

# The burden of ocular morbidities among elderly patients visiting a district healthcare facility in Malawi: A retrospective study

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## Abstract

**Background:** The population of older adults is growing dramatically. Sadly, this populace is highly prone to develop various ocular morbidities, which if left unattended can lead to blindness.

**Aim:** To determine the distribution of ocular morbidities among older adults at a secondary hospital in Malawi.

**Methods:** This was a retrospective cross-sectional study conducted at Mzimba North District Hospital in Malawi. We retrieved 314 patient records from the hospital's ophthalmic outpatient registry from August 2020 to July 2022 using a nonprobability census sampling technique. Data entry and analysis were done employing SPSS (v.26).

**Results:** More females 164 (52.2%) than males 150 (47.8%) had ocular morbidities. Cataract 108 (34.4%) was the most common ocular morbidity followed by allergic conjunctivitis 104 (33.1%), then pingueculae 44 (14%), and glaucoma 8 (2.5%) Cataract showed a statistically significant difference between males and females ( $p < 0.05$ ). And Glaucoma portrayed a statistically significant variation according to age groups ( $p < 0.05$ ). According to the time of the year, most cases were attended to in March compared to August.

**Conclusion:** The majority of blinding conditions among the elderly in Malawi are preventable similar to other geographical settings. Therefore, it is feasible to enhance the quality of life for senior Malawians and lessen the impact of blindness on individuals, families, and communities by addressing preventable causes of blindness through focused interventions.

## KEYWORDS

chronic diseases, epidemiology, health services and outcomes research, ophthalmology

## 1 | INTRODUCTION

The elderly population denotes a precious asset for any country.<sup>1</sup> Nevertheless, they have a unique health and socioeconomic background which differs markedly from those of the general population.<sup>2</sup> However, this populace represents a neglected group in terms of health care service delivery, and data for planning, especially as it pertains to ocular morbidities.<sup>3</sup> Unfortunately, the proportion of the world's population over 60 years will nearly double from 12% to 22% from 2015 to 2050.<sup>4</sup> This could place the elderly among a high-risk population group, especially concerning eye health.

In recent years, ocular disorders have emerged as a major public health concern with enormous adverse impacts on the human health, productivity, and economy of the individual, family, and nation.<sup>5</sup> Globally, 65 percent of people above 60 years are visually impaired, while 4 percent are blind.<sup>6</sup> In Malawi, the prevalence of blindness among adults aged above 40 is estimated at 3.7 percent.<sup>6</sup> This heralds a need for quality eye care right from the primary to the tertiary level as primary eye care is the essential building block for the prevention of blindness in all communities and in the world.<sup>5</sup> Unfortunately, health care grapples with the development of proper assessment techniques and intervention strategies including rehabilitation therapy that best suits the visual needs of the elderly.<sup>7</sup> Consequently, this population constitutes the majority of the patients that may be seen in eye clinics.<sup>8</sup>

Currently, the health care system in Malawi is constrained.<sup>7</sup> Yet the number of Malawians aged over 60 will be >1 million by 2030 and >2 million by 2050.<sup>9</sup> Despite these remarkable statistics, to the best of our knowledge there is scanty information on the extent of ocular morbidity among Malawian older adults. Ocular morbidity is the main cause of diminished independence, social seclusion, and falls among adults.<sup>10</sup>

The Pattern of ocular disease among the elderly differs according to ethnicity such that cataract is common among African ancestry compared to Age-related Macular degeneration which is much more common among whites.<sup>10</sup> To provide baseline information for eye care planning and as a response to one of the fastest emerging public health concerns, this study aims at describing the pattern of ocular morbidities among older adults attending a secondary hospital in Malawi. Apparently, the burden of disease in a nation is a reflection of the level of access to health care and access is crucial for health-seeking behavior and the achievement of development goals.<sup>11</sup>

## 2 | METHODS

This was a cross-sectional retrospective review of patient records obtained from Mzimba North District Hospital. We selected files using the census sampling technique. At this facility, patients are attended to by Optometrists and Ophthalmic Clinical Officers. Specifically, elderly patients undergo a comprehensive eye exam which included the case history, visual acuity, ocular health exam, fundus copy, intraocular pressure and refraction.

