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Blindness And Visual Impairments Causes In Patients Presenting To Tertiary Eye Care Centers Of Peshawar

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ABSTRACT

Background: Blindness remains a significant issue, particularly in underdeveloped regions, with an estimated 38 million blind and 110 million visually impaired worldwide. Cataracts and glaucoma are primary causes. Many cases are preventable or treatable. Pakistan's Vision 2020 initiative targets blindness prevention, but its impact needs assessment. This study aims was to determine the blindness and visual impairment causes among patients.

Methods: The study reviewed hospital records from tertiary care hospital in February 2019. Patients with visual acuity below 3/60 were classified as blind, and below 6/18 as visually impaired. Data included age, gender, and causes of decreased visual acuity.

Results: The study included 100 cases, with 55 males and 45 females. Participants averaged is 42.78 ± 20.75 years old. Blindness frequency was 10%, higher in females (13.33%) than males (7.2%). Visual impairment occurred at a rate of 39%, slightly higher in females (40%) than males (38.1%). Most cases (84.6%) were moderate visual impairment (n=33). Cataracts were the leading cause (37%), followed by uncorrected refractive errors (28%), among others.

Conclusion: Despite Vision 2020 efforts, cataracts remain the leading cause of blindness in tertiary eye care hospitals. Further broad research studies are required to determine the burden of avoidable blindness and understand why these causes persist.

Keywords: Blindness, Visual Impairment, Cataracts, Glaucoma, Ocular, Ophthalmology, Eye

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INTRODUCTION

Eye blindness is a public health challenge, particularly in underdeveloped regions where it often remains overlooked.[1] Defined as corrected visual acuity in the better eye of less than 3/60 or a central visual field of less than 10, its global impact is staggering, affecting a minimum of 38 million individuals, while an additional 110 million grapple with low vision.[2] Cataracts stand out as the primary contributor to blindness worldwide, trailed by glaucoma and age-related macular degeneration.[3] Encouragingly, a significant proportion 80% of blindness and visual impairment cases are amenable to treatment or prevention.[4] Infections, trauma, and malnutrition serve as preventable causes of blindness, while cataract-induced visual loss can often be rectified through surgical intervention.[5] Malnutrition-induced Vitamin A deficiency, exacerbated by coexisting ailments such as measles and diarrhea, poses a particular risk, potentially leading to corneal blindness. Despite strides in intervention, persistent challenges underline the necessity for extensive research to comprehend the extent of avoidable blindness and the underlying complexities perpetuating its prevalence.[6]

The correct visual acuity are more important to gauge the proportion of visual abnormalities inside the population is not sufficient, it looks visual abnormalities stemming from the untrue refractive error.[7, 8] According to the research studies published globally that about 98 million individuals are observed with the visual impairment contribution to the untrue refractive error.[9] Moreover, approximately 161 million individuals were reported by the world health organization (WHO) which are suffering with visual impairment despite the correct visual acuity.[8] Proposed moderate visual abnormalities (presenting <6/18-6/60 visual acuity) differs from available low vision (ICD: corrected-best <6/18-3/60 visual acuity).[10] Approximately, 75% increase globally, if presenting instead of corrected-best visual acuity. Conversely, exclusion of <6/60-3/60 range may reduce, estimated six percentage (6%) for less in developed countries, while larger for more developed countries based on not or limited data available.[11, 12]

In Pakistan, a national survey documented a prevalence of blindness at 2.7%, with gender-standardized rates also identified. Notably, advancing age, female gender, and lower educational attainment were significantly correlated with increased prevalence of blindness and visual impairment, as evidenced by research.[13] The primary cause of blindness was identified as cataracts, responsible for 51.5% cases, followed by corneal opacity with 11.8% cases, uncorrected aphakia with 8.6%, and glaucoma with 7.1%.[14, 15] Among those moderately visually impairment (6/18 to >6/60), refractive errors appeared as the major cause at 43%,

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closely followed by cataracts at 42%.[16] Alarmingly, an estimated 85.5% of these cases were deemed avoidable, suggesting significant potential for preventive measures. Furthermore, the survey highlighted that approximately 904,000 adults in Pakistan required cataract surgery due to severe visual impairment (6/60).[17] Pakistan's Vision 2020 program has been instrumental in implementing comprehensive strategies to combat blindness and visual impairment. However, further investigation into the efficacy of these interventions in mitigating the burden of blindness and visual impairment is warranted, as emphasized by current literature and public health discourse.[13]

Recent recommendations proposed the updated the definition of blindness to incorporate presenting visual acuity rather than best-corrected visual acuity. This adjustment aims to accurately reflect the significant burden of uncorrected refractive errors.[18, 19] Consequently, the present study adopts presenting VA as its basis. This study primary objective was to observed the proportion and major underlying causes of blindness and visual impairment among patients seeking eye care at the Tertiary Eye Care Centers in Lady Reading Hospital (LRH) and Kuwait Teaching Hospital (KTH), Peshawar, Pakistan. These institutions serve as critical hubs for diagnosing and treating ocular conditions, making them ideal settings for investigating the scope and determinants of visual impairment.

