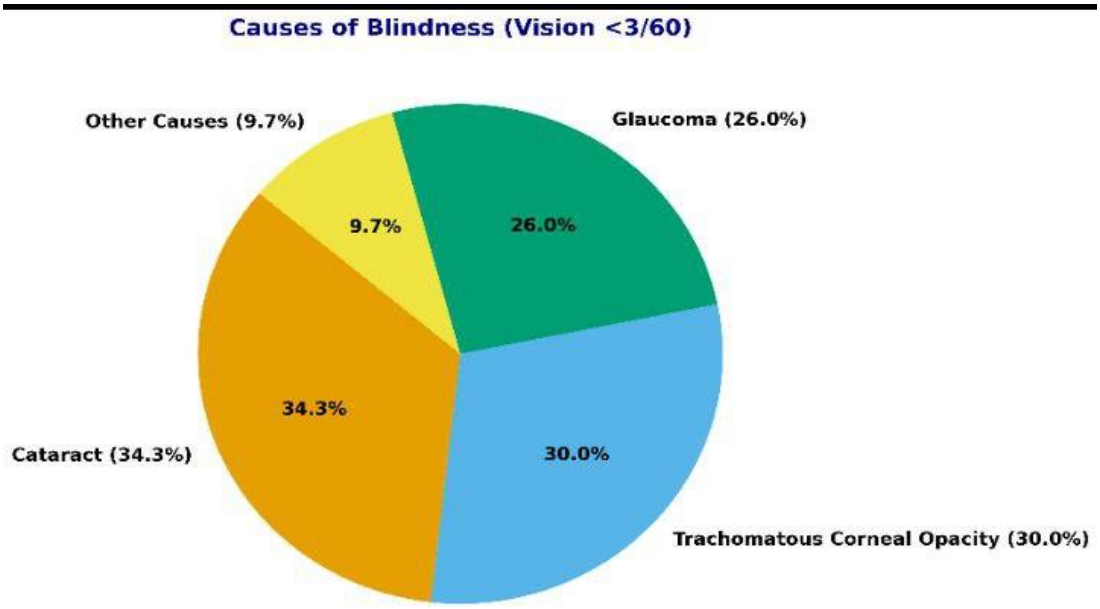
While blindness was observed in 2.9 %(95% CI: 1.7%-4.1%) participants.
The most common causes of visual impairment in the study population were refractive error (41.8%), cataract (32.7%), trachomatous corneal opacity (18.2%), and glaucoma (16.4%).Among participants who were blind, Cataract accounted for 34.3% of cases, trachomatous corneal Opacity for 30.0%, glaucoma for 26.0% and other causes for 9.7%.

Multivariable binary logistic regression analysis showed that participants aged 60 years or older had a significantly higher risk of blindness (AOR = 4.62, 95% CI: 2.08–10.23, P < 0.001). While illiterate individuals had increased odds of visual impairment, this association did not reach statistical significance (AOR = 1.41, 95% CI: 0.89–2.22, P = 0.14).

Table 8. Distribution of visual impairment by Age and Sex.

Age group(yrs)	Male n (%)	Female n (%)	Total n (%)
40-49	3 (0.7%)	5 (1.2%)	8 (1.9%)
50-59	5 (1.2%)	7 (1.7%)	12 (2.9%)
60-69	7 (1.7%)	10 (2.4%)	17 (4.1%)
≥70	6 (1.5%)	12 (2.9%)	18 (4.4%)
Total	21 (5.1%)	34 (8.3%)	55 (13.4%)

Figure 4.Proportion of different causes of blindness



3.7. Eye Care Utilization

In our study, only 139 participants (33.9%) reported visiting an eye care center in the past year, whereas 271 participants (66.1%) did not. The main reasons for not seeking eye care were no perceived need (45.0%), lack of awareness (39.1%), cost (6.6%), and other reasons (9.2%).Based on the ocular morbidity identified, 52 % of cases can be treated at primary health care center, about 32 % of cases need eye care at primary or secondary hospital level and 16 % of the cases need tertiary eye care services.

