

Analysis of Permanent Severe Visual Impairment and Blindness in Visually Disabled Patients at Public Teaching Hospitals, Rawalpindi

Wajeeha Rasool¹, Kanwal Zareen Abbasi², Ambreen Gull¹, Muhammad Ali Khalid³, Jawad Awan¹, Muhammad Rizwan Khan⁴

Abstract:

Objective: To determine the prevalence and causes of permanent severe visual impairment and blindness in patients aiming for visual disability certification, visiting public teaching hospitals in Rawalpindi.

Methods: An observational cross-sectional study was carried out from April 2022 to April 2024, obtaining data of visually disabled people, selected via consecutive non-probability sampling. Demographic profile categories & causes of permanent severe visual impairment and blindness were noted. Data were analyzed & reported by descriptive statistics.

Results: Out of a total of 189 individuals, 67% were males & 32.8% females, 21.7% were less than 18 years of age. 79.6% of eyes had severe visual impairment, while 26.7% eyes were blind. Retinitis pigmentosa (33%), optic atrophy (13.4%), corneal opacity (12%), macular dystrophy (6.8%), and microphthalmia (6.6%) were the leading causes of permanent severe visual impairment & blindness.

Conclusion: A comprehensive, reliable yet small scale study showing younger age group & male predominance. The prevalence of retinitis pigmentosa is surprisingly high, while glaucoma & diabetic retinopathy contributed less than expected. *Al-Shifa Journal of Ophthalmology* 2025; 21(3): 198-207. © Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.

1. Benazir Bhutto Hospital, Rawalpindi.
2. HBS Medical College, Islamabad.
3. University Hospital Waterford, Ireland.
4. Faisalabad Medical University and Allied Hospital, Faisalabad.

Originally Received: 06 March 2025

Revised: 07 April 2025

Accepted: 03 May 2025

Correspondence to:

Wajeeha Rasool

Benazir Bhutto Hospital, Rawalpindi.

drwajeeharasool@gmail.com

Introduction:

International classification of disease (ICD) grades and reserves code H54 for visual impairment and blindness¹. Globally, around 1 billion people (including 1.4 million children) suffer from moderate or severe vision impairment SVI or blindness². Globally 89% of visually impaired people reside in low- and middle-income regions like Sub-Saharan Africa and South Asia, 55% of these are females³. Between 1990 and 2020, the global age-standardized prevalence of blindness decreased by 28.5%, however, 90% of vision impairment cases in low middle-income countries (LMIC) remain a challenge³. The challenge of eliminating blindness has grown enormously due to ageing and growing population and is expected to rise to 61.05 million globally by 2050⁴. Lately the COVID-19 pandemic halted eye care services, causing around a 76% reduction in cataract surgeries and a 70% reduction in outpatient visits during peak

lockdown periods, adding to a backlog of untreated cases⁵.

Apart from regional variations, the leading causes of visual impairment in adults globally are uncorrected refractive error (123 million people), cataract (65 million people), age-related macular degeneration AMD (10 million people), glaucoma (7 million), and diabetic retinopathy DR (3 million people)⁶. In children, the leading causes of blindness are uncorrected refractive errors (12 million children), cataract (0.2 million children annually), retinopathy of prematurity (50000 children annually), congenital ocular anomalies, corneal scarring & cerebral visual impairment⁷. Over the last three decades, vision loss due to onchocerciasis has been prevented in 80 million people, while the risk of blindness due to trachoma decreased by 91%. On the other hand, myopia prevalence is likely to increase from 30% to 50% while DR will likely affect 160 million people by 2050⁴.

In Pakistan, around 10.5 % or 22 million people are visually impaired and blind, 80% of whom reside in rural areas. The years lived with disability (YLD) rate regarding visual loss has increased to 55% in 2017, as compared to 1990, with further increase expected by 2025. The national crude prevalence of SVI and blindness is 8.3% i.e., significantly higher than the global figure (4.2%)⁸. National leading causes of visual impairment and blindness are cataract (51-55% of blindness), uncorrected refractive errors (20-25% of visual impairment), glaucoma (5-7% of blindness), corneal opacification (5-6% of blindness), DR (affecting 2-3%)⁹.

