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Research Article

### ANALYSIS OF FREQUENCY OF VISUAL IMPAIRMENT AND BLINDNESS AMONG OLDER POPULATION

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#### Abstract:

**Introduction:** Visual impairment is a major global health problem. The World Health Organization (WHO) estimated that there were 161 million persons worldwide with visual impairment, in the year 2002. **Aims and objectives:** The main objective of the study is to analyze the frequency of visual impairment and blindness among older population. **Material and methods:** This cross sectional study was conducted in THQ Hospital, Jatoi, Muzaffargarh during March 2018 to November 2018. The data was collected from the old age patients (50 to 70 years) of both genders. There are 100 participants who were enrolled for this study. The data was collected through a questionnaire. All patients were diagnosed for causes of visual impairment by ophthalmologists. During the study, the primary cause of visual impairment was recorded based on ophthalmologist diagnosis. Further examination was performed by optometrists at the low vision clinic to assess visual acuity, refraction, and visual demands.

**Results:** The data was collected from 100 patients. The average age of the study group was  $50.53 \pm 16.245$  years. The majority of the study population (80%) were under 70 years. Levels of visual impairment among patients were classified according to the WHO standards, which are based on patient's BCVA. A total of 16 patients (19.3%) had mild visual impairment (VA  $6 \geq 18$ ), 60 patients (45.2%) had moderate visual impairment (VA 6/18 to 6/60), 7 patients (20.0%) had severe visual impairment (VA 6/60 to 3/60), and 17 patients (15.6%) were blind (VA  $< 3/60$ ).

**Conclusion:** It is concluded that the least recorded cause of visual impairment was glaucoma. Furthermore, one physician measured visual acuity and one ophthalmologist determined the cause of visual impairment and this might limit the accuracy of the diagnosis.

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**INTRODUCTION:**

Visual impairment is a major global health problem. The World Health Organization (WHO) estimated that there were 161 million persons worldwide with visual impairment, in the year 2002. The majority of them resided in developing countries, including Pakistan. Visual impairment has remained a serious public health problem that has a huge and broad impact in the society, with serious socioeconomic loss [1]. Moreover, visual impairment is usually associated with difficulties in physical function, emotional distress, and low socialization, as it affects all domains of the quality of life (personal, psychological, mobility, and social life). The WHO asserted that population-based data on the frequency of visual impairment are urgently needed as they are considered crucial for identifying the needs for treatment and rehabilitation services, planning, and implementing blindness prevention programs, and determining research priorities for different populations [2].

It has been reported that visual impairment may affect a person's daily life activities by impacting on physical well-being, psychological state, and productivity. The term "visual impairment" collectively refers to low vision and blindness [3]. Worldwide, visual impairment affects all communities alike; however, its prevalence is not distributed evenly throughout the world [4]. According to the WHO reports, the global prevalence of visual impairment was reported in 2010 as around 285 million people, of whom around 39 million people were blind and around 246 million people had low vision [5].

The prevalence of visual impairment for each country may vary with the causes of visual impairment. These causes could be due to genetic factors such as retinitis pigmentosa (RP) or other retinal degenerations, or acquired, for example, as a result of systemic disease, such as diabetic retinopathy due to diabetes mellitus [6]. The prevalence and causes of visual impairment may also be different according to the affected age group. For example, different reports throughout the world have suggested that the leading causes of visual impairment in the pediatric age group of less than 15

years were genetic disorders such as albinism, congenital glaucoma, and congenital cataract. In contrast, age-related macular degeneration (AMD), acquired cataract, and diabetic retinopathy were reported as the main causes of visual impairment in older age groups. It is estimated that 80% of all visual impairment can be either preventable or treatable [7].

**Aims and objectives:**

The main objective of the study is to analyze the frequency of visual impairment and blindness among older population.

**MATERIAL AND METHODS:**

This cross sectional study was conducted in THQ Hospital, Jatoi, Muzaffargarh during March 2018 to November 2018. The data was collected from the old age patients (50 to 70 years) of both genders. There are 100 participants who were enrolled for this study. The data was collected through a questionnaire. All patients were diagnosed for causes of visual impairment by ophthalmologists. During the study, the primary cause of visual impairment was recorded based on ophthalmologist diagnosis. Further examination was performed by optometrists at the low vision clinic to assess visual acuity, refraction, and visual demands.

**Statistical analysis:**

The data was collected and analysed using SPSS version 21.0. All the values were expressed in mean and standard deviation.

