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Research Article

**MORBIDITY PROFILE OF GERIATRIC PATIENTS VISITING  
OPHTHALMOLOGY OUTPATIENT DEPARTMENT,  
SERVICES HOSPITAL LAHORE****Dr. Shanza Maryam, Dr. Hassan Nawaz Yaqoob, Dr. Muhammad Junaid Iqbal,  
Dr. Muhammad Haris Ghous  
MBBS, Services Hospital Lahore****Abstract:**

**Introduction:** The people of age 60 years and above are considered as geriatric population and the branch of specialty that deals with the health care of these people is known as geriatrics. Aging is not just a numerical, but a physiological process that steadily reduces the body's ability to fight disease, resulting in diminished ability to compensate for a toll of illness of old age. It is a multidimensional process of physical, psychological and social changes. Ocular morbidity is defined as the spectrum of eye diseases which includes both visually impairing and non-visually impairing conditions, experienced by a population. The visual impairing ocular morbidity is a major public health problem.

**Objectives:** Study the morbidity profile among geriatric patients visiting ophthalmology outpatient department of Services Hospital, Lahore.

**Study design:** It was a cross sectional study.

**Study Settings:** Ophthalmology Outpatient Department of Services Hospital, Lahore.

**Subjects:** All the patients of age 60 years and above visiting ophthalmology OPD

**Results:** A data collection team visited the ophthalmology OPD of Services Hospital, Lahore to study the morbidity profile of geriatric patients in the time duration of one month. After collecting and analyzing the data it was found that cataract was found to be the most prevalent disease among geriatric population (54.3%). The percentage of refractive error was (31.7%), glaucoma (12.2%), retinopathy (6%) and ARMD (3.1%). In the category of "others" were included diseases which are less common and among those, retinal detachment was most common having percentage of (4.9%) and other disease of conjunctiva, iris, retina and, and vitreous were less common. It was also found that cataract, glaucoma and refractive error were more common in males than females.

**Conclusion:** According to our study, cataract was found as the most common diseases among geriatric patients and males being more affected than females. Refractive error and glaucoma were the second and third most common diseases affecting more males than females. Retinopathy and ARMD were less common among geriatric patients in our study. Retinal detachment which we thought as less common was actually very common among geriatric patients. Some other diseases and infections of the cornea, conjunctiva, lens and iris were less common among the geriatric patients.

**Key Words:** Geriatrics, Ocular morbidity, Outpatient Department.

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**INTRODUCTION:**

The people of age 60 years and above are considered as geriatric population and the branch of specialty that deals with the health care of these people is known as geriatrics. Aging is not just a numerical, but a physiological process that steadily reduces the body's ability to fight disease, resulting in diminished ability to compensate for a toll of illness of old age [1]. It is a multidimensional process of physical, psychological and social changes. Ocular morbidity is defined as the spectrum of eye diseases which includes both visual impairing and non-visual impairing conditions, experienced by a population [2]. At old age, the triple burden of social problems, psychological decline, and disease can lead to difficulty in performing simple physical and mental tasks, making adaptations necessary for daily life. [3] The visual impairing ocular morbidity is a major public health problem. [4]

The world's elderly population – people aged 60 years and above – is the fastest growing age group. The world has experienced a gradual demographic transition from pattern of high fertility and high mortality rates to low fertility and delayed mortality. Also epidemiological transition from infectious diseases to chronic diseases and degenerative illnesses leads to an older population, resulting in lower proportion of younger population and increase in proportion of elderly.[5]. The number of people with age-related eye diseases is assumed to be on the rise with increasing life expectancy. [6] Diseases such as cataract, glaucoma, age related macular degeneration (ARMD), retinopathy, which are age related are listed as leading causes of blindness in the world by WHO.[7] Other causes include infections, trauma problems in the brain due to stroke.[8] Resultant visual impairments increase frailty in the geriatric patient . Furthermore, VI may lead to falls, in turn leading to fractures with adverse impact on quality of life of individuals. [9]

As the average human life expectancy has increased, so too has the impact of aging and age-related disease on our society.[10] The most recent data published by World Health Organization (WHO) showed that the total number of persons with visual impairment worldwide in 2010 was estimated to be 285 million, including 39 million blind people, of whom around 80 percent are above age of 50, with most of the causes being preventable [11].According to WHO in 2010 there were 680 million people aged 60 years and above worldwide. The challenge in administering the best care for geriatrics lies with the ability to investigate and develop appropriate comprehensive assessment, practical interventions and rehabilitation strategies tailored to needs of geriatric patients. There is a need to evolve strategies for reducing the burden

of ocular diseases and improve geriatric eye health under the existing infrastructure of health care delivery. [12]. The primary eye care is the vital component of the primary health care. Many secondary and tertiary eye care centers have been established in the recent past but the importance of intervention at primary level cannot be ignored because it is this level which truly addresses the eye problems where they occur. The access of high quality eye care facilities cannot be limited to the cities alone and the underprivileged people living away from cities should not be compromised as far as quality of living is concerned.

Various population based studies have provided estimates on the prevalence and incidence of blindness and visual impairment in western countries. All show significant increase in the prevalence of visual impairment with increasing age. The eye care has been given lower priority as compared to other chronic diseases in most developing countries. But the fact is that eye diseases have emerged as major public health concerns in the recent years with enormous adverse impact on human health, productivity and economy of the individual, family and the state.