In 2022, Social Welfare and Bait-ul-Maal (SW&BM) Punjab introduced online certification of visually disabled persons via the Data Processing Management Information System (DPMIS) portal (a prerequisite for a special Computerised National Identity Card CNIC issued by National Database and Registration Authority NADRA for people with visual disability, thus entitling them to get special

benefits from the government). Thereafter, we have seen an influx of permanent visually compromised patients from the Rawalpindi region, coming to the eye departments of public teaching hospitals of Rawalpindi, for verification of their visual disability (required for visual disability certification). Though on a small scale, this study will generate data giving an authentic estimate of the causes of irreversible poor vision in people of this area. Continuation of such studies is needed for larger-scale standardized data from different regions of Pakistan. Future liaison with World Health Organization (WHO) Vision Atlas can be beneficial in this regard which works in collaboration with International Agency for Prevention of Blindness (IAPB), aiming to implement Global Action Plan on Universal Eye Health (2014-2019), contributing to Standard Development Goals (SDGs) and is a powerful advocacy tool used during global campaigns like World Sight Day¹⁰. Pakistan aligning with these global objectives can benefit from international partnerships, providing technical and financial support for eye care programs, improving the vision and quality of life for millions of its citizens.

Methodology:

An observational cross-sectional study was conducted after approval of the ethical review committee, Rawalpindi Medical University. A prior sample size of 183 was calculated by $n = Z^2 P(1-P)/d^2$, where n is the sample size, Z is 1.96 (for a confidence interval of 95%), P is 0.43 (assumed prevalence from a previous national survey¹¹), and d is 0.0716 (effect size)¹². Patients coming to the eye outpatient department of Benazir Bhutto Hospital, Rawalpindi & Rawalpindi Teaching Hospital for visual disability verification were enrolled in the study after thorough eye examination, via consecutive non-probability sampling, from April 2022 to April 2024. Data of each case was verified by the concerned eye specialist and referred to the SW&BM hospital branch for visual

disability certification, later rechecked by retrieving it from the SW&BM office in Rawalpindi, after due approval.

Patients with permanent SVI (best corrected Snellen visual acuity BCVA of $< 6/60$ and $\geq 3/60$ or central visual field VF restriction of $\leq 20^\circ$ and $>10^\circ$) and blindness (BCVA of $<3/60$ or central VF restriction of $\leq 10^\circ$)¹, involving both eyes, of any age or gender, aiming for visual disability acquisition, were included, while cases with 'Moderate, Mild & no distant visual impairment¹ of either eye' were excluded from the study. Demographic profile (name, CNIC number, age, gender),

category, and cause of visual impairment of each case were entered in a proforma, then in Excel. Quantitative data were expressed as mean $\pm$ SD, and categorical data as frequencies n and percentages %.

Results:

The total number of patients was 189 (378 eyes), out of which 127(67%) were males & 62(32.8%) were females.

The Mean age was 31 years (SD ± 19) range 4 to 65 years, 41(21.7%) were less than 18 years of age. 301(79.6%) eyes had SVI, while 101(26.7%) eyes were blind (3:1).

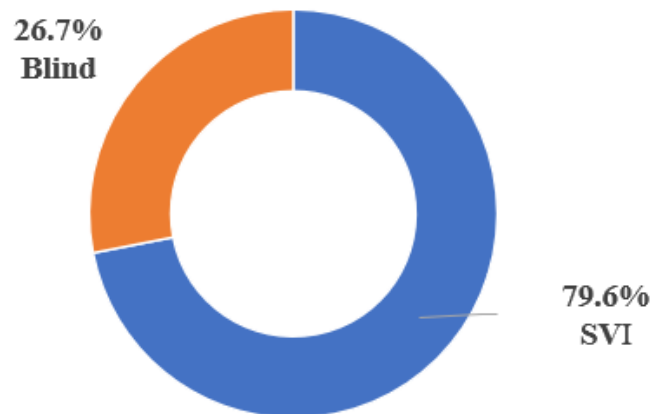


Figure 1: PREVALENCE OF PERMANENT SEVERE VISUAL IMPAIRMENT AND BLINDNESS (%)

Prevalence of top 5 causes of SVI and blindness is shown in figure 2 while detailed results of causes, categories and demographic profile of permanent SVI and blindness are shown in table 1