We included patient files from August 2020 to July 2022. As an exclusion criterion, we excluded files with missing variables. We recorded the patients' age, sex, the month of diagnosis, and diagnosis on a preform. In the case of multiple diagnosis recorded the study considered the first diagnosis as the main outcome. Age was recoded into age groups for analysis. To allow for further analysis, we recoded all other ocular conditions into a variable called "others" which consisted of the least frequent conditions.

### 2.1 | Data analysis

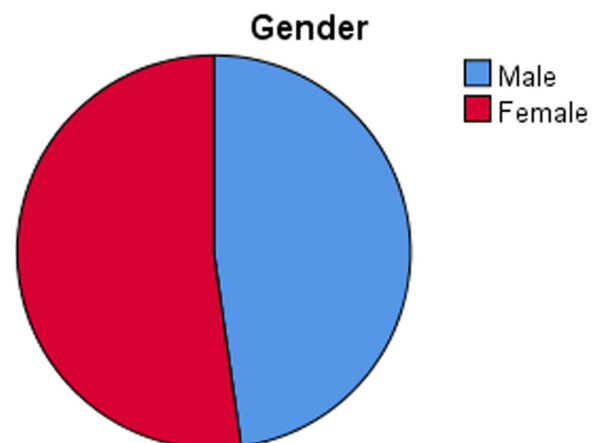
We entered the data in Statistical Package for Social Sciences version 26. We conducted descriptive statistics employing median, range, percentages, and frequency. Furthermore, we illustrated the data diagrammatically using pie charts and graphs. Next, we used the Mann Whitney test to depict gender differences. We considered the value of  $p < 0.05$  statistically significant. Statistical tests employed were two tailed.

### 2.2 | Ethics

The Mzuzu University Faculty of Health Sciences approved the study (Ethical clearance number = FOHS/RFC/21/100). Furthermore, we obtained permission to access the patient records from the hospital director and facility in charge. We maintained anonymity by utilizing codes to identify patient files. No patient was harmed during the study.

## 3 | RESULTS

We reviewed 314 files, out of which 150 (47.8%) were males while 164 (52.2%) were females (Figure 1). The median age was 67.50 and it ranged from 60 to 95 years. Based on age group, 190 (60.5%) were



**FIGURE 1** Distribution of study participants according to gender.

in 60–69 age group, 81(25.8%) were in 70–79 age group and 43(13.7%) were older than 80 years. According to sex, the mean age rank was 159.82 among males and 155.38 among females. The Mann Whitney test depicted that the age difference between gender was not statistically significant ( $U = 11952.000$ ,  $p = 0.66$ ).

The top four common diagnosis included cataract 108 (34.4%) seconded by allergic conjunctivitis 104 (33.1%) then pingueculae 44 (14%) and glaucoma 8 (2.5%). One of the least occurring conditions included Age Related Macular Degeneration (ARMD) 1 (0.1%) (Figure 2).