About 1 in every 3 persons is visually impaired. Global population figures suggest that about 4% of persons 60 and above are blind and about 65% are visually impaired [13], yet these groups constitute only about 11% of the world's population, making them a high risk group. This is partly due to reduced cell growth, atrophy of cellular structures and lowered metabolism in the tissues in around the eyes leading to functional changes in the eye. A study of WHO indicates that the situation is more challenging in developing countries where available data indicates that about 90% of the world's 285 million visually impaired and 39 million blind persons live [14]

World's one-third blind people live in South-East Asia region .Four out of every 12 people who become blind every minute in the world are from South-East Asia. With one quarter of global population and one-third of world's blind, South-East Asia has particularly heavy burden of disease. According to a study held in India the prevalence of blindness range from 4.2% to 13.7%. Refractive error was most common ocular disease (85%). Retinopathy was and 8.9% respectively. Glaucoma was 5.6% and ARMD was 6.6%. [15]

The aim of this study is that there has not been much work done on this topic. The lack of knowledge about the prevalence and distribution of various ocular diseases within population has implications for planning and delivery of eye care services, particularly at primary level where many of

these diseases could be effectively managed. Without adequate data, advocating for more efficient and responsive eye care services is not possible. This study will help to know the current situation regarding ocular morbidity in the tertiary care level government hospital Lahore.

#### LITERATURE REVIEW:

Various population-based studies have provided precise estimates on prevalence of visual impairment and blindness. All show a significant clinically increase in prevalence of impaired vision with increasing age. To fully understand this increase, to make a meaningful comparison between countries, and to develop efficacious strategies for eye care for a wide spectrum of ages, accurate data on the age specific causes of impaired vision are essential. Few such data exists, however.

In an article Ocular problems among public service retirees in a Southern Nigerian Metropolitan City in the year 2016, it was found that More than 82% of all blind people are 50 years or older. Five hundred and ninety-two persons were studied; 455 males and 137 females (F: M = 1:3.3). The Mean age was  $68.7 \pm 7.6$  years (range: 56–97 years). Using World Health Organization/International Agency for Prevention of Blindness criteria for visual assessment 239 (40.4%) had good vision, 203 (34.3%) had moderate visual impairment, 48 (8.1%) had severe visual impairment, while 102 subjects (17.2%) were blind. Cataract was the leading cause of blindness 56 (54.9%), followed by glaucoma 18 (17.7%), uncorrected refractive error 19 (18.6%), and diabetic retinopathy 9 (8.8%). [16]

A cross-sectional study The Prevalence of Age-Related Eye Diseases and Cataract Surgery among Older Adults in the City of Lodz, Poland was performed by Michal Szymon Nowak and Janusz Smigielski in the year 2015. A total of 1107 women and men enumerated and recruited for the study. The prevalence of cataract increased with age from 2.69% (95%CI 1.30–4.08) in age group of 35–59 years to 20.44% (95%CI 17.18–23.71) in subjects aged  $\geq 60$  years. The prevalence of AMD increased with age from 0.96% (95%CI 0.12–1.80) in age group of 35–59 years to 70.32% (95%CI 5.22–9.43) in group aged  $\geq 60$  years. The prevalence of glaucoma increased with age from 3.27% (95%CI 1.74–4.80) in age group of 35–59 years to 7.50% (95% CI 5.37–9.63) in subjects aged  $\geq 60$  years. [17]

In a study The Prevalence of Diabetic Retinopathy Among adults performed by John H. Kempen, MD, PhD and others in United States. Pooled analysis of data from 8 population based eye surveys was used to

estimate the prevalence, among persons with diabetes mellitus (DM), of retinopathy and of vision-threatening retinopathy—defined as proliferative or severe non proliferative retinopathy and/or macular edema. Among an estimated 10.2 million US adults 40 years and older known to have DM, the estimated crude prevalence rates for retinopathy and vision-threatening retinopathy were 40.3% and 8.2%, respectively. The estimated US general population prevalence rates for retinopathy and vision-threatening retinopathy were 3.4% (4.1 million persons) and 0.75% (899000 persons). Future projections suggest that diabetic retinopathy will increase as a public health problem, both with aging of the US population and increasing age-specific prevalence of DM over time. [18]

According to a study Ocular Health of the Emerging Elderly Population in Ghana: Evidence From a Peri-urban Community performed by Stephen Ocansey and others in the district of Ghana in the year 2013. In this study the mean age of the respondents was 70 years with 58.2% being females. Visual impairment and blindness were found among 58.7% and 5.9%, respectively, according to their presented visual acuity; these decreased to 45.3% and 5.2%, respectively, after optical correction. About 68.3% of the respondents had poor near vision with only 40% having near reading corrections. The major causes of visual impairment were cataract (42.5%), uncorrected refractive errors (21.8%), retinal disorders (11.4%), and glaucoma (9.8%). Among the elderly with bilateral blindness, cataract was the main cause. Multinomial logistic regression showed that sex had a higher likelihood of being associated with visual disorders compared with age and education ( $P = 0.001$ ); similarly females, older patients, and those with no education had higher odds ratios. [19]

A study” Ocular Health of the emerging elderly population” conducted in Ghana: evidence From a peri-urban community in year 2013. A community based cross-sectional survey was conducted among 170 elderly (aged 60 years and over) persons. The mean age of the respondents was 70 years with 58.2% being females. Visual impairment and blindness were found among 58.7% and 5.9%, respectively, according to their presented visual acuity; these decreased to 45.3% and 5.2%, respectively, after optical correction. About 68.3% of the respondents had poor near vision with only 40% having near reading corrections. The major causes of visual impairment were cataract (42.5%), uncorrected refractive errors (21.8%), retinal disorders (11.4%),

and glaucoma (9.8%). Among the elderly with bilateral blindness, cataract was the main cause. [20] In a cross-sectional study visual impairment in elderly population in residential care held in in the South Indian state of Andhra Pradesh in the year 2010. Of the 494 participants examined (response rate 94.3%), 78.1% were women, 72.1% had no formal schooling. The mean age of participants was 70 years (SD  $\pm$ 8.6 years). VI was present in 280/494 individuals (56.9%; 95% CI 52.3 to 61.3). Over 80% of the VI was due to avoidable causes including cataract (57.1%) and uncorrected refractive errors (26.4%). Among 134 individuals who had undergone bilateral cataract surgery, only 78 (58.2%) individuals had presenting VA  $\geq$ 6/18 and 13/134 (9.7%) participants were blind. [21]