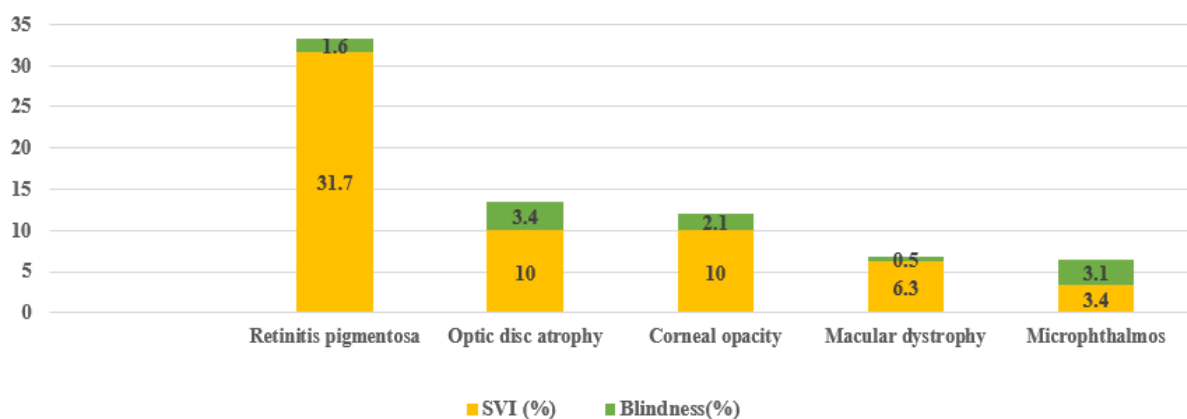


Figure 2: PREVALENCE OF TOP 5 CAUSES OF SEVERE VISUAL IMPAIRMENT AND BLINDNESS (%)

Table 1: Causes, Categories, Demographic Profile of Cases with Permanent Severe Visual Impairment and Blindness

Causes of Permanent Severe Visual Impairment & Blindness	Categories of Permanent Visual Impairment in Affected eyes n (%)			Cases n (%)			Gender n (%)		Mean Presenting Age (years)
	Total	Severe	Blindness	Total	Both Eyes Involved	One Eye Involved*1	M	F	
Retinitis pigmentosa	126 (33.3)	120 (31.7)	6 (1.6)	63 (33)	63 (33.3)		42 (22)	21 (11)	38
Optic disc atrophy	51 (13.2)	38 (10)	13 (3.4)	26 (13.7)	25 (13)	1 (0.5)	17 (9)	9 (4.7)	35
Corneal opacity	46 (12.2)	38 (10)	8 (2.1)	29 (15.3)	17 (9)	12 (6.3)	18 (9.5)	11 (5.8)	32
Macular dystrophy	26 (6.8)	24 (6.3)	2 (0.5)	13 (6.8)	13 (6.8)		7 (3.7)	6 (3.2)	23.5
Microphthalmos	25 (6.6)	13 (3.4)	12 (3.1)	13 (6.8)	12 (6.3)	1 (0.5)	8 (4.2)	5 (2.6)	15
Phthisis bulbi	22 (5.8)	1 (0.26)	21 (5.5)	17 (9)	5 (2.6)	12 (6.3)	11 (5.8)	6 (3.2)	51
Retinal detachment	16 (4.2)	8 (2.1)	8 (2.1)	10 (5.3)	6 (3.1)	4 (2.1)	9 (4.7)	1 (0.5)	45.6
End stage glaucoma	15 (4.0)	11 (2.9)	4 (1)	9 (4.7)	6 (3.1)	3 (1.6)	5 (2.6)	4 (2.1)	30
Uveitis sequelae*2	10 (2.6)	7 (1.8)	3 (0.8)	6 (3.2)	4 (2.1)	2 (1)	6 (3.2)		51.6
Albinism	8 (2.1)	6 (1.6)	2 (0.5)	4 (2.1)	4 (2.1)		1 (0.5)	3 (1.6)	17
Anophthalmos	7 (1.8)		7 (1.85)	4 (2.1)	3 (1.6)	1 (0.5)	2 (1)	2 (1)	14.5
Diabetic retinopathy	6 (1.6)	3 (0.8)	3 (0.8)	3 (1.6)	3 (1.6)		3 (1.6)		45