**RESULTS:**

The data was collected from 100 patients. The average age of the study group was  $50.53 \pm 16.245$  years. The majority of the study population (80%) were under 70 years. Levels of visual impairment among patients were classified according to the WHO standards, which are based on patient's BCVA. A total of 16 patients (19.3%) had mild visual impairment (VA  $6 \geq 18$ ), 60 patients (45.2%) had moderate visual impairment (VA 6/18 to 6/60), 7 patients (20.0%) had severe visual impairment (VA 6/60 to 3/60), and 17 patients (15.6%) were blind (VA  $< 3/60$ ).

**Table 01:** Causes of visual impairment in old age patients

Variables	Causes of visual impairment												Chi-square test (df)	P
	Refractive error		Cataract		Diabetic retinopathy		Optic atrophy		Glaucoma		Total			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Age (years)														
<30	15	100	0	0.0	0	0.0	0	0.0	0	0.0	15	100	82.875 (16)	.001
30-39	6	85.7	0	0.0	0	0.0	0	0.0	1	14.3	7	100		
40-49	6	75.0	0	0.0	1	12.5	1	12.5			8	100		
50-59	3	11.1	6	22.2	13	48.1	4	14.8	1	3.7	27	100		
60+	1	3.4	19	65.5	4	13.8	2	6.9	3	10.3	29	100		
Total	31	36.0	25	29.1	18	20.9	7	8.1	5	5.8	80	100		
Sex														
Male	13	35.1	10	27.0	7	18.9	4	10.8	3	8.1	37	100	1.391 (4)	.846
Women	18	36.7	15	30.6	11	22.4	3	6.1	2	4.1	49	100		
Total	31	36.0	25	29.1	18	20.9	7	8.1	5	5.8	80	100		
Marital status														
Married	21	28.8	23	31.5	18	24.7	6	8.2	5	6.8	73	100	12.185 (4)	.016
Not married	10	76.9	2	15.4	0	0.0	1	7.7	0	0.0	13	100		
Total	31	36.0	25	29.1	18	20.9	7	8.1	5	5.8	80	100		
Presence of chronic diseases (n=808)														
Yes	7	15.2	15	32.6	18	39.1	3	6.5	3	6.5	46	100	14.230 (4)	.007
No	23	63.9	7	19.4	0	0.0	4	11.1	2	5.6	36	100		
Total	30	36.6	22	26.8	18	22.0	7	8.5	5	6.1	82	100		
Family history of eye diseases (n=802)														
Yes	7	38.9	4	22.2	3	16.7	2	11.1	2	11.1	18	100	1.903 (4)	.754
No	20	32.3	19	30.6	15	24.2	5	8.1	3	4.8	62	100		
Total	27	33.8	23	28.8	18	22.5	7	8.8	5	6.3	80	100		
Previous eye injury (n=800)														
Yes	7	41.2	5	29.4	3	17.6	1	5.9	1	5.9	17	100	0.811 (4)	.937
No	20	30.8	20	30.8	15	23.1	6	9.2	4	6.2	65	100		
Total	27	32.9	25	30.5	18	22.0	7	8.5	5	6.1	82	100		

**DISCUSSION:**

The study showed that the prevalence of blindness according to the WHO criteria was 0.8%. This figure was within the range of the estimated global prevalence of blindness. The Middle Eastern crescent (as defined by the World Bank) has an overall prevalence of blindness of 0.7%. Visual impairment is considered one of the major health problems around the world. Many reports from different countries about the prevalence and causes of visual impairment have

shown variations in the causes of visual impairment [8].

In the literature, the predominance of males referred to low vision clinics has been explained by the higher risk of visual impairment in males and higher mortality rate in females, gender-based discrimination in access to eye care clinic, literacy, and social constraints [9]. In our study, socio-cultural beliefs were substantial too, and Middle Eastern families tend to

prioritize eye care for males over females because the former are required to bear more financial commitment and this may explain the higher number of males seeking low vision services.

The lower frequency of older people who receive low vision services suggests that older people in Jordan may have reduced access to available low vision rehabilitation services due to poor referral from their general practitioners or eye care doctors [10]. Inaccessibility to low vision services due to lack of transportation is also another suggested barrier to low vision service among the elderly. Another explanation for the infrequent appearance of elderly patients into the low vision clinic is the lack of awareness of low vision rehabilitation services where many elderly believe that disease is "God's will" and low vision appliances are not helpful [5].

The study showed that more than half of the patients (56.3%) presented with family history of ocular disease. This may suggest genetic predisposition in the occurrence of ocular diseases and vision loss among patients with visual impairment [7]. It has been documented that many ocular diseases that cause visual impairment such as glaucoma, albinism, and RP may be inherited in families, and increased rates of consanguineous marriage may increase the probability of these diseases occurring within families [11].

### CONCLUSION:

It is concluded that the least recorded cause of visual impairment was glaucoma. Furthermore, one physician measured visual acuity and one ophthalmologist determined the cause of visual impairment and this might limit the accuracy of the diagnosis.

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