

# Blindness and Poverty

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**V**isual impairment or loss of vision is considered to be the most feared disability. This stems from the fact that since ancient times, the sense of sight is thought to be the most important sense. In addition to being a serious public health concern, it also has a great impact on the social and economic wellbeing of an individual.

Blindness as a condition has fascinated man throughout history and continues to do so. In some cultures the blind is thought to be blessed with divine and psychic powers while in others blindness is considered a form of punishment for improper moral or social conduct.

The negative perceptions about blindness result in social exclusion and rejection of the blind. The blind are left out of the decision making process and have limited opportunities for education and employment. This results in decreased self-esteem and a feeling of worthlessness. Limited social contacts accompanied by loss of employment and a drastic change in lifestyle leads to depression.

Most of the world's visually impaired population lives in the developing countries where basic health infrastructure is lacking or severely deficient and the health expenditure is insufficient in meeting the needs of its people. In addition, majority of people of

developing countries are plagued by poverty and live below the poverty line. The situation in Pakistan is not different from rest of the developing world. The annual GDP allocated to health in Pakistan is 2%<sup>1</sup> and 24%<sup>2</sup> of its population lives below poverty line.

Whereas it is a well-known fact that when any form of disability is found amongst the economically deprived, the disability itself, through social and economic exclusion, further entangles the disabled into the web of poverty. While it has been studied that the prevalence of blindness is higher in the economically impoverished, the economic and social implications of poverty, compounded by visual impairment, has not been studied.

## Visual Impairment

As defined by the International statistical classification of diseases, injuries and causes of death, tenth revision (ICD-10)<sup>3</sup>, visual impairment encompasses both low vision and blindness (Table I).

Low vision is defined as best corrected visual acuity worse than 6/18 and equal to or better than 3/60 in the better eye or visual impairment categories 1 and 2. A person with low vision is one who uses or is potentially able to use vision for the planning and/or execution of a task.

Blindness is defined as the best corrected visual acuity<sup>4</sup> in the better eye of less than 3/60 or visual impairment categories 3, 4 and 5 (Table 1).

### **Visual Impairment – Magnitude of the problem**

There are around 314 million visually impaired people in the world<sup>5</sup>. This figure comprises of 153 million people with uncorrected refractive error and 161 million people with best corrected refractive error. Out of the 314 million visually impaired people worldwide, 45 million of them are blind – 37 million with best corrected refractive error and 8 million with uncorrected refractive error.

Although more than 82% of all blind people are 50 years and older, blindness in children is a vital problem worldwide. There are 1.4 million blind children below 15 years of age and more than 12 million children between 5 to 15 years of age that are visually impaired because of uncorrected refractive errors.

87% of the world's visually impaired live in developing countries.

In the Eastern Mediterranean Region-D (EMR-D), to which Pakistan belongs, the prevalence of blindness in 2002 was 0.97% and prevalence of low vision was 2.9%. These prevalence figures do not take uncorrected refractive errors into account. In EMR-D, the prevalence of visually impaired from uncorrected refractive error is 1.19% (age group: 5->50 years) and the prevalence of blindness from uncorrected refractive error in adults >50 years is 0.95% in rural and 0.4% in urban areas<sup>6</sup>.

In Pakistan, according to the Pakistan National Blindness and Visual Impairment survey<sup>7</sup>, the estimated number of blind individuals of all ages in the year 2003 was 1.25 million. The prevalence of blindness among individuals of all age groups was 0.9%. The age and gender standardized prevalence of blindness in adults 30 years and older was found to be 2.7%. The estimated numbers of blind individuals age 30 and above in the four provinces of Pakistan is shown in (Table 2).

The prevalence of blindness in rural areas was more (3.8%) than prevalence in urban areas (2.5%). After adjustment for age difference, women were found to share a significantly greater burden of blindness and severe visual impairment. If the prevalence rate remains the same, the number of blind persons in Pakistan in the year 2020 will be 2.4 million<sup>8</sup>.