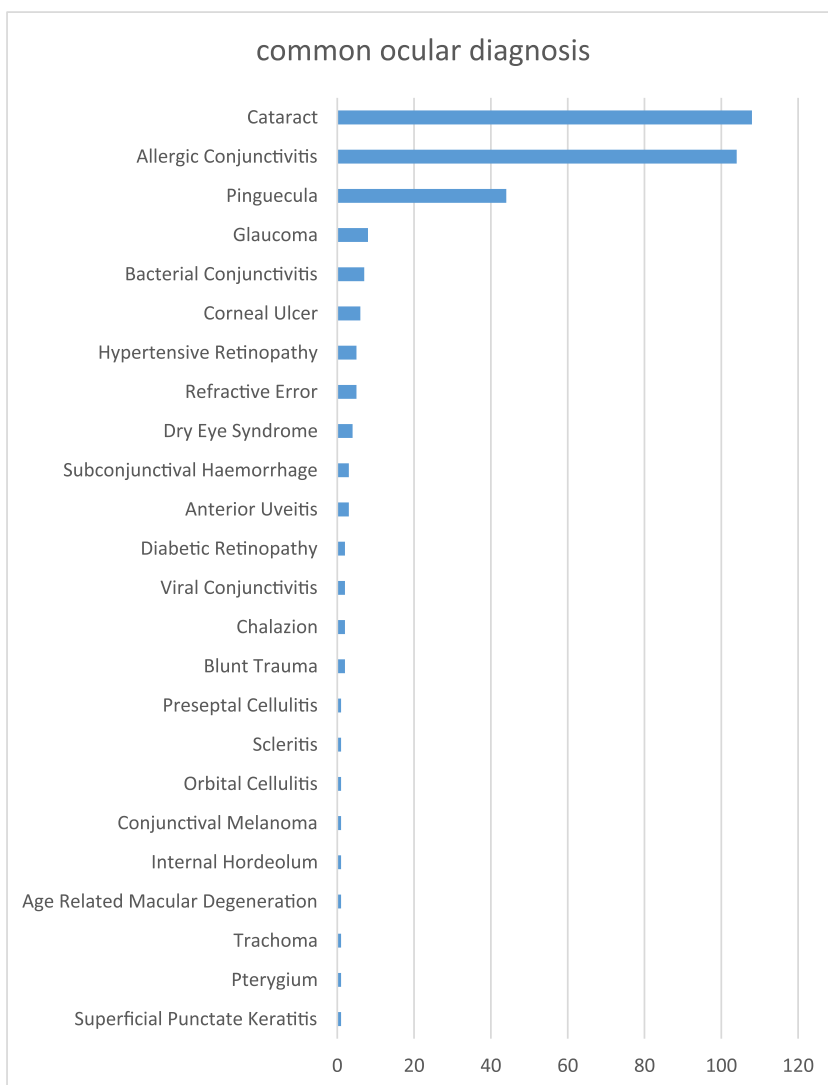
Overall, the prevalence of eye diseases was more among males than females (Figure 3).

Among all conditions, only the distribution of glaucoma is statistically different and significant among the age groups (Figure 4).

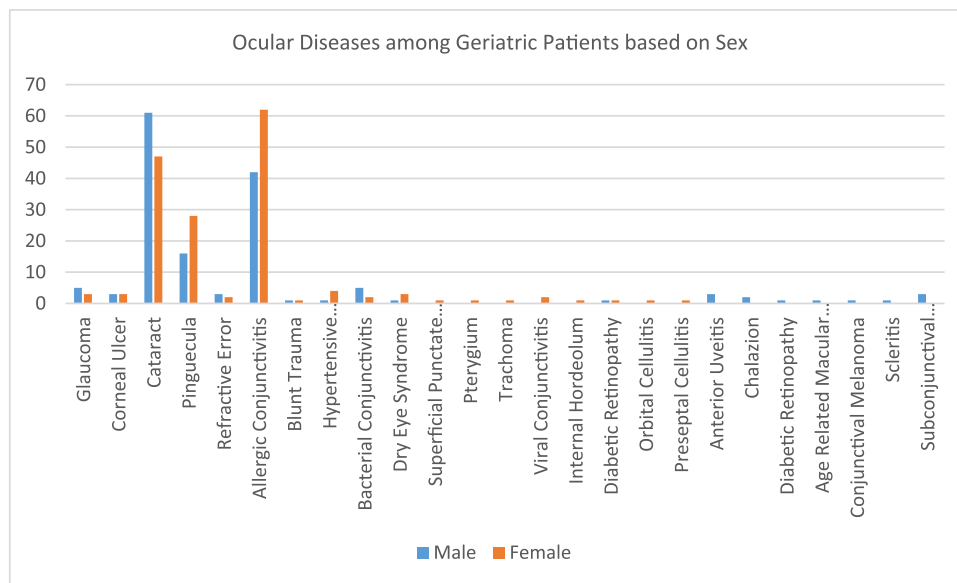
According to the time of the year, the least number of patients were attended to in August than other times of the year while the highest number was recorded in March (Figure 5).