Dens amblyopia	6 (1.6)	6 (1.6)		4 (2.1)	2 (1)	2 (1)	4 (2.1)		38.5
Macular degeneration	6 (1.6)	1 (0.26)	5 (1.3)	4 (2.1)	2 (1)	2 (1)	4 (2.1)		40
Aphakia (uncorrected)	5 (1.3)	5 (1.3)		3 (1.6)	2 (1)	1 (1)	3 (1.6)		31
Pigmentary Retinal dystrophy	4 (1)	4 (1)		2 (1)	2 (1)		2 (1)		33
Optic nerve hypoplasia	3 (0.8)	3 (0.8)		2 (1)	1 (0.5)	1 (0.5)	1 (0.5)	1 (0.5)	30
Lost eye	2 (0.5)		2 (0.5)	2 (1)		2 (1)	2 (1)		46.5
Dens vitreous opacity	2 (0.5)	2 (0.5)		2 (1)		2 (1)	1 (0.5)	1 (0.5)	21
Anterior staphyloma	2 (0.5)	1(0.26 0	1 (0.26)	2 (1)	2 (1)			2 (1)	20
Posterior staphyloma	2 (0.5)		2 (0.5)	1 (0.5)	1 (0.5)		1 (0.5))		60
ROP sequelae	2 (0.5)	2 (0.5)		1 (0.5)	1 (0.5)			1 (0.5)	13
Congenital aniridia	2 (0.5)	2 (0.5)		1 (0.5)	1 (0.5)		1 (0.5)		17
Congenital ectropion uvulae	2 (0.5)	2 (0.5)		1 (0.5)	1 (0.5)		1 (0.5)		20
Cortical blindness	2 (0.5)		2 (0.5)	1 (0.5)	1 (0.5)		1 (0.5)		9
Total	402	301 (79.6)	101 (26.7)	223	177 (94)	46 (24)	150 (79)	73 (41.7)	31

*1different cause of vision loss in other eye

*2 other than RD, opaque cornea, phthisis

Figures 3, 4 shows comparison of demographic data and common causes of permanent SVI and blindness with global and national figures, respectively.

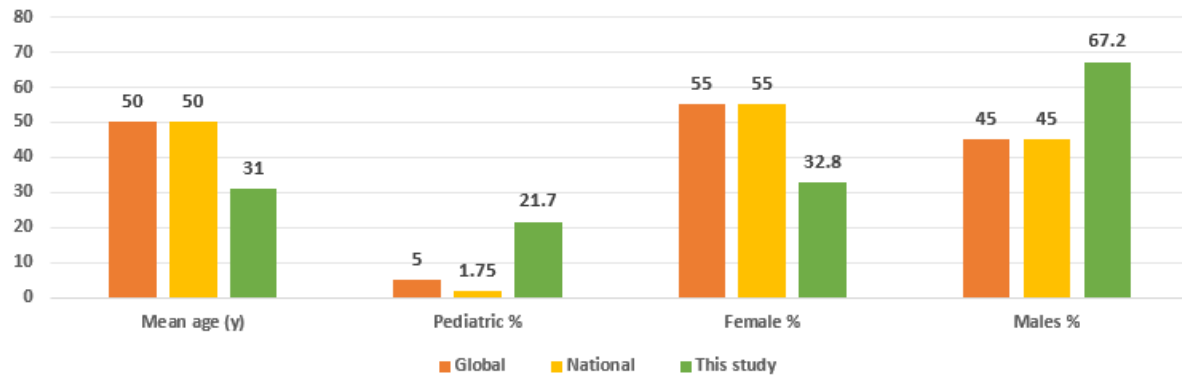


Figure 3: DEMOGRAPHIC DATA OF PERMANENT SEVERE VISUALLY IMPAIRED AND BLIND IN COMPARISON WITH GLOBAL AND NATIONAL FIGURES