### **Causes of Blindness**

Globally, the leading cause of blindness is cataract followed by uncorrected refractive error (Table 3). 85% of all visual impairment globally is avoidable<sup>9</sup>.

In Pakistan, according to the Pakistan National Blindness and Impairment survey, the leading cause of blindness in adults more than 30 years of age is cataract (Table 4). While globally 39.1% of all blindness is attributable to cataract, in Pakistan the burden of blindness due to cataract is significantly larger at 51.5%. 85.4% of blindness is avoidable in Pakistan. Individuals with moderate visual impairment (<6/18 to ≥6/60) had refractive error (43%) and cataract (42%) as the cause of their visual impairment.

### **Economic Burden of Blindness**

Disability has often been associated with poverty and the people with disability are amongst the “poorest of the poor<sup>10</sup>.” Because of physical and social barriers, people with disability face loss of opportunity and are excluded because of institutional, environmental and attitudinal discrimination.

There are several studies<sup>11,12</sup> that indicate that people in the lowest socioeconomic group share a greater burden of blindness than those in the higher socioeconomic group. Some eye diseases, such as trachoma, are known to be a direct consequence of poverty. Blindness as a disability leads to unemployment resulting in loss of income, increased level of poverty, lower standard of living and decrease in affordability of health care services. This leads to a vicious cycle of poverty and blindness where majority of the people disabled by blindness are poor and their disability leads to a further decline in their economic productivity and quality of life (Fig. I).

Blindness has a huge economic cost attached to it. The cost of blindness depends on the cause and duration of blindness as well as on the availability of family members and alternative sources of income. It also depends on number of economically productive individuals that are affected by blindness.

The global economic productivity loss from unaccommodated blindness is projected to grow from \$19 billion in the year 2000 to \$ 50 billion in the year 2020. The global productivity loss from blindness and low vision combined is projected to grow from \$ 42 billion in the year 2000 to \$ 110 billion in the year 2020<sup>13, 14</sup>.

**Table I:** Categories of Visual Impairment

0. Category	Visual acuity with possible correction	
	Worse than	Equal to or better than
1. Mild or no visual impairment		6/18, 20/70
2. Moderate visual impairment	6/18, 20/70	6/60, 20/200
3. Severe visual impairment	6/60, 20/200	3/60, 20/400
4. Blindness	3/60, 20/400	1/60 or counts fingers at 1 meter 5/300 (20/1200)
5. Blindness	No light perception	
6.	Undetermined or unspecified	

**Source:** International classification of disease-10 (2007)

**Table 2:** Provincial distribution of estimated number of blind adults

Province	Estimated number of blind individuals
Punjab	769,000
Sindh	200,000
NWFP	114,000
Baluchistan	52,000
Total	1,140,000

**Source:** Prevalence of blindness and visual impairment in Pakistan: The Pakistan National Blindness Visual Impairment survey (Jadoon et al, 2006)

The economic burden of visual impairment can be considerably lessened with appropriate interventions. The two leading causes of blindness, cataract and uncorrected refractive error, can be easily treated by cost-effective interventions such as surgery and eyeglasses. A study in India in the year 1998<sup>15</sup> suggested that if 52% of blindness in India that is due to cataract is corrected with an investment of \$0.15 billion; the saving in annual GNP would be \$1.1 billion. It has also been reported that after cataract

surgery people become economically productive again<sup>16</sup>. Another study estimates that if cataract surgery is provided to 95% of those who require surgery then 3.5 million disability adjusted life years (DALYs) would be averted<sup>17</sup>. The global provision of eyeglasses would result in a net economic gain even if up to \$1000 were spent per person<sup>18</sup>.