4. Discussion

This community-based cross-sectional study in Butajira town reveals a high prevalence of ocular morbidity (61.2%, 95% CI: 56.9 %-65.5%), which exceeds the prevalence reported in a study from western hilly region of Nepal (29.1%, 95% CI: 25.4%-32.8%) [13] and in Rwanda (42.3%, 95% CI: 38.0%-46.6%) [14], but comparable to finding from South-West Ethiopia among refugees (59.6%, 95% CI: 55.2%-64.0%) [15]. the observed variation among these studies explained by differences in age composition, environmental exposures, and study settings. The present study included participants aged $\geqslant$ 40 years, whereas the Nepal study focused on older adults aged $\geqslant$ 50 years [13], the Rwanda survey enrolled individuals aged $\geqslant$ 5 years [14], and the Southwest Ethiopia study included participants of all ages [15]. Additional factors such as access to eye-care services, socioeconomic differences, and whether the population comprised refugees or permanent residents may also have contributed to the observed disparities.

In this study the leading ocular morbidities identified are trachoma (11.0%), refractive error (8.8%), cataract (7.3%), and meibomian gland dysfunction (4.4%). Unlike studies in Nigeria, where cataract (21.0%) and conjunctivitis (15.0%) are predominant causes of ocular morbidity [16], and in South-West Ethiopia among refugees, where cataract (19.4%) and Blepharoconjunctivitis (11.7%) [15].Trachoma (11.0%) is the most common condition in our population. This finding is more consistent with Kenya, where trachoma prevalence is 19.0 % [17], highlighting the long-term impact of trachoma despite current control strategies (SAFE). The burden is significantly higher among older adults (Age$\geq$60, AOR=2.6, P<0.001) and women (AOR=1.9, P=0.02), consistent with reports from Rwanda, South-West Ethiopia and Nigeria [14-16]. Occupation and education also play a role, with farmers (P<0.05) disproportionately affected by trachoma and illiterate (P<0.05) individuals showing higher prevalence of cataract.

The study found a 2.9 % prevalence of blindness (95% CI: 1.2- 4.6), which is lower than the estimates from refugee camps in South-West Ethiopia 26.2% (95% CI: 22.5-29.9) [15] and outreach services in Keresa, South East Ethiopia 5.5 %(95% CI: 3.2-7.8) [18].This difference can be attributed to the study design, since outreach-based studies usually involve symptomatic individuals seeking care, inflating prevalence rates. Similarly, the prevalence in Butajira was lower than in North-West Nigeria 8.0% (95% CI: 6.0-10.0) [16], where late presentation and poor access to care contribute to higher blindness rates. Hence community based studies find lower prevalence of VI compared to outreach based studies.

In this study, cataract was the leading cause of blindness, contributing 34.3% of cases, trachomatous corneal opacity (30%), and glaucoma (26%), which together accounted for more than 80% of blindness. These findings are in line with studies from South West Ethiopia, South East Ethiopia, Nepal, and refugee populations in Uganda [15, 18, 11, 19]. Globally, cataract remains the leading cause of blindness (39.6%) [3], while trachoma and glaucoma are still significant contributors in sub-Saharan Africa [6]. Importantly, these conditions are largely preventable (about 30.0%) or treatable (about 60.0%), emphasizing the need for accessible cataract surgery, sustained implementation of the SAFE strategy for trachoma, and early detection and management of glaucoma.

Despite the high burden of ocular morbidity, eye care service utilization in Butajira is very low, with only 33.9% of participants reporting a visit to an eye care facility in the past year. This proportion is slightly higher than the 29% reported from a community survey in southern Ethiopia (adult ⩾40 years) [15]. It is essentially the same as the 33.0% reported in Debre Berhan (32.98%, 95% CI: 29.97 – 35.99) [20], but noticeably greater than several other Ethiopian community studies (e.g., Hawassa, 23.8% [21] and community study in Nigeria (24%) [16].

Taken together, these comparisons show that Butajira's eye care service utilization is not unusually low for community surveys in Ethiopia- it is similar to or a bit higher than many community-based estimates. Lack of perceived need and awareness are major barriers in Butajira (45.0 % and 36.1 %, respectively) and similar barriers (ignorance of clinic existence, (47.3%), and no felt need, (23.2%) are commonly reported in other community studies [20, 21]. Socioeconomic factors (education, income, and health insurance), prior eye disease, and older age consistently predict higher utilization in community studies, which helps explain variability between settings.

This underscores the importance of community-level education, promotion of preventive eye care, and regular screening.