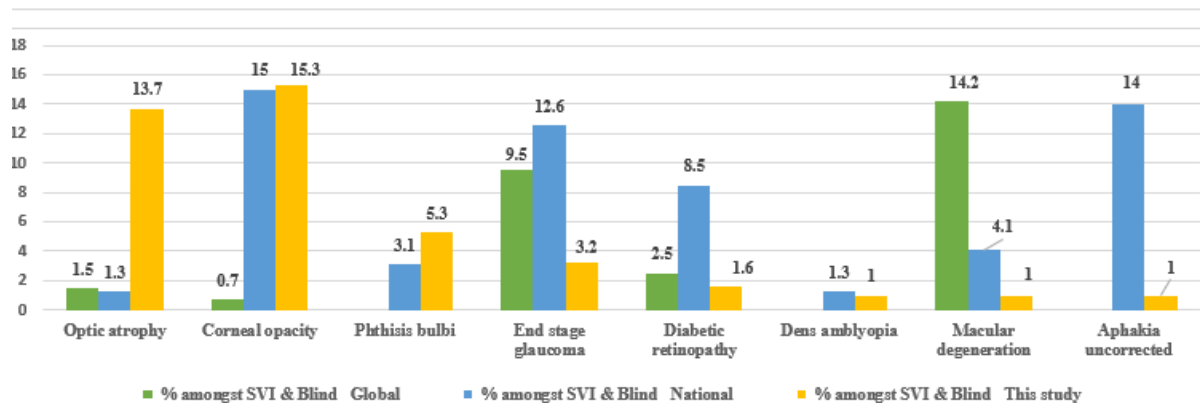


Figure 4: PREVALENCE OF COMMON CAUSES OF PERMANENT SEVERE VISUAL IMPAIRMENT AND BLINDNESS IN COMPARISON WITH GLOBAL AND NATIONAL FIGURES

Discussion:

Apart from regional variations, vision loss is linked with increasing age and being female^{3,4}. Younger people with blindness and severe vision impairment are more likely to have a permanent cause of vision impairment than older people^{3,13}. Globally, 0.49% people are blind and around 2.9% have severe visual impairment, out of which children hold around 5% of share¹⁴. Nationally 0.54% people are blind and 0.52% have SVI⁸. Nystagmus is strongly associated with visual impairment due to congenital ocular diseases is significantly more common in White Europeans¹⁵.

The prevalence of retinitis pigmentosa (RP) worldwide is approximately one in 4,000 but has been reported to be as high as 1 in 372 in rural areas of South India¹⁶. More than half of the genes associated with non-

syndromic RP were found to be present in South Asia due to the high rate of consanguinity¹⁷. A local study reports 81.3% of RP patients below the age of 40 years and females (66.07%) affected more than males (33.93%)¹⁸.

Multiple studies have reported optic atrophy as one of the five main causes of blindness in Scotland, Japan and Saudi Arabia^{19,20,21}. In a national survey optic atrophy was placed 5th in the list, with an overall prevalence of 4.4% (peak of 28% in individuals in their 30s)²². Only a few hereditary causes of optic atrophy have male predominance²¹.

Globally, around 5 million adults have bilateral while 6 million have unilateral blindness due to corneal opacities²³. Despite large variations in its prevalence rates globally, Africa shows 8-14 times

higher rates than the rest of the world, with a preponderance for female gender. Latin America and Europe have the lowest prevalence²³. In a national survey, corneal opacity was the 2nd most common cause (11.8%) of blindness affecting individuals in their 30s (females slightly more), prevalence being highest in Balochistan (9.9%)¹¹.

Global prevalence of all inherited retinal dystrophies is 1:3450, and macular **dystrophies** have a 30% share, accounting for <1% of vision loss with no gender predisposition^{3,11}. Nationally, high consanguinity has significantly increased the prevalence of recessively inherited retinal dystrophies²⁴.

Global prevalence of anophthalmia and microphthalmia is up to 3 and 14 per 100,000 population, respectively and accompanies 3-11% of childhood blindness, with no predilection regarding race or gender and commonly bilateral²⁵. International and national surveys do not show both as the leading cause of overall blindness^{3,11}.

Phthisis lost eyeball is reported in 12% of blind eyes in a national survey (12%)¹¹. In Nigeria phthisis bulbi is the 7th leading cause of unilateral blindness and is prevalent equally in both genders and mostly in 70 plus individuals²⁶.

The annual incidence of rhegmatogenous retinal detachment has been estimated in different countries and regions for a long time, ranging from 6.9-26.2 cases per 100,000 person-years, with several known risk factors at presentation, including male gender, old age, Caucasian and Asian origin²⁷. A local study has reported a lower incidence, younger age and common in males but accepts under reporting²⁸.

Glaucoma accounts for 9.5% and 12.6% of blindness & SVI globally and nationally, respectively^{11, 29}. Nationally glaucoma is at 6th position in a list of 10 most common causes of SVI and blindness¹¹. We encountered 5 cases of buphthalmos, only 3 middle-aged cases of advanced primary open-angle glaucoma and 1 old age case of

neovascular glaucoma. In literature the % distribution of these is 0.68, 27 and 2.4 respectively³⁰. Prevalence of blindness attributed to advanced glaucoma in India and Africa is 34%, male gender and increasing age were the risk factors³¹. England has a decreasing incidence of advanced glaucoma at presentation, but still the figures are between 21-30%³².