## 4 | DISCUSSION

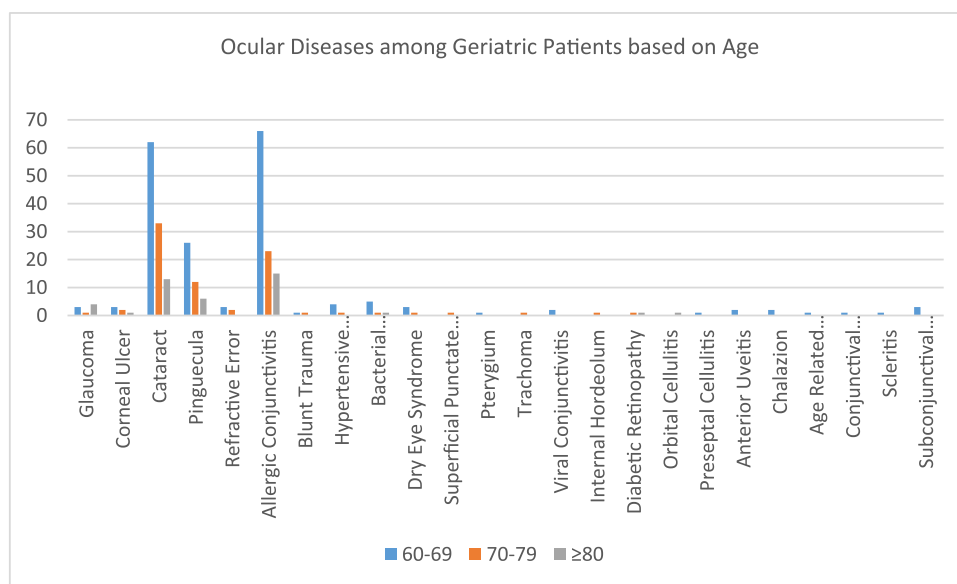
In the present study, more elderly females than males accessed care at the eye hospital similar to the pattern observed in Ghana.<sup>7</sup> Conversely, other studies<sup>12</sup> have found that more males attended eye care services than females. The greater number of female patients in our study can be attributed to the fact that in general women use more healthcare services than men.<sup>13</sup> In part, it could also be because women spend a lot of time at the hospital for other reasons or health concerns than men<sup>14</sup> hence they could be preoccupied with other routine health care programs. On the other hand, it also could be due to the fact that men are nonchalant about their health.<sup>15</sup> Therefore, the results of our study call for the integration of eye services within the national health system and outreach programs targeting elderly men. Equity in access to eye health should be addressed if we are to attain Universal health coverage by preventing the systematic exclusion of vulnerable individuals.<sup>16</sup>



**FIGURE 2** Distribution of the common ocular.



**FIGURE 3** Distribution of ocular diseases according to sex.



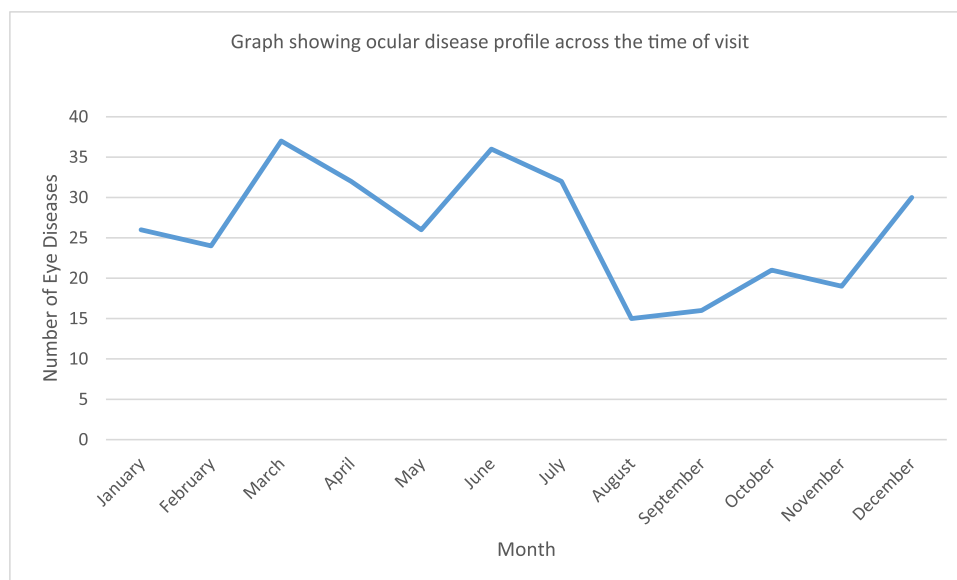
**FIGURE 4** Distribution of ocular diseases according to age.