5. Conclusion and Recommendations

This community-based cross-sectional study in Butajira town demonstrate a high prevalence of ocular morbidity among adults aged 40 years and above, with refractive error, cataract, trachoma, meibomian gland dysfunction, and glaucoma being the most common conditions. Visual impairment and blindness were mainly due to cataract, corneal opacity, and glaucoma diseases that are largely preventable and treatable. Despite this burden, only one-third of participants visit an eye care, with lack of perceived need and poor awareness as the main barriers.

The study results point to the necessity of strengthening primary eye care service and expand access to affordable cataract surgery and refractive correction. Sustaining trachoma elimination programs, improving early detection and management of glaucoma, and enhancing referral systems are also essential. Community-level education, particularly targeting older adults and women, is vital to address low awareness and late presentation. Integrating screening and preventive services into primary eye care could substantially reduce avoidable visual impairment and blindness.

Finally, further research is recommended to explore causes and determinants of eye care utilization and evaluate interventions aimed at reducing the burden of ocular morbidity in children and youth with similar settings.

6. References

1. Allan smith MR. A Textbook of Clinical Ophthalmology. 5th ed. London: Butterworth-Heinemann; 2019. p. 123–145.

2. Kariuki MM, Ilako DR, Kimani K. Prevalence and causes of ocular morbidity in Mbeere District, Kenya: results of a population-based survey. East Afr J Ophthalmol. 2010;16(2):56–61

3. World Health Organization. World report on vision: 2023 update. Geneva: World Health Organization; 2023. Available from: https://www.who.int/publications/i/item/9789240076236

4. Bourne RRA, Steinmetz JD, Flaxman S, Briant PS, Taylor HR, Resnikoff S, et al. Trends in prevalence of blindness and distance and near vision impairment over 30 years: an analysis for the Global Burden of Disease Study. Lancet Glob Health. 2021; 9(2):e130–43.

5. Vision Loss Expert Group of the Global Burden of Disease Study. Prevalence of vision loss in South and Central Asia in 2020. Ophthalmic Epidemiol. 2024 Dec 5. doi:10.1080/09286586.2024.1875489

6. Vision Loss Expert Group of the Global Burden of Disease Study. Prevalence of blindness and visual impairment in Sub-Saharan Africa in 2020: magnitude and temporal trends. Ophthalmic Epidemiol. 2025 Mar 24:1–11. doi:10.1080/09286586.2025.2474654

7. International Agency for the Prevention of Blindness (IAPB). Vision Atlas: Global and Country Data on Vision Loss 2024. Available from: https://visionatlas.iapb.org

8. Rapid Assessment of Avoidable Blindness (RAAB). Global RAAB Repository and Survey Reports (2015–2024). Available from: https://raabdata.info

9. Courtright P, et al. Factors influencing the uptake of eye care services in Africa. Community Eye Health. 2010; 23(74):15–16.

10. American Academy of Ophthalmology (AAO). Basic and Clinical Science Course (BCSC): Glaucoma, 2024–2025. San Francisco, CA: AAO; 2024

11. Marmamula S, et al. Ocular morbidity among older adults in a rural population in India: The Andhra Pradesh Eye Disease Study. PLoS One. 2013; 8(7):e70016

12. United Nations Statistics Division. Principles and Recommendations for Population and Housing Censuses, Revision 3. New York: United Nations; 2017.

13. Bastola P. The pattern of ocular morbidity, findings from a study conducted in western remote hilly region of Nepal. Nepal J Med Sci. 2012

14. Ekemiri K, Omondi L, Uwisunze MJ, Twiringirimana FR, Ndayambaje D, Kitema F. A Survey on Pattern of Ocular Morbidity in a Rural Community in Rwanda. Open J Ophthalmol. 2019

15. Gelaw Y, Abateneh A. Ocular morbidity among refugees in Southwest Ethiopia. Ethiop J Health Sci. 2014

16. Monsudi KF, Saka ES, Azonobi RI. Pattern of eye diseases presents at free outreach in rural community in the Northwestern Nigeria. Sudan Med Monit. 2015

17. Karimurio J, Gichangi M, Ilako DR, Adala HS, Kilima P. Prevalence of trachoma in six districts of Kenya. East Afr Med J. 2006; 83(4):63-8.