According to the large Hellenic Study of Uveitis, the global prevalence of uveitis ranges from 5-25%, affecting 60/100,000 Caucasian persons (exponential increase in number of cases in last 30 years but slight dip in covid times), commonly affecting adult females with mean age of 40³³. National surveys don't list uveitis as leading cause of vision loss¹¹.

The mean prevalence of various phenotypes of oculocutaneous albinism is 1 in 4264, 1 in 12000 and 1 in 37000 in Africa, Europe and America respectively and varies across Asia³⁴.

In 2020, diabetic retinopathy DR was causing blindness in more than 1 million people worldwide, encompassing 2.5% of global blindness³⁵. Regions with highest prevalence were Latin America and the Caribbean (6.95%), North Africa and the Middle East (2.12%) respectively while lowest prevalence observed in Europe, Central Asia and Sub Saharan Africa (0.975%), aging females being affected more than males (M:F is 1:1.5) particularly in South Asia³⁵. Great variation in prevalence of visually threatening diabetic retinopathy (VTDR) is noted across Pakistan, however the pooled prevalence of VTDR amongst all DR cases has risen to 28.2%, affecting 8.6% of diabetics (1.87 million population)_Khyber Pakhtunkhwa is taking lead³⁶.

Global prevalence of amblyopia is 1-5% affecting nearly 19 million children, more common in males (1.46 %) than females (1.24 %) and not associated with any geographical area³⁷. Nationally its prevalence is 7%, reported only in younger subjects and affecting females more than males^{11, 38}.

We encountered 3 cases of pathological myopia and 1 case of dry age-related macular degeneration (AMD) as cause of macular degeneration. Lately, the global prevalence of myopic macular degeneration (MMD) is likely to increase from 0.2% (2015) to 0.7% (2050) with varied gender predisposition³⁹. AMD is the most common cause of permanent blindness affecting 0.6 million people (1 in 8 of elderly) in developed world. Global incidence of AMD is 1.78 %, 2.78% (highest) in Whites, 1.78% in Blacks, 1% in Asians, and 0.55 % in Hispanics⁴⁰. AMD accounts for almost 2.8% blindness in Pakistan¹¹.

We have found aphakia in 3 young males, but as a comorbid to the primary cause of permanent vision loss. Increase in use of intraocular lens in cataract surgery in last 2-3 decades has lead to worldwide reduction in blindness due to aphakia but Africa is still an exception⁴¹. Nationally aphakia has shown to result in 14% of SVI and blindness in elderly¹¹.

Conclusion:

A comprehensive, small-scale (likely to have ascertainment bias), yet reliable estimate of causes of severe visual impairment and blindness in visually disable patients visiting public teaching hospitals of Rawalpindi. Predominance of younger cases shows acceptance of visual disability and awareness about social welfare programs in the context of future concerns. Male predominance also indicates their access to the health and social welfare support system. Retinitis pigmentosa and macular dystrophies have emerged as a new highly prevalent causes of permanent severe visual impairment and blindness, and the existing national surveys are insufficient to give their representation. Glaucoma & diabetic retinopathy have contributed less than expected.

References:

1. World Health Organization. International statistical classification of diseases and related health problems.

10th revision (ICD-10). WHO version for 2019: COVID-expanded. Chapter VII: Visual disturbances and blindness (H53–H54) [Internet]. Geneva: WHO; 2019 [cited 2025 Jan 23]. Available from:

<https://icd.who.int/browse10/2019/en#/H53-H54>

2. GBD 2019 Blindness and Vision Impairment Collaborators; Vision Loss Expert Group of the Global Burden of Disease Study. Causes of blindness and vision impairment in 2020 & trends over 30 years, and prevalence of avoidable blindness in relation to VISION 2020: the Right to Sight: an analysis for the Global Burden of Disease Study. *Lancet Glob Health*. 2021;9(2):144-60.
3. Ackland P, Resnikoff S, Bourne R. World blindness and visual impairment: despite many successes, the problem is growing. *Community Eye Health*. 2017;30(100):71-3.
4. Burton MJ, Jacqueline R, Marques AP, et al. The Lancet Global Health Commission on Global Eye Health: vision beyond 2020. *Lancet Glob Health*. 2021;9(4):489-555.
5. Ting DSJ, Deshmukh R, Said DG, Dua HS. The impact of COVID-19 pandemic on ophthalmology services: are we ready for the aftermath? *Ther Adv Ophthalmol*. 2020;12:2515841420964099.
6. Flaxman SR, Bourne RRA, Resnikoff S, et al. Global causes of blindness and distance vision impairment 1910–2020: a systematic review & meta-analysis. *Lancet Glob Health*. 2017;5(12):e1221-e1234.
7. International Agency for the Prevention of Blindness. Child eye health [Internet]. London: IAPB; 2023 [cited 2024 Sep 7]. Available from: <https://www.iapb.org/learn/vision-atlas/magnitude-and-projections/child-eye-health/>
8. Hassan B, Ahmed R, Li B, Noor A, Hassan ZU. A comprehensive study

- capturing vision loss burden in Pakistan (1990–2025): findings from the Global Burden of Disease (GBD) 2017 study. *PLoS One*. 2019;14(5):e0216492.
9. Pakistan Prevention of Blindness Program. National survey on blindness and visual impairment in Pakistan [Internet]. Islamabad: Ministry of National Health Services; 2020 [cited 2023 Oct]. Available from: <http://www.ppbp.org.pk>
10. International Agency for the Prevention of Blindness. Magnitude and projections: global estimates of blindness and vision impairment [Internet]. 2020 [cited 2025 Mar 15]. Available from: <https://www.iapb.org/learn/vision-atlas/magnitude-and-projections/global/>
11. Dineen B, Bourne R, Jadoon MZ, Shah SP. Causes of blindness & visual impairment in Pakistan. *The Pakistan National Blindness & Visual Impairment Survey*. *Br J Ophthalmol*. 2007;91(8):1005-10.
12. Pourhoseingholi MA, Vahedi M, Rahimzadeh M. Sample size calculation in medical studies. *Gastroenterol Hepatol Bed Bench*. 2013;6(1):14-7.
13. Assefa NL, Tolessa KG, Ferede AT. Knowledge of childhood blindness and associated factors among parents and guardians in Maksegnit Town, Northwest Ethiopia. *Clin Optom (Auckl)*. 2020;12:175-82.
14. Flaxman SR, Bourne RRA, Resnicoff S, et al. Global causes of blindness and distance vision impairment 1910–2020: a systematic review & meta-analysis. *Lancet Glob Health*. 2017;5(12):e1221-e1234.
15. Self JE, Dunn MJ, Erichsen JT, et al. Management of nystagmus in children: a review of the literature and current practice in UK specialist services. *Eye (Lond)*. 2020;34(9):1515-34.
16. Zafar S, Ahmed K, Ali A, Baig R. Retinitis pigmentosa genes implicated in South Asian populations: a systematic review. *J Pak Med Assoc*. 2017;67(11):1734-9.
17. Kannabiran C, Parameswarappa D, Jalali S. Genetics of inherited retinal diseases in understudied populations. *Front Genet*. 2022;13:85855.
18. Ahmed J, Shaikh A, Shaikh ZA. Retinitis pigmentosa: genetics and clinical presentation. *Pak J Ophthalmol*. 2009;25(1):1-5.
19. Bamashmus MA, Matlhaga B, Dutton GN. Causes of blindness and visual impairment in the West of Scotland. *Eye (Lond)*. 2004;18(3):257-61.
20. Iwase A, Araie M, Tomidokoro A, et al. Prevalence and causes of low vision and blindness in a Japanese adult population: the Tajimi Study. *Ophthalmology*. 2006;113(8):1354-62.
21. Mbekeani JN, Fattah MA, Poulsen DM, et al. Etiology of optic atrophy: a prospective observational study from Saudi Arabia. *Ann Saudi Med*. 2017;37(3):232-9.
22. Shah SP, Minto H, Jadoon MZ, et al. Functional low vision and implications for services: the Pakistan National Blindness and Visual Impairment Survey. *Invest Ophthalmol Vis Sci*. 2008;49:887-93.
23. Wang EY, Kong X, Wolle M, et al. Global trends in blindness and vision impairment resulting from corneal opacity 1984–2020: a meta-analysis. *Ophthalmology*. 2023;130(8):863-71.
24. Munir A, Afsar S, Rehman A. A systematic review of inherited retinal dystrophies in Pakistan: updates from 1999 to April 2023. *BMC Ophthalmol*. 2024;24(55).
25. Verma AS, Patrick DRF. Anophthalmia and microphthalmia. *Orphanet J Rare Dis*. 2007;2:47.
26. Adewara BA, Badmus SA, Olugbade OT, et al. Distribution of phthisis bulbi and status of fellow eyes at a tertiary eye-care centre in Nigeria: a ten-year review. *Afr Health Sci*. 2021;21(1):437-44.