Another study Age-Related Eye Diseases and Visual Impairment Among U.S. Adults performed by Chiu-Fang Chou, David S. Friedman and others in the year 2013 in America. Data from the 2005–2008 National Health and Nutrition Examination Survey of 5222 Americans and it was found that Prevalence of visual impairment and of visual impairment not due to refractive error was 7.5% (95% CI=6.9%, 8.1%) and 2.0% (1.7%, 2.3%), respectively. The prevalence of visual impairment not due to refractive error was significantly higher among people with AMD (2.2%) compared to those without AMD (0.8%), or with DR (3.5%) compared to those without DR (1.2%). [22]

A cross sectional study Study of morbidity profile of geriatric population in the field practice area of rural health training center, Paithan of Govt. Medical College, Aurangabad was performed by Jadhav V.S and others in the year 2012. In this study 122 (41.07%) elderly males were of the 60- 64 years age group and 88 (26.82%) females were of the 65- 69 years age group. The study shows that 124 (41.75%) males and 127(38.71%) in females had Cataract in single or both eyes. Presbyopia in 26(8.75%) males and 42(12.80%) females. 10 (3.36%) males and 3(0.91%) females had active conjunctivitis. [23]

A study” Visual status and ocular morbidity in older adults living in residential care” was performed by Mahesh Kumar Dev, Gauri Shankar Shrestha and others in the year 2012 in Khatmandu Valley, Nepal. A cross-sectional study was conducted on 385 residents of 60 years or older. The mean age of residents was  $74.34 \pm 8.19$  years. The majority was female residents (78.2 %). The prevalence of visual impairment and blindness was 43.70 %. Adequate refractive correction could alone reduce the prevalence of visual impairment and blindness by 15.40 %. Cataract was the leading cause of visual impairment and blindness, which was followed by age-related macular degeneration, corneal opacity, glaucoma, and macular scar. [24]

A systematic review was conducted of published and unpublished surveys from 2000 to 2010 in global estimates of visual impairment 2010 performed by Pascollini D and Mariotti SP in global WHO regions. Surveys from 39 countries satisfied the inclusion criteria for this study. People 50 years and older represent 65% and 82% of visually impaired and blind, respectively. The major causes of visual impairment are uncorrected refractive errors (43%) followed by cataract (33%); the first cause of blindness is cataract (51%). [25]

In a study Geriatric Ophthalmology conducted by Andrew Lee, MD; Anne Louise Coleman, MD PhD in the time duration of 1980 to 2001 in America, it was found that visual loss is common in elderly and that the incidence rates of blinding disorders (cataract, glaucoma, ARMD and diabetic retinopathy) was increasing with age. Of all persons aged 75 years and above 52% had advanced cataract, 25% had non-exudative ARMD, 5% had exudative ARMD and 2% to 10% had glaucoma. [26]

A study Prevalence of major eye diseases and causes of visual impairment in the adult Finnish population: a nationwide population-based survey performed by Arja Laitinen and others in the year 2009. It was a cross-sectional study based on self-reported and/or register-based data. It was found that the prevalence of cataract, glaucoma, AMD and DR for persons aged 65 and older were 34%, 13%, 12% and 2%, respectively. [27]

A study, “Prevalence and causes of bilateral blindness and visual impairment among institutionalized elderly” people performed by Sainz-Gómez C , Fernández-Robredo P and others in 2010 in Spain. A total of 392 nursing home residents aged 65 years and above completed a standardized eye examination. The average subject age was 82 years (65-97); women outnumbered men 263 to 129. Cataract was the most common cause of bilateral blindness and visual impairment (27.9% and 44.6%, respectively) followed by pathologic myopia (23.3%) and age-related macular degeneration (AMD) (20.9%) for blindness, and by AMD (27.2%) and pathologic myopia (12%) for visual impairment. Fifty percent of subjects with visual loss had the potential for improved vision with medical or surgical intervention. [28]

A study “Cataract Blindness and Surgery among the Elderly in Rural Southern” was conducted in China by Zhijian Lia, Hao Cuia and others in the year 2009. A total of 5057 eligible subjects agreed to participated. The overall prevalence of bilateral cataract blindness was 1.3% (95% confidence interval: 0.7%–2.6%). We found that aging, female gender, and illiteracy were associated with prevalence of bilateral cataract blindness. [29]



In a study Prevalence of visual impairment, blindness, ocular disorders and cataract surgery outcomes in low-income elderly carried out by Arnaud Araújo Filho and others in Brazil in the year 2008 it was found that The prevalence of presented and best-corrected visual acuity worse than 20/400 in both eyes was 1.38% (95% CI: 0.69% - 2.45%) and 1.25% (95% CI: 0.60% - 2.29%). Prevalence of visual impairment considering presented and best-corrected visual acuity was, respectively, 24.16% (95% CI: 21.22% - 27.28%) and 12.77% (95% CI: 10.53% - 15.28%). Cataract was the main cause of blindness (30.00%) and visual impairment (54.90%). A total of 54 participants (6.74%) had previous cataract surgery and, with best-corrected visual acuity, 35.12% showed visual acuity better than 20/60 in both eyes. Rates of visual impairment and blindness in this low-income elderly population were high. [30]

In a study "Magnitude and causes of low vision in adults attending the eye clinic" performed by Vaitha, S.J. in the year 2012 at Muhimbili National Hospital. :Among 561 patients, there were 100(17.83%) patients with low vision.group of 18-27 years age, and a gradual trend of decrease in low vision patients with increasing age (0.2% in eldest age group of 78-87 years) was observed. Optic neuropathy was the predominant cause of low vision (47%) in the study population, followed by ARMD (9%), Retinitis pigmentosa (7%), glaucoma (7%), albinism (7%), amblyopia (7%), corneal diseases (5%), refractive errors (4%), diabetic retinopathy (4%) and macular scars (3%). [31]

