

Review article

Visual impairment in the mirror of time

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Abstract :

Visual impairment is one of the most severe sensory restriction of human being. Over the time the situation of visually impaired people changed as well as opportunities in education and tools to live a «normal» independent life. Blindman's stick, guide dog as well as modern tools as monitors and mobile apps help visually impaired people to become as much as possible integrated in our society.

Keywords: Visual Impairment ; Education ; Sociomedical problems; Psychology.

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Introduction:

Visual impairment is one of the most severe sensory impairment of an human being. In the ancient world the position of blind people was retrospectively a very human and special one: They were released of the duty to achievement and perform as well as to the military service. Since Peisistratos period (approximately 600 before Christ) there was an national aid to blind people and other civil invalides who could not fend for themselves. Main requirement to get the aid was a prior national examination¹.

The great solicitousness and helpfulness of the Greek for their blind fellow human being could be associated with the fact that in their opinion "Vision is the biggest fortune of life" and the fact that an human beeing cannot see was the biggest restriction in their opinion. Therefore they are seen with „Helios as the God of day- and life light“ the 'Eye population' in the ancient world. The likeable attitude regarding blind people in the ancient world is also reflected in „child of man“ Antigone who cared in a very special way for her blind father¹.

The situation of blind people changed in the Middle Age: In this period of time to be blind as well as deaf and mentally ill meant to live in total dependence of your own family or the community as well as on the margin of subsistence.

The beginning of a systematic education of blind people is rooted in 1784: Valentin Hauy established the first school for visually impaired people „Institut National des Jeunes Aveugles“ in Paris with verbal education². In the following years further schools for visually impaired people were established in England, Germany and Austria.

Louis Braille, a young talented pupil of Valentin Hauy who lost vision in childhood due to an bilateral eye infection succeeded to convert an existing military lettering used for night use in a practical 6-point-system. As recently as 1850 his new lettering for blind people was accepted by the College of Education in Paris and an adoption of the braille in German schools followed².

Epidemiology

In accordance with the international WHO-definition is blindness an "irreversible blindness (nulla lux) or light perception but still less than 3/60 in the better eye"³.

Low vision is the "visual impairment even after treatment and/or standardised refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field of less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for planning and/or execution of a task."³.

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Actually there are 285 Million visually impaired people in the world: 39 Million are blind and 246 Million do have low vision^{4,5}.

Globally seen a missing refraction is the most frequent reason for a moderate or grave visual impairment. Cataract is the main reason for blindness in countries with low till average income^{5,7}.

The prevalence of blindness and grave visual impairment is in the >50-year population in Africa, Asia and Middle East approximately 4% and 15-23%, respectively⁴. In high-income countries the prevalence to go blind is <0.4%. Women are in all regions of the world more often affected to go blind⁴.

The socio-medical difficulty

Visual impairment has social and psychological effects on the life situation of the concerned human being: Tightly associated with a low vision are consequences on personal hobbies, work, social contacts, completion of the own household and personal hygiene as well as mobility⁸. The majority of patients are very concerned of a decreasing vision and very often fairly frustrated⁸. A depressive symptomatology appears especially in a momentary (<2 years) lost of visual acuity in the distance⁹. Often a depression occurs not as a consequence of the own visual impairment but because of the resulting personal disability¹⁰. An unilateral non-corrected loss of vision is associated with a restriction of activity, tendency to fall and the feeling to be dependent on others¹¹.

Daily activities as reading paper, watching TV and recognising faces were entitled as problems of patients with unilateral non-correctable vision loss¹¹,

¹². A bilateral non-correctable vision loss is however connected with the feeling of dependence, nursing home and emotional stress¹¹.

The visual acuity is significantly associated with socio-demographic factors as age, sex, education and origin. A cognitive impairment, psychological symptoms, problems with ears, apoplex and diabetes mellitus are mostly with visual acuity and disability conjoined. Patients with impaired vision do have three times often problems with walking or ascending stairs as people with good visual acuity¹² as well as an increased mortality¹³.

Modern educative tools

Basically visually impaired people are nowadays trained to manage their private life, visually impaired or blind „safely and independently. The so-called „life-practical skills“ are cooking, sewing, clothing, personal hygiene, domestic repairing as well as computer-support. Beside the blindman's stick and guide dog there do exist modern tools in the meanwhile.

The written communication is often very restricted, therefore there are monitors which can help enlarge letters or with the aid of voice output to get words read. The configuration of the monitor regarding contrasts, colours and resolution might help to improve reading of visually impaired people.

In case of blindness there are Screenreaders which analyze the screen display and are able to translate the most important elements with voice output or in braille. This is a very helpful tool to get access to the current administration programs and to the internet. In connection with braille printers the visually impaired person is able to press the point-system on normal paper. Mobile apps can help to facilitate daily life in different ways : talking watches, talking cameras, color identifier, navigation programs for streets and important locations, weather apps and voice over of arriving and departing trains.

In case of an imminent or existing visual impairment or blindness the conversation regarding supportive tools should be conducted by the physician or nurse and the connection to organization which do counseling for visual impairment should be established.

Conclusion:

Visual impairment is a severe sensory restriction. Many people experience a sudden blindness or visual impairment as very drastic and psychological problems do often occur afterwards. This short review should briefly inform on the occurrence of visual impairment and blindness considering the aging population and should help to get a quick inside into opportunities and modern tools which cannot give the affected patients their eye vision back but might help to live a comfort life under the existing circumstances.

Conflict of interest: The authors declare that they have no competing interests.

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