27. Xu MN, Zhang JY, Yang H, et al. Incidence of rhegmatogenous retinal detachments is increasing in Wenzhou, China. *Int J Ophthalmol.* 2023;16(2):260-6.
28. Iqbal SM, Iqbal K, Shahid A, et al. Incidence of rhegmatogenous retinal detachment in a tertiary care center of Pakistan. *Cureus.* 2022;14(5):e25092.
29. Vision Loss Expert Group of the Global Burden of Disease Study; GBD 2019 Blindness and Vision Impairment Collaborators. Global estimates on the number of people blind or visually impaired by glaucoma: a meta-analysis from 2000 to 2020. *Eye (Lond).* 2024;38(11):2036-46.
30. Seth PK, Senthil S, Das AV, Garudadri C. Prevalence of glaucoma types, clinical profile and disease severity at presentation: tertiary institute based cross-sectional study from South India. *Indian J Ophthalmol.* 2023;71(10):3305-12.
31. Kaur P, Kaur R, Chopra R. Prevalence and predictors of advanced glaucoma at presentation. *Int J Sci Stud.* 2022;10(3):84-7.
32. Boodhna T, Crabb DP. Disease severity in newly diagnosed glaucoma patients with visual field loss: trends from more than a decade of data. *Ophthalmic Physiol Opt.* 2015;35:225-30.
33. Kalogeropoulos D, Asproudis I, Stefanidou M, et al. The large Hellenic study of uveitis: epidemiology, etiologic factors and classification. *Int Ophthalmol.* 2023;43:3633-50.
34. Krokemberg JGR, Flynn KA, Kerr RA. Determining a worldwide prevalence of oculocutaneous albinism: a systematic review. *Invest Ophthalmol Vis Sci.* 2023;64(10):14.
35. Vision Loss Expert Group of the Global Burden of Disease Study; GBD 2019 Blindness and Vision Impairment Collaborators. Global estimates on the number of people blind or visually impaired by diabetic retinopathy: a meta-analysis from 2000 to 2020. *Eye (Lond).* 2024. doi:10.1038/s41433-024-03101-5
36. Mumtaz SN, Fahim MF, Arslan M, et al. Prevalence of diabetic retinopathy in Pakistan: a systematic review. *Pak J Med Sci.* 2018;34(2):493-500.
37. Hu B, Liu Z, Zhao J, et al. The global prevalence of amblyopia in children: a systematic review and meta-analysis. *Front Pediatr.* 2022;10:819998.
38. Alkhairy S, Siddiqui F, Hassan M. Prevalence of amblyopia amongst children presenting in a tertiary care center Karachi. *Pak J Ophthalmol.* 2016;32(3):176-81.
39. Fricke TR, Jong M, Naidoo KS, et al. Global prevalence of visual impairment associated with myopic macular degeneration and temporal trends from 2000 through 2050: systematic review, meta-analysis and modelling. *Br J Ophthalmol.* 2018;102(7):855-62.
40. Zhou M, Duan P, Liang J, et al. Geographic distributions of age-related macular degeneration: a systematic review and meta-analysis. *Br J Ophthalmol.* 2021;105:1427-34.
41. Han X, Zhang J, Liu Z, et al. Real-world visual outcomes of cataract surgery based on population-based studies: a systematic review. *Br J Ophthalmol.* 2022. doi:10.1136/bjophthalmol-2021-320997.

Authors Contribution

Concept and design: Kanwal Zareen Abbasi
 Data collection/assembly: Ambreen Gull, Muhammad Ali Khalid
 Drafting: Wajeeha Rasool
 Statistical Expertise: Jawad Awan, Muhammad Rizwan Khan
 Critical revision: Wajeeha Rasool