In a study The Visual Status of Older Persons Residing in Nursing Homes performed by Cynthia Owsley Gerald McGwin and others in the year 2007, the presence of visual acuity impairment worse than 20/40 was unrelated to the presence of an eye examination noted in the medical record. With respect to ophthalmic diagnoses listed in the medical record, 8.2% had a notation of a glaucoma diagnosis in one or both eyes; 3.1%, diabetic retinopathy; 32.5%, cataract; and 4.6%, age-related macular degeneration. [32]

Another study Global Data on visual impairment was performed by Serge Resnicoff and others in the WHO sub-regions that include Africa, America, Mediterranean regions, South-East Asia, European Region And western Pacific Region in the year 2002. It was a population based cross sectional study involving almost 55 countries. The population of 50 years and older with the highest prevalence of visual impairment represented more than 30% of population in developed countries. Cataract was the leading cause of blindness and visual impairment in elderly. Glaucoma was the second leading cause and Age

related macular degeneration was the third leading cause. [33]

A study Prevalence and causes of visual impairment and blindness among 9980 Scandinavian adults was held in 2004. The results of the study showed that, for persons 65 to 84 years, cataract was the most common cause of visual impairment, whereas age-related macular degeneration was the major cause of blindness. Among those aged 65 to 84 years, cataract surgery could reduce visual impairment by one third. [34]

In the year 2004, a stud "Preventing Visual Loss from Chronic Eye Disease in Primary Care", was performed by Susannah Rowe, Catherine H. MacLean and others in United States. The incidence of blindness and vision impairment increases with age, increasing especially rapidly in adults older than 75 years.1 A population-based study of US adults identified subjective functional visual impairment in up to 7% of people aged 71 to 74 years, rapidly increasing to 39% of those adults 90 years or older.25- 27 Using measured visual acuity as an outcome, the Beaver Dam Eye Study28 found visual impairment with worse than 20/40 visual acuity among 5% of individuals aged 65 to 74 years and 21% of individuals 75 years or older. The major causes of visual disability among US adults are age-related or worsen with advanced age. These causes include refractive error, cataract, diabetic retinopathy, glaucoma, and macular degeneration. [35]

A study Prevalence of Remediable Disability due to Low Vision among Institutionalised Elderly People was performed by de Winter L.J.M.a · Hoyng C.B in the year 2004 in Neitherlands. The study found that . Among elderly residents with low vision, prevalence of cataract, age-related macular degeneration, glaucoma, and diabetic retinopathy was 77.9, 37.7, 5.2 and 5.2%, respectively. [36]

"Important Causes of Visual Impairment in the World Today" is a study conducted in United States by Nathan G. Congdon and others in the year 2003.The study showed that Among persons older than 40 years in the United States, 937 000 people were blind and 2.4 million people had low vision in 2002.Cataract is the leading cause of blindness with an estimated 17 million people are blind due to cataract and it remains the leading cause of low vision affecting 20 million people. Glaucoma is another cause with an estimated 6.7% million people are blind due to glaucoma. [37]

Another study "Visual acuity measurements in a national sample of British elderly people" was conducted in Britain by van der Pols JC, Bates CJ and others in the year 2000. Visual acuity was measured in 1362 NDNS participants who were aged

65 years and above. The study concluded that the prevalence of visual impairment increased significantly with age (65-74 years 3.1%; 75-84 years 11.6%; 85+ years 35.5%). 132 (9.7%) subjects had previously undergone cataract surgery and another 157 (11.5%) had been told that they currently had cataract. [38]

A cross-sectional study visual impairment and eye diseases in elderly institutionalized Australians was performed by VanNewkirk MR and others in the year 2000 in Australia. The participants' mean age was 82 years. The study results showed that Age-related macular degeneration was the principal diagnosis of vision loss in the better eye of 74 (44%) of the 167 participants with bilateral low vision (<6/18 and/or visual field constriction to <20 degrees radius). [39]

According a research performed by Caroline C. W. Kalver, MD; Roger C. W. Wolfs, MD Johannes R. Vingerlin MD, PhD; Albert Hofman MD, PhD; Paulus T. V. M. de Jong, MD, PhD, FRCOphth in the region of Rotterdam, Neitherland the prevalence of blindness ranged from 0.1% in subjects aged 55 to 64 to 3.9% in subjects aged 85 years or older; the prevalence of visual impairment ranged from 0.1% to 11.8%. For person aged 75 years or older, age related macular degeneration was the major cause of blindness, whereas age related cataract predominantly caused the increased prevalence of visual impairment [40]

#### OBJECTIVES:

Objectives are to :

- Study the morbidity profile among geriatric patients visiting ophthalmology outpatient department.
- To formulate the necessary suggestions based on the results of the research

#### METHODOLOGY:

##### Study design:

This study design was cross sectional as it partially represents the geriatric patients in the catchment area of services hospital Lahore. However, it is not true cross-sectional study as the catchment area of services hospital is not defined and the patient visiting are not having the same characteristics as that of the general population.

##### Study Settings:

The study was performed at ophthalmology outpatient department of Services Hospital Lahore. .

This is a 1700 bed tertiary care referral teaching hospital in the Centre of Lahore city providing health care services to the public.

##### Study Population:

All the geriatric patients (patients of age 60 years and above) visiting ophthalmology outpatient department.

##### Study Duration:

One month from July to August

##### Sample size:

The sample size was calculated by WHO software S size by using formula of estimating population proportion with specific relative precision. At confidence interval of 95%, anticipated population proportion of 50% and relative precision (relative error) of 10%. Minimum sample size was 385.

##### Sampling Technique:

Non-probability convenient sampling technique

##### Inclusion Criteria:

All the patients of age 60 years and above visiting ophthalmology outpatient department.

##### Exclusion criteria:

Undiagnosed patients  
Patients who are unwilling

##### Operational definitions:

##### Geriatric;

A geriatric is defined as the person of age 60 years or and above.