METHODS

This study is a cross- sectional descriptive study done in February 2017. It involved prospective data collection from OPD patients' entry forms and retrospective data collection from inpatient records for the month of January 2017. The total number of cases included in the study were 88 with 46 male and 42 female participants. The data collection was done at Lady Reading Hospital and Kuwait Teaching Hospitals. Patients were informed regarding the aims of this project and written informed consent was taken from patients or their guardians. Ethical approval were obtained from stakeholders for study. Those who had presenting visual acuity (VA) of less than 3/60 were included in the category of blindness, those with a VA of less than 6/18 to 6/60 were categorized as having moderate VI and those with a presenting VA of 6/60 to 3/60 were included in the category of severe VI.[20] The age and gender of the participants of the study and cause of decreased visual acuity in each case was also noted in excel. Descriptive analysis including frequencies, proportion and percentages were obtained after data analysis on statistical package for social sciences version 19.0 (SPSS-19). Moreover, tables and graphs were generated in through on SPSS-19.

RESULTS

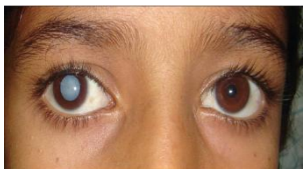
The total number of cases included in the study were 88 with 46(%) male and 42(%) female participants. The average age of the participants of the study was 42.78 ± 20.75 years. The overall frequency of blindness was 11.36% with 60% among the females and 40% in males. The overall frequency of visual impairment (VI) was 44.32% (n=39) with 46.15% (n=18) in females and 53.85% (n=21) in males. Moderate visual impairment accounted for 37.5% (n=33) with 44.45% (n=15) in male and 55.55% (n=18) in female (Table 1). Severe impairment was noted among 6 patients with 3 male and 3 female. The predominant cause of visual impairment and blindness was primary due to cataract with 37% (Table 2).

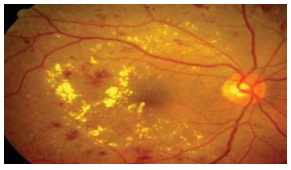
Table 1: Frequency of visual impairments in male and female

Gender			Male	Female
Frequency			46	42
Categories of Visual impairment	Blindness	10 (11.36%)	4	6
	Overall VI	39 (44.32%)	21	18
	Moderate VI	33 (37.5%)	15	18
	Severe VI	6 (6.82%)	3	3

Table 2: Blindness and visual impairments causes

Blindness and visual impairments causes	Frequencies	
	Blindness	Visual impairments
Cataract	50%	46.1%
Age related macular degeneration	20%	7.70%
Cornea opacity	10%	7.70%
Ocular trauma	10%	2.60%
Glaucoma	-	5.10%
Refractive errors	-	20.50%
Others	10%	7.60


Cataract


Diabetic Retinopathy


Corneal Blindness


Age-Related Macular Degeneration

Table 3: Blindness & VI causes in OPD & Admitted Patients

Blindness and visual impairment causes	Admitted Male: 40% Female: 0.00%	OPD Male: 60% Female: 100%
Cataract	77.20%	25.60%
Refractive error	9.00%	30.80%
Corneal opacity	4.50%	7.60%
Glaucoma	0.00%	2.60%
Age related macular degeneration	0.00%	5.100%
Diabetic retinopathy	0.00%	2.50%
Ocular trauma	0.00%	7.60%
Others	9.00%	17.90%

DISCUSSION

In Pakistan, very few national studies have been done to investigate the vision impairment burden. Few studies exist in our regions which covered burden, prevalence, incidence, refractive errors, retinopathy, and ocular trauma.[21] A study revealed most common vision loss disorders in male and ages between 50-59 years.[22] Younger age individuals were prominently affected with presbyopia and retinal issues whereas cataract, glaucoma, and trachoma were predominantly observed in older age groups having >60 years of age.[23, 24]

Cataract, glaucoma, and macular degeneration disorders are the main cause of overall burden of vision impairment. Wood/stick in open globe injuries are mostly common with a severely visual acuity impairment.[25] Non-availability of nearby eye care centers and delay in seeking medical treatment were notable a great challenge task to addressed the eye trauma properly. Cataract is emerged as the prominent cause of visual impairment and blindness.[26]

This was frequency based study with lesser sample, single centered study, not generalized to community, and without studying the other demographic features of patients. Therefore, the findings of the study may not reflect the actual knowledge about the eye impairments in our population. It is needed to further study the demographic features of patients including the income level, age level, and other related factors. Despite several limitation, this study provide the road map for future researcher in this area with more concise objective in order to address risk factors, clinical features, demographic features, and socioeconomical factors.

CONCLUSION

The study highlights common eye disorders seen in our population in which male were more affected as compared to female. The common causes of eye impairments were cataract. Cataract, macular degeneration, cornea opacity, trauma, glaucoma, and refractive errors were commonly observed causes of eye impairments. It is recommended to take initiative about the eye health awareness which can address eye impairments. A large scale research is recommended to determine the incidence and prevalence of eye impairments in our community. Physicians and eye healthcare workers may play an important role in about the diagnosis and treatment of eye impairments timely. It needs collective efforts of hospital administration, opthalmologists/eye care professional to overcome the eye impairments with a strategic intervention to better the knowledge of visual issues and its causes through training, education, and research. The reason of high eye impairment ratio might be due to lack of healthcare facilities, delay in seeking physicians, poverty, lack of awareness, and illiteracy.

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