18. Mehari ZA. A study of ocular morbidity of patients attending ophthalmic outreach services in rural Ethiopia. Int J Med Med Sci. 2013

19. M.Kawuma. Ocular morbidity in Adjumani settlement camps for Sudanese refugees, Uganda. [East African journal 77(11), 2000.

20. Tadesse T, Ayele FA, Fekadu SA. Eye-care service utilization and associated factors among adults in Debre Berhan Town, North Shewa, Ethiopia. BMC Ophthalmol. 2023; 23:176.

21.Kassahun T, Tesfaye T, Shiferaw A. Eye-care service utilization and its associated factors among adults in Hawassa City, Southern Ethiopia: a community-based study. Clin Ophthalmol. 2020; 14:3547–3556

7. Annexes

7.1. Data collection sheet

Addis Ababa University
College of Health Science
Department of Ophthalmology

Title-Pattern of Ocular morbidity among individuals above 40 years of age in Butajira town, Central Ethiopia.

Part I: Socio Demographic Characteristics

Serial (code) No_ _____

1. Age (in years) _____
2. Sex
   A. Male☐
   B. Female ☐
3. Occupation:
   A. Farmer☐
   B. Student ☐
   C. Government employer ☐
   D. House wife ☐
   E. Merchant , F. Other _____

4. Educational level:
   A. Illiterate ☐
   B. Able to read and write ☐
   C. Primary education ☐
   D. Secondary education ☐
   E. College and above ☐

Part II Clinical history

5. present compliant
   A. No complaint
   B. Red eye
   C. Decreased vision

D. Foreign body sensation
E. Ocular pain
F. Eye discharge G. Other…….

6. Duration of the above listed symptoms, if there……...
7. Major eye trauma in the past ……..

A. YES ☐ , If yes (specify the mechanism of injury) ……
B. NO ☐

8. History of using spectacle

9.1. YES. ☐ If yes, A. Distance B. Near
9.2 .NO ☐

9. Previous intraocular surgery
   A. YES ☐ If yes when was the surgery.....?
   B. NO ☐
10. If yes please specify the type of surgery…….

11. History of visit to eye care center in the last 01 year

   A. YES ☐
   B. NO ☐
12. _If not visit ,The reason not to visit eye care center
   A. No need
   B. Cost of eye care service
   C. Distance
   D. Lack of awareness
   E. Lack of attendance F. Others……

Part III Physical Examination

13. Presenting visual acuity

   A. OD.....C, Pinhole…….
   B. OS…….D, Pinhole…….
14. IOP
   A. OD……..
   B. OS……..

15.Ophthalmic examination ,please fill in your findings

Examination	**OD**	**OS**
16.1 Alignment		
16.2 Motility		
16.3 Orbit		
16.4 Lid and adnexa		
16.5 Lacrimal system		
16.6 Conjunctiva		
16.7 Sclera		
16.8 Cornea		
16.9 Iris		
16.10 Lens		
16.11Posterior segment evaluation		

16.Diagnosis

1……

2……

3……

7.2. Information sheet

Addis Ababa University College of Health Sciences Department of Ophthalmology

Title of Research Project: – **Ocular morbidity pattern among Adults in Butajira Town, Central Ethiopia.**

Dear study participants:

My name is **Asrat Tadesse** and I am currently studying my ophthalmology residency program at Addis Ababa University, collage of health science.

I kindly request you to participate in a study that is aimed to **determine the prevalence, pattern, and determinants of ocular morbidities among adults aged 40 years and above in Butajira town, Ethiopia.**

The participation in this study is voluntary; you can also withdraw at any time from the study if you feel uncomfortable. Refusal to participate will not affect you. Confidentiality will be ensured by not using your name or address on the questionnaire and final thesis report. There are no foreseeable physical, psychological or social risks or discomforts involved in participating in this study.

If you have any questions about the research or any related matters, please contact the researcher at **+251910096580, Email- asratbducr7a@gmail.com**

7.2. Consent form

I confirm that I have been adequately informed about the purpose of the study, its potential benefits, and my rights as a participant, including voluntary participation, confidentiality and the option to withdraw at any time without any consequences. I have been given the opportunity to ask questions, all of which were answered to my satisfaction.

Agreed _____

Not agreed _____

Date_____

Your participation will be greatly appreciated.