##### Morbidity Profile:

Morbidity profile is defined as a record of patients who have departure from state of physical or psychological well-being, resulting from disease, illness, injury, or sickness.

##### Data Collection Tool:

The tool for data collection was a checklist type questionnaire having columns. In first column the names of diseases are written. The second column is a yes or no column showing presence or absence of the diseases under study and the next column shows the mode of information that whether the morbidity profile of the patient is documented in the records or is told by the doctor on duty or by the patient himself/herself.

##### Data Collection Procedure:

The permission was taken from the department of community medicine and from the ophthalmology outpatient department to take data from the records. The data was collected from the hospital record as well as from the patients visiting ophthalmology outpatient department and from the doctor on duty. The percentage of mode of information is as follows:

**Table I: Mode of information**

	Frequency	Percent
Documented	263	68.3
Verbal By The Doctor	24	6.2
Verbal By The Patient	98	25.5
Total	385	100.0

Out of 385, 263(68.3%) cases were documented, 24(6.2%) were told by the doctor and 98(25.5%) were told by the patients themselves.

**Data Analysis Plan:**

SPSS computer software version 24 was used for entry, complication and analysis of data. Data was presented using tables and bar graph. For the qualitative variables Chi-square test was used. P value of 0.05% was taken as significant.

**Ethical consideration:**

Formal approval was taken from the ethical committee of the hospital & research review committee of department of community medicine. Formal approval was taken from the patients under study before the questionnaire was filled

**RESULTS:****Table II: DEMOGRAPHIC PROFILE OF PATIENTS:**

VARIABLE	FREQUENCY (n=385)	PERCENTAGE
<b>Age Group</b>		
60-69	266	69.1%
70-79	89	23.1%
80-89	27	7.0%
90-99	3	0.8%
<b>Gender</b>		
Male	224	58.2%
Female	161	41.8%
<b>Education Status</b>		
Graduation	64	16.6%
Intermediate	50	13.0%
Matric	71	18.2%
Under matric	70	18.4%
Nil	130	33.8%

A study was conducted in Ophthalmology outpatient department of Services Hospital, Lahore. We studied the morbidity profile in 385 geriatric patients visiting eye OPD. Cataract was found as the most commonly occurring disease among geriatrics. Cataract was found in 54.3% patients and among these, 53.1% were males and 46.9% were females. Refractive error was found the second most common disease affecting 31.7% patients and among these, 59.8% were males and 40.2% were females. Glaucoma was found in 12.2% patients and among these, 53.2% were male and 46.8% were females. Retinopathy and ARMD was found in 6% and 3.1% patients respectively. Among other diseases which are less common, Retinal detachment was found in 4.9% patients. The percentage of Aphakia was 2.3%, Dacryocystitis, infections and pseudophakia were found in 0.8% patients. Maculopathy, Conjunctivitis and pterygium was found in 0.5% patients. Conjunctival congestion, corneal ulcer, corneal perforation, floaters, posterior opacification, endophthalmitis, iris prolapse, posterior vitreous detachment, hazy cornea, cob web and ptosis are found in 0.3% of the patients. Co-Morbidity (presence of more than one disease at the same time) was also observed among patients. There were 34 (8.83%) patients having cataract and Refractive error at the same time and 14(3.63%) patients having cataract and glaucoma at the same time respectively.

Among different age groups the highest frequency fell in age group of 60-69 years having frequency of 266 out of 385 and percentage of 69.1%.

Males were more than females having frequency and percentage 224(385) and 58.2% respectively as compared to females having frequency 161(385) and percentage of 41.8%.

In education status of the patients, 64(385) were graduated, 50(385) were intermediate, 71(385) were matric passes, 70(385) were under-matric and 130(385) were uneducated.

**Table III: FREQUENCY AND PERCENTAGE OF VARIOUS DISEASES IN GERIATRIC PATIENTS:**

DISEASE	FREQUENCY (n=385)	PERCENTAGE
Cataract	209	54.3%
Refractive Error	122	31.7%
Glaucoma	47	12.2%
Retinopathy	23	6.0%
Age related macular degeneration	12	3.1%

Cataract was found in 209 out of 385 patients having percentage of 54.3% patients. Refractive error was found the second most common disease affecting 122(385) individuals the percentage of which is 31.7%. Glaucoma was found in 47(385) patients with percentage of 12.2%. Retinopathy and ARMD was found in 23(385) and 12(385) patients having percentages 6% and 3.1% respectively.

**Table IV: FREQUENCY AND PERCENTAGE OF OTHERS (LESS COMMON) DISEASES**

Diseases	Frequency	Percentage
Retinal detachment	19	4.9
Aphakia	9	2.3
Dacryocystitis	3	0.8
Infection	3	0.8
Pseudophakia	3	0.8
Pterygium	2	0.5
Maculopathy	2	0.5
Posterior vitreous detachment	2	0.5
Conjunctivitis	2	0.5
Corneal keratin, ret	1	0.3
Corneal perforation	1	0.3
Corneal ulcer	1	0.3
Diffuse choroidal attachment	1	0.3
Endophthalmitis	1	0.3
Floater	1	0.3
Focal maculopathy	1	0.3
Hazy cornea	1	0.3
Iris prolapse	1	0.3
itching, hazy cornea	1	0.3
Macular edema	1	0.3
Posterior opacification	1	0.3
Ptosis	1	0.3
Subluxated lens	1	0.3
Watering, Irritation	1	0.3



In this category of others, Retinal detachment was found in 19(4.9%) of the individuals. Aphakia was found in 9(2.3%) individuals. Dacryocystitis, Pseudophakia and infection in 3(0.8%) of individuals separately. Conjunctivitis, maculopathy and pterygium in 2 (0.5%) individuals separately.