**Table 3:** Global Causes of blindness as a percentage of total blindness in the year 2004

Cataract	39.1%
Uncorrected refractive error	18.2%
Glaucoma	10.1%
Age-related macular degeneration	7.1%
Corneal opacity	4.2%
Diabetic retinopathy	3.9%
Childhood blindness	3.2%
Trachoma	2.9%
Onchocerciasis	0.7%
Other	10.6%

**Source:** Bulletin of World Health Organization 2008;86:63-70

### Social and Psychological Effects of Blindness

Blind people experience social exclusion and are left out of decision making process. They are also deprived of academic achievements and schooling. It is thought that the predominant negative perceptions about blindness are the cause of this social exclusion.

Another factor that influences a blind person's social status is the ability to contribute to household income. Visually disabled unemployed persons face greater difficulty in being accepted in the local community. Additionally, lack of support from government and social institutions hinders provision of a conducive environment for people affected by blindness to become a productive part of the society.

Family members of the visually impaired may undergo four reactions - denial, refusal, acceptance and overprotection. Overprotection is thought to be the most counterproductive as it reinforces the

patient's physical and financial dependence on others<sup>19, 20</sup>. The families must accept the condition of their relative and provide a supportive role to promote and encourage the autonomy of their blind relative.

**Table 4:** Causes of blindness in Pakistan as a percentage of total blindness

<b>Avoidable Causes</b>	
Cataract	51.5%
Corneal opacity	11.8%
Uncorrected aphakia	8.6%
Glaucoma	7.1%
Posterior capsular opacification	3.6%
Refractive error	2.7%
Diabetic retinopathy	0.2%
Total avoidable causes	85.4%
<b>Unavoidable Causes</b>	
Phthisis/absent globe	2.7%
Macular degeneration	2.1%
Optic atrophy	0.9%
Amblyopia	0.5%
Other	8.4%
Total unavoidable causes	14.6%

**Source:** Causes of Blindness and Visual Impairment in Pakistan (Dineen et al, 2007)

Blindness has great deal of emotional and psychological consequences. There are three types of responses to sight loss; acceptance, denial and depression/anxiety<sup>21</sup>. Acceptance is the best response to any disability and denial serves as a defense mechanism which may actually prove helpful in coming to terms with blindness. Depression as a physiological reaction may be encouraged and may even have a cathartic effect but it is also more likely to assume pathological characteristics<sup>22</sup>.

In a study by Fitzgerald<sup>23</sup>, 90% of the studied cases, reported depressed mood accompanied by symptoms of depression including suicidal ideation. In another study<sup>24</sup>, depressive symptoms were more common in blind than in deaf persons.

The duration and severity of depression depends on the patient's socioeconomic status. Persons with moderate to high socioeconomic standings and young age maintain good social relations and avoid isolation. These characteristics are protective against the onset of psychopathology<sup>25</sup>.

## CONCLUSION

Multiple studies reinforce the notion that any form of disability, including blindness, afflicts the poor. The economic cost of blindness results in further decline of the economic status of the individual, as well as, the entire family. The social discrimination of the blind alienates them from the society and results in depression and suicidal ideation.