Our study also found that cataract is the most common ocular disorder among the elderly population in Malawi, similar to previous studies.<sup>17</sup> However, the prevalence of cataracts was lower than reported in India.<sup>18</sup> However, it was higher compared to findings by other authors.<sup>19</sup> The variation could be due to different geographical settings and sample composition since the cataract differs with ethnicity.<sup>10</sup> Noteworthy, in developing countries cataract is widely known as the commonest cause of blindness.<sup>4</sup> In Malawi, Cataract is the main cause of blindness among people aged 40 and above.<sup>6</sup> Consequently, cataract is regarded as an independent marker of mortality and several studies have linked the presence of cataract to a higher risk of death.<sup>10</sup> Considering that only about 5% of the

cataract patients self-refer in Malawi,<sup>20</sup> our study highlights the need for cataract case-finding strategies among senior citizens.

Not surprisingly, our study found lower proportions of Age-related Macular degeneration. Previous studies have confirmed that ARMD is more prevalent among Europeans unlike Africans.<sup>10</sup>

In the present study, the prevalence of cataracts was significantly associated with the male sex than with females. On the contrary, other authors<sup>10,21</sup> found that cataract was more among females than males. Furthermore, others reported that there was no significant association between the prevalence of cataracts and sex.<sup>4</sup> We attribute the results of our study to the fact that more men than women smoke in Malawi.<sup>22</sup> Our study did not explore the association



**FIGURE 5** The trend of elderly patient inflow according to time of year.

between behavioral risk factors and eye diseases, however, previous studies have found a strong association between smoking and cataract formation.<sup>23</sup> In Malawi 18.2% of males compared to 3% of females are involved in daily tobacco smoking.<sup>24</sup> More males being affected may in turn affect their families because these people may be active breadwinners despite their geriatric age.<sup>21</sup>

In the current study, the prevalence of Glaucoma was lower compared to previous studies in India.<sup>25,26</sup> We attribute the low prevalence of glaucoma in our study to differences in the study population. The present study found that the prevalence of glaucoma was common among a younger age group. In contrast, a study by Pisudde and colleagues reported a significantly associated with increasing age.<sup>25</sup> Glaucoma is known to increase with growing populations.<sup>27</sup>

According to the time of the year, the least number of patients were attended to in August while the highest number was recorded in March which is the start of the dry season in Malawi hence people can easily access hospitals either because they have leveraged their livelihoods crop harvests or roads are passable.<sup>28</sup> Although eye care services are free at the point of access, patients still incur out-of-pocket expenditures when accessing health care due to transport.<sup>29</sup> In general, 50% of Malawians live within 5 km of a health facility. Nevertheless, Terrible terrain and pitiable road infrastructure make it challenging for Malawians to access health care, especially during the rainy season.<sup>30</sup>

## 5 | LIMITATIONS

Our study is not without drawbacks. First, the design of our study may be prone to selection bias since retrospective records were used. In addition, we were unable to find the association of ocular

conditions with possible risk factors due to the nature of the study design. Furthermore, due to the nature of our study, we could not estimate the prevalence of blindness and visual impairment among this high-risk population group. Nevertheless, this study provides baseline data for planning and resource allocation for eye health services in Malawi.

## 6 | CONCLUSION

In the present study, the most common ocular disorders emphasized are major causes of preventable blindness elsewhere. Therefore, study confirms that there is no geographical variation related to the findings thus distribution of eye disease among Elderly Malawians is similar to other settings. This heralds a need to prioritize these conditions when allocating eye care resources for the elderly population. More resources should be allocated to mitigating barriers to uptake of eye care services and increase access to ensure timely detection and treatment of cataracts for this population group. Again, there is a need to increase both awareness and access to eye care services for both sexes with a greater focus on men. Furthermore, our study suggests the integration of eye care services into the national health system to increase access.

## AUTHOR CONTRIBUTIONS

**Owen Banda:** Conceptualization; formal analysis; methodology; visualization; writing—original draft. **Thokozani Mzumara:** Formal analysis; investigation; methodology; supervision; visualization; writing—original draft; writing—review & editing. **Grace Ogbonna:** Conceptualization; project administration; supervision.

## CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

## DATA AVAILABILITY STATEMENT

The data that supports the findings of this study are available upon request from the corresponding author.

## ETHICS STATEMENT

The study was approved by the Mzuzu University Faculty of Health Sciences Research Committee.

## TRANSPARENCY STATEMENT

The lead author Thokozani Mzumara affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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