#### BAR GRAPH SHOWING FREQUENCY OF DISEASES:

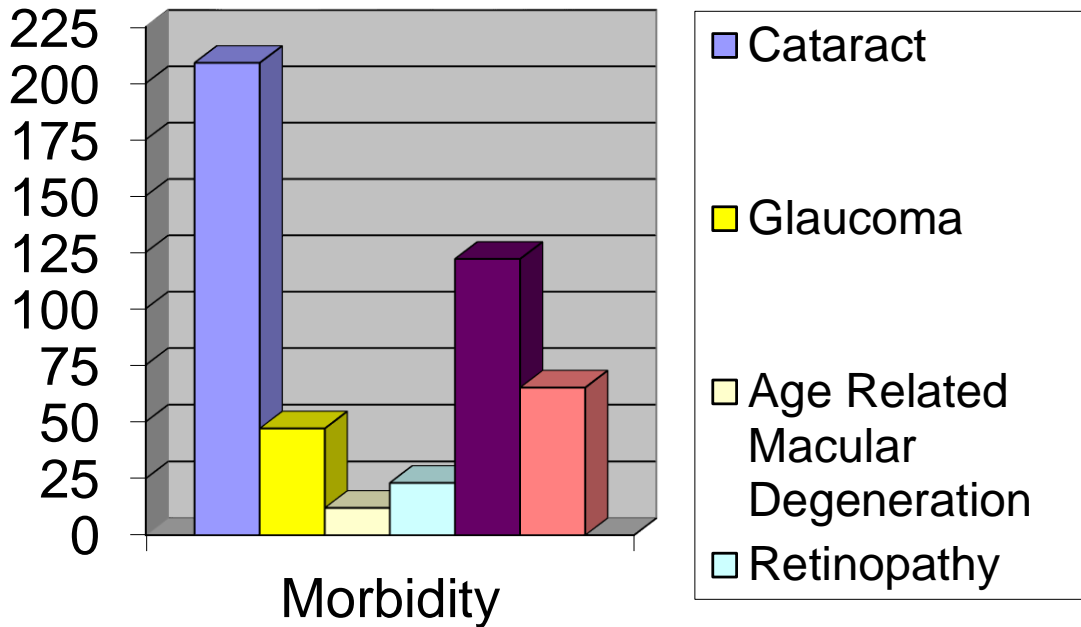


Figure: I

Cataract was found in 209 out of 385 patients. Refractive error was found the second most common disease affecting 122(385) individuals. Glaucoma was found in 47(385). Retinopathy and ARMD was found in 23(385) and 12(385) patients respectively. The diseases which were less common and included in “others” category were found to be affecting 60 patients.

#### ASSOCIATION OF CATARACT WITH GENDER

Table V: Gender \* Cataract Crosstabulation

Gender			Cataract		Total
			Yes	No	
Male	Count		111	113	224
	% within Cataract		53.1%	64.2%	58.2%
Female	Count		98	63	161
	% within Cataract		46.9%	35.8%	41.8%
Total	Count		209	176	385
	% within Cataract		100.0%	100.0%	100.0%
<b>Chi-Square Value = 4.833a</b>			<b>P-Value = 0.028</b>		

#### Interpretation:

Percentage of cataract is significantly higher in males as compared to females (P-value 0.028<0.05)

**ASSOCIATION OF REFRACTIVE ERROR WITH GENDER****Table VI: Gender \* Refractive error Crosstabulation**

Gender			Refractive error		Total
			Yes	No	
Male	Count		73	151	224
	% within Refractive error		59.8%	57.4%	58.2%
Female	Count		49	112	161
	% within Refractive error		40.2%	42.6%	41.8%
Total	Count		122	263	385
	% within Refractive error		100.0%	100.0%	100.0%
<b>Chi-Square Value = 0.021a</b>			<b>P-Value = 0.654</b>		

**Interpretation:**

There is no significant difference of percentage of Refractive Error among males and females. (P-Value 0.064>0.05)

**ASSOCIATION OF GLAUCOMA WITH GENDER****Table VII: Gender \* Glaucoma Crosstabulation**

Gender			Glaucoma		Total
			Yes	No	
Male	Count		25	199	224
	% within Glaucoma		53.2%	58.9%	58.2%
Female	Count		22	139	161
	% within Glaucoma		46.8%	41.1%	41.8%
Total	Count		47	338	385
	% within Glaucoma		100.0%	100.0%	100.0%
<b>Chi-Square Value = 0.548a</b>			<b>P-Value = 0.459</b>		

**Interpretation:**

There is no significant difference of percentage of Glaucoma among males and females (P-value 0.459>0.05)

**Table VIII: CO-MORBIDITY AMONG GERIATRIC PATIENTS**

Co-Morbidity	Frequency	Percentage
<b>Cataract + Refractive Error</b>	34	8.83%
<b>Cataract + Glaucoma</b>	14	3.63%

There were 34 (8.83%) cases in which cataract and RE both and about 14 (3.36%) cases in which in which cataract as well as glaucoma were present at the same time.

**DISCUSSION:**

The study shows that among 385 patients included in the study, 209(54.3%) were suffering from cataract. This included 111(53.1%) males and 98(46.9%) females. This was the highest frequency of morbidity profile among geriatric patients visiting eye OPD. When chi-square test was applied to determine the association of cataract with gender, a significant P-value of 0.028 was analyzed. Most of the patients were aware of their ailment and surprisingly large percentage of patients included in the study was literate. It is comparable with the study conducted in Aurangabad district of India in which a total of 625 individuals participated out of which 251( 40.6%) were suffering from cataract and males being more affected than females (males 41.75% and females 38.71%).