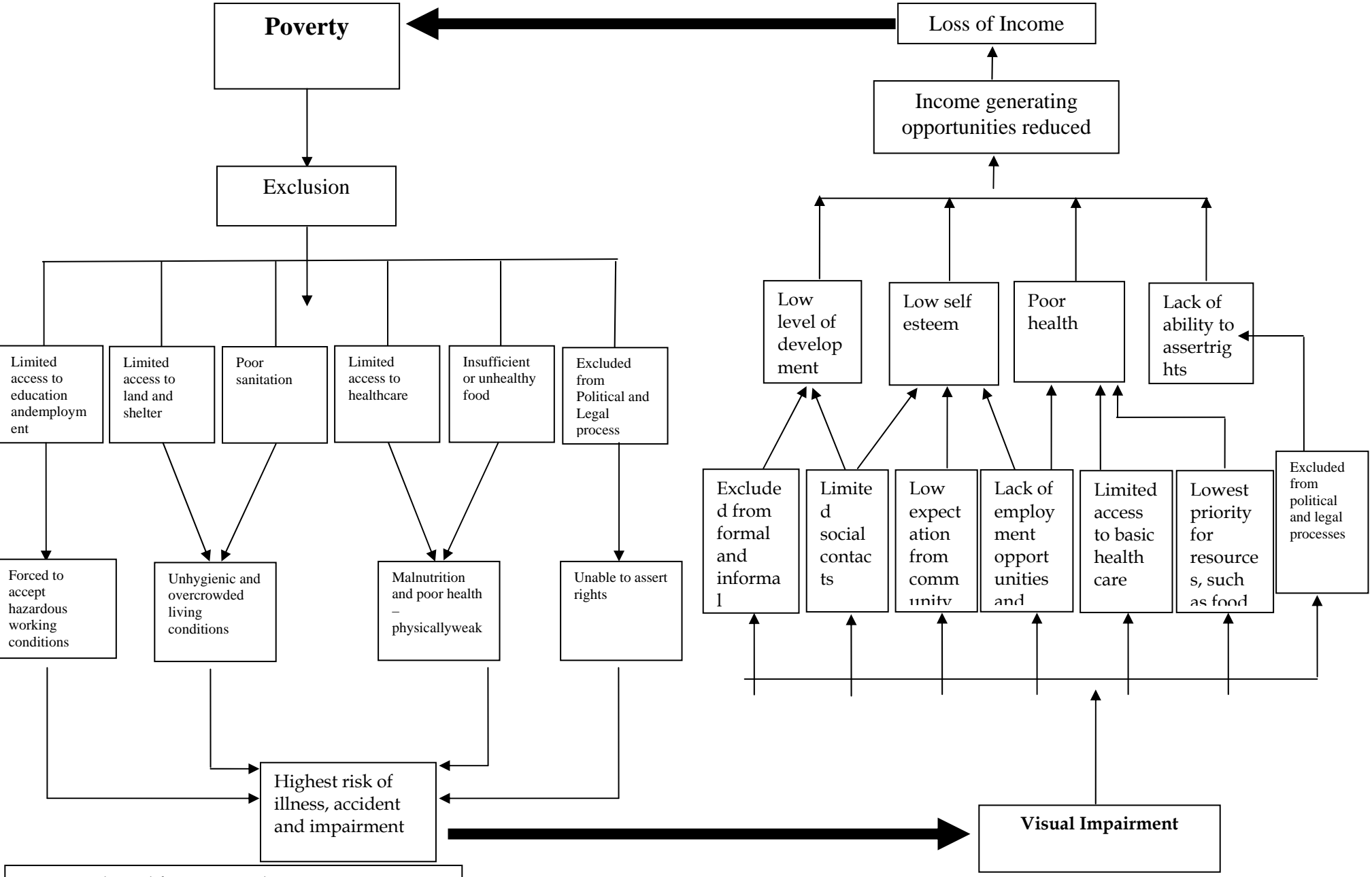
In order to reduce the economic costs associated with blindness and improve the quality of life, prevention is the best strategy. Awareness programs should be arranged for the general population regarding eye care and diseases in general and blindness in particular. In addition, the government should provide optimum health services and ensure access to healthcare. Health camps should be organized in all areas of the country where screening for eye diseases is also done. This way, through early diagnosis and intervention, blindness would be prevented.

Investment should also be made by the government in social sector. Opportunities for education and support to the blind for attending school should be provided. Also, opportunities should be created for the blind to be included in the work force and they should be provided with training to live independently.

The families of the blind should be provided social support, training and guidance so that they can take good care of the social and emotional needs of their blind family member as well as themselves.

If above recommendations are implemented, we would be able to ensure that the blind are given access to basic human rights and live their lives with dignity and as productive members of their families and community.

**Fig. 1**



Source: Adapted from Yeo and Moore, 2003

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