In our study refractive error was found the second most common cause of visual impairment affecting 122 (31.7%) individuals. It was also found that males are affected more than females having prevalence of 53.2% among males and 46.8% among females. The P-value for chi-square test was found to be 0.459 making this difference non-significant. According to a study held in Saudi Arabia in 2015, refractive error was found as the leading cause of visual impairment. The results of our study showed that glaucoma was the third most common occurring disease among geriatric population having prevalence in 122(12.2%) patients in which 25(53.2%) were males and 22(46.8%) were females suggesting a high prevalence rate in males. The chi-square test showed a non-significant P-value of 0.459. These results are in comparison with the results of a study conducted by WHO in 2002 in WHO sub-regions in which glaucoma was the second leading cause of visual impairment and blindness but the prevalence of glaucoma was similar as in our study which was 12.3%.

ARMD is a common eye disease among elderly aged 60 years and above. A person having ARMD losses clear central vision. In our study it was found that ARMD was found in 3% of the patients (12 out of 385). It is comparable with the study held in Poland in 2015 in which 1107 people participated. The percentage of people suffering from ARMD was 3.25%. The phrase age related is associated with macular degeneration because the data shows that risk of ARMD increases drastically after 60 years. It is one of the major causes of visual impairment and blindness among geriatric people worldwide and in Pakistan. . According to a study conducted in Rotterdam that consisted of 6775 subjects of age 55

years and above, ARMD was found as the leading cause of visual impairment and blindness. However, in our study its prevalence was relatively less.

Retinopathy is the disease of retina. The retina is the part inside the eye that senses light. Different systemic diseases like diabetes mellitus and hypertension can cause retinopathy. Diabetic retinopathy develops in people with type 1 or type 2 diabetes and hypertensive retinopathy is associated with hypertension. A total of 35 studies (1980–2008) provided data from 22,896 individuals with diabetes. The overall prevalence was 34.6% for any DR. As our research was conducted on a small scale and sample size was also small the frequency came out to be 47 and the percentage was 6%. Among the category of “Others” in our study that contained the diseases which are less common “Retinal detachment” was the most common disease and surprisingly its prevalence was more than we expected. It was found in 19(4.9%) patients making it more prevalent than ARMD. Aphakia was the second most common disease in this category having frequency of 9(2.3%). Diseases like Dacryocystitis, psuedophakia and some infections were each found to be present separately in 3(0.8%) of the subjects. Conjunctivitis, maculopathy and pterygium was each prevalent in 2(0.5%) subjects. Among the least occurring diseases were corneal ulcers, black halos, floaters, endophthalmitis, focal maculopathy, hazy cornea, iris prolapse, macular edema. Conjunctival congestion, ptosis, posterior vitreous detachment, subluxated lens and watery eyes each present separately in 1(0.3%) of the subjects.

**CONCLUSION:**

According to our study, cataract was found as the most common diseases among geriatric patients and males being more affected than females. Refractive error and glaucoma were the second and third most common diseases being more common in males than females. Retinopathy and ARMD were less common among geriatric patients in our study. Retinal detachment which we thought as less common was actually very common among geriatric patients. Some other diseases of the cornea, conjunctiva, lens and iris and infections were less common among the geriatric patients.

**RECOMMENDATIONS:**

- In our research most of the patients fall in the age group of 60-69 so special concern should be shown to this age group as this is the start of geriatric age.

- Cataract is found to be the most common disease having male predominance so geriatric patients especially males should have their regular check-up and should avoid the predisposing factors that lead to development of cataract.

## REFERENCES:

- [1] Kelly R. The special needs of the geriatric patient in the O and P: Practitioners address the challenges and rewards of treating the geriatric patient. *Senior Step* 2004;1:2–10. [www.amputee-caalition.org](http://www.amputee-caalition.org). Updated July 23, 2012. Accessed
- [2] A study of ocular morbidity, utilization and impact on patients' satisfaction in an ophthalmic clinic at Primary Health Center. 2015;23 (2).
- [3] Lipschitz S. Comprehensive geriatric assessment: The increasing morbidity related old age requires careful assessment. *CME*. 2007;25(9):11–19.
- [4] Mahesh D, Gauri S, Nabin P, Niraj J, Madhu, T et al, Visual status and ocular morbidity in older adults living in residential care. *Graefe's Archive of Clinical & Experimental Ophthalmology* 2012; 250:1387
- [5] Mumtaz Y, Riaz H, Akhtar S, Haider H, Manzoor W. Morbidity, Co-Morbidity Profile and Disability Status Among Elderly. *Journal of the Dow University of Health Sciences*. 2010;4(1):19-24.
- [6] Filho AA. Prevalence of visual impairment, blindness, ocular disorders and cataract surgery outcomes in low-income elderly from a metropolitan region of São Paulo. *Arq. Bras Oftalmol*. 2008;71(2):246–253.
- [7] A. Laitinen, L. Laatikainen, T. Härkönen, S. Koskinen, A. Reunanen, and A. Aromaa, "Prevalence of major eye diseases and causes of visual impairment in the adult Finnish population: a nationwide population-based survey," *Acta Ophthalmologica*, vol. 88, no. 4, pp. 463–471, 2010.
- [8] Lehman S. Cortical visual impairment in children. *Current Opinion in Ophthalmology*. 2012;23(5):384-387.
- [9] Marmamula S, Ravuri C, Boon M, Khanna R. A cross-sectional study of visual impairment in elderly population in residential care in the South Indian state of Andhra Pradesh: a cross-sectional study. *BMJ Open*. 2013;3(3):e002576.
- [10] Åström S, Stenlund H & Linden C, Incidence and prevalence of pseudoexfoliations and open-angle glaucoma in northern Sweden: II. Results after 21 years of follow-up. *Acta Ophthalmol Scand* 2007;85: 832–837
- [11] D. Pascolini and S. P. Mariotti, "Global estimates of visual impairment: 2010," *British Journal of Ophthalmology*, vol. 96, no. 5, pp. 614–618, 2012
- [12] A study of ocular morbidity among elderly population in a rural area of central India. *Indian J Ophthalmol*. 2000;45(1).
- [13] World Health Organization.. Media Centre. Visual impairment and blindness. Fact sheet number 282. <http://www.who.int/mediacentre/factsheets/fs282/en/>. Published, June 2012. Accessed May 19, 2012.
- [14] Singh A, Ocular morbidity in rural areas. *Nepal J Ophthalmol* (2012) 4: 49-50
- [15] Pisudde PM, Taywade ML, Sushma K, Mehendale AM, Shukla AK (2015) An Epidemiological Study of Common Ocular Morbidities among Elderly Population in the Wardha, District, Maharashtra, India
- [16] Onua A, Chukwuka I, Pedro-Egbe C. Ocular problems among public service retirees in a Southern Nigerian Metropolitan City. *Nigerian Journal of Ophthalmology*. 2016;24(1):16.
- [17] Nowak MSmigielski J. The Prevalence of Age-Related Eye Diseases and Cataract Surgery among Older Adults in the City of Lodz, Poland. *Journal of Ophthalmology*. 2015;2015:1-7.
- [18] Colmain B, Leske M, Haffner S. The Prevalence of Diabetic Retinopathy Among Adults. *Arch Ophthalmol*. 2014;122(552).
- [19] Ocansey, Awusabo-Asare K, Kumi-Kyereme A, Boadi-Kusi S. Ocular Health of the Emerging Elderly Population in Ghana: Evidence From a Peri-urban Community. *HACCE*. 2013;:21.
- [20] Ocansey S, Asare K, Kyereme A, Kusi S. Ocular Health of the emerging elderly population. *Healthy Aging & Clinical Care in the Elderly*. 2013;.
- [21] Marmamula S, Ravuri C, Boon M, Khanna R. A cross-sectional study of visual impairment in elderly population in residential care in the South Indian state of Andhra Pradesh: a cross-sectional study. *BMJ Open*. 2013;3(3):e002576.
- [22] Chou C, Frances Cotch M, Vitale S, Zhang X, Klein R, Friedman D et al. Age-Related Eye Diseases and Visual Impairment Among U.S. Adults. *American Journal of Preventive Medicine*. 2013;45(1):29-35.
- [23] A STUDY OF MORBIDITY PROFILE OF GERIATRIC POPULATION IN THE FIELD PRACTICE AREA OF RURAL HEALTH TRAINING CENTRE. *IOSR Journal of Pharmacy*. 2012;2(2)(184-188).
- [24] Dev M, Shrestha G, Paude N, Joshi N, Thapa M, Shah D. Visual status and ocular morbidity in

- older adults living in residential care. Graefe's Archive for Clinical and Experimental Ophthalmology. 2012;250(9).
- [25] Pascolini DMariotti S. Global estimates of visual impairment: 2010. British Journal of Ophthalmology. 2011;96(5):614-618.
- [26] Andrew J Lee, Hilary A Beaver Principles and Practices of Geriatric Surgery. Geriatric Ophthalmology. 2011;
- [27] Laitinen A, Ha`rka`nen T, Koskinen S, Reunanen A, Aromaa A. Prevalence of major eye diseases and causes of visual impairment in the adult Finnish population: a nationwide population-based survey. Acta Ophthalmol. 2010;88.
- [28] Prevalence and causes of bilateral blindness and visual impairment among institutionalized elderly people in Pamplona, Spain. European Journal of Ophthalmology. 2010; 20(2).
- [29] Li Z, Cui H, Zhang L, Liu P, Yang H. Cataract Blindness and Surgery among the Elderly in Rural Southern Harbin, China. Ophthalmic Epidemiology. 2009;16(2):78-83.
- [30] Araújo Filho A, Salomão S, Berezovsky A, Cinoto R, Morales P, Santos F et al. Prevalence of visual impairment, blindness, ocular disorders and cataract surgery outcomes in low-income elderly from a metropolitan region of São Paulo - Brazil. Arquivos Brasileiros de Oftalmologia. 2008;71(2):246-253.
- [31] Magnitude and causes of low vision in adults attending the eye clinic at Muhimbili National Hospital. Tanzania Scholarly Digital Library. 2012.
- [32] Owsley C. The Visual Status of Older Persons Residing in Nursing Homes. Archives of Ophthalmology. 2007;125(7):925
- [33] Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, P. Pokharel G et al. Global data on visual impairment. Bulletin of the World Health Organization. 2004;83(844).
- [34] Buch H, Vinding T, la Cour M, Appleyard M, Jensen G, Vesti Nielsen N. Prevalence and causes of visual impairment and blindness among 9980 Scandinavian adults. Ophthalmology. 2004; 111(1):53-61.
- [35] Preventing Visual Loss from Chronic Eye Disease in Primary Care. Scientific Review and Clinical Applications. 2004;291 (12).
- [36] Prevalence of Remediable Disability due to Low Vision among Institutionalised Elderly People. Gerontology. 2004;50.
- [37] Important Causes of Visual Impairment in the World Today. Contempo Updates. 2003;290 (15).
- [38] Visual acuity measurements in a national sample of British elderly people. Br J Ophthalmol 2000;84920.
- [39] Visual impairment and eye diseases in elderly institutionalized Australians. Ophthalmology. 2000;107(12)(2203-8.).
- [40] Hoffman A. Age specific prevalence and causes of blindness and visual impairment in elderly. Arch Ophthalmol. 1998;16(653).

**DEMOGRAPHIC DATA**

Name: \_\_\_\_\_

Age: \_\_\_\_\_ (In Years)

Gender: \_\_\_\_\_

Marital Status: \_\_\_\_\_

Address: \_\_\_\_\_

Education: \_\_\_\_\_

Occupation: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Phone: \_\_\_\_\_

**QUESTIONNAIRE**

DISEASE	PRESENT		MODE OF INFORMATION		
	Yes	No	Documented	Verbal by the doctor	Verbal by the patient
1.Cataract					
2.Glaucoma					
3.Age related macular degeneration					
4.Retinopathy					
Hypertensive					
Diabetic					
5.Refractive Error					
6.Others/Specified					