



TRENDS OF VISUAL IMPAIRMENT IN THE SOCIETY

Sami Akhter Khan

Research Scholar, OPJS University, Churu, Rajasthan

Dr. Kapil Dev

Associate Professor, OPJS University, Churu, Rajasthan

ABSTRACT

There is a dearth of information on global trends in blindness due to a lack of statistics from any one location. The purpose of this study is to document long-term changes in blindness, VI, and cataract surgery results in a rural area of Andhra Pradesh, India. A population-based, cross-sectional survey was conducted in a rural region in the Indian state of Andhra Pradesh using the Rapid Assessment of Cataract Surgical Services (RACSS) methodology, which has been shown to be accurate and reliable. In this study, individuals less than 50 years old were selected in a two-stage selection approach. Now that VISION 2020 is drawing to a close and the Global Action Plan (2014-2019) is coming to a close shortly, it is projected that there are 253 million people with visual impairment and blindness worldwide, of whom 36 million are blind. An astounding 1.29 billion individuals use close glasses for reading, while 124 million have uncorrected refractive defect and 65 million have cataracts. Visual impairment's tangible consequences are mental. The sensory organs are the brain's entryway. Any visual impairment will have a negative effect on one's mental capabilities. What's more, vision is the sense that is employed the most often. Insights gained via visual encounters are many. So, the visual consequences are really serious.

KEYWORDS: Disability and Health, visual impairment, blindness, health problem

INTRODUCTION

When one or more of the visual system's ocular functions are impaired due to an ocular disorder, this is known as visual impairment. The word "Impairment" is used in the International Classification of Functioning, Disability, and Health (ICF) to refer to any change in bodily function or structure that results from a health condition. That example, the 11th revision of the International Statistical Classification of Diseases (ICD-11) may be used with this definition (ICD 11). Consequently, visual impairment occurs when an eye problem disrupts the visual system and one or more of its vision functions. Visual acuity is often used by itself in population-based surveys to identify the degree of visual impairment as mild, moderate, or severe distant vision impairment or blindness, and close vision impairment (Box 1.2). The field of vision, contrast sensitivity, and color vision are just few of the additional visual capabilities that are often tested in a clinical context. As noted in Box 1.4, most published statistics on "vision impairment" are based on assessments of "presenting visual acuity" and do not include people whose vision impairment is corrected with glasses or contact lenses. Since the outset of development, the emphasis has been on measuring talent rather than incapacity to ensure that all



people maintain a stable equilibrium and significantly advance human progress. Concrete policies, strategies, and recommendations created by WHO, IAPB, Ministries of Health to fight visual impairment and blindness associated handicap have modified the pattern of visual impairment dramatically during the past 30 years. Notable advances were VISION 2020, the Global Elimination of Trachoma (GET), the fight against onchocerciasis (mass medicine distribution), and the SAFE techniques for eradicating blindness. Longer life expectancy, a sedentary lifestyle, obesity, smoking, and non-communicable diseases have all contributed to a lower global burden of visual impairment and blindness, while factors like trachoma and the development of eye care services, as well as the World Health Organization's (WHO's) adoption of new policies, national vitamin A distribution programs, the involvement of ministries of health, and the support of non-governmental organizations (NGOs) in eye care, have altered the distribution of these conditions.

LITERATURE REVIEW

Soyoung Choi et.al (2021) The goal is to improve access to healthcare services and health-related information for people with visual impairments and blindness, who are among the most vulnerable members of society. This study used a text mining method of literature analysis to find emerging themes in eye care. The Web of Science database was mined for a total of 506 articles published between January 2000 and April 2020. Using R, we conducted bibliometric and hierarchical cluster analyses to learn more about the most prevalent topics and developing tendencies in the field of research.

While the annual publication rate has varied over the previous two decades, the results of this study point to a rising interest in healthcare research pertaining to visual impairment. The United States was responsible for 33.1% of the production, with the United Kingdom following close behind at 16.7%. Ophthalmic Epidemiology (4.7%), British Journal of Ophthalmology (4.4%), and JAMA Ophthalmology (3.4%) were the most widely read publications. The 10 most important areas of study were predicted using a hierarchical clustering technique. Understanding the present knowledge structure in scientific literature is crucial for improving on the current healthcare system, given the rising incidence of visual impairment in an aging population. This study's findings may point researchers in new paths for exploring previously uncharted territory.

Natnael Lakachew Assefa et.al (2020) Background When one's poorest eye has a distance visual acuity of less than 6/18, they are considered to have a visual impairment. It's still a problem all over the world, and it has serious consequences for people's freedom of movement, opportunities for social interaction, and standard of living. The purpose of this research was to assess the frequency of visual impairment in adults (defined as those older than 18) and identify risk factors for this condition.

Methods DebreBerhan town was the site of a cross-sectional research based on data collected from the local community. Subjects were recruited from the general population of adults aged 18 and up using a systematic random sampling technique. Information was gathered via interviews using a semi-structured questionnaire that had been piloted beforehand. Both optometrists and



ophthalmologists checked over the eyes, making sure everything was OK in front and behind the eye. A person's visual impairment was determined after a comprehensive eye exam if their best eye scored 6/18 or below on the Visual Acuity Scale. Determinant variables were identified using multivariate logistic regression, and a p value of 0.05 was regarded to indicate statistical significance.

Results With a response rate of 98.6 percent, the research included 416 people. For persons older than 18 years old, the prevalence of visual impairment was 16.8% (95% CI, 13.5-20.2%). There were 27 (6.49%) individuals with bilateral VI and 43 (10.34%) adults with monocular VI out of the total population of adults with visual impairment. Statistically significant associations were found between visual impairment and the following factors: age > 64 years (AOR = 12.18, 95% CI: 4.47-33.20), illiteracy (AOR = 3.02, 95% CI: 1.36-6.72), history of eye trauma (AOR = 4.44, 95% CI: 1.64-12.04), family size > 5 (AOR = 4.44, 95% CI: 1.43-13.75), and a family history of eye problem.

Conclusions A major public health issue was identified as the high prevalence of vision impairment among adults. Age, illiteracy, history of eye injury, family size, and the presence of a family history of eye disease were all shown to be significant predictors of visual impairment.

JayasudhaSubburaj et.al (2019)The goals are to change how people think about the difficulties faced by persons with various types of disabilities and the societal duty to help them. The papers that cover worldwide statistics on vision impairment and the devices and technology mostly utilized by the visually impaired are reviewed and analyzed statistically. Many strategies are compared in order to zero in on the root reasons and devise a solution that would allow for a more autonomous existence. The research does a good job of identifying the traits that are unique to persons with disabilities. Findings: The results of the Vision 2020 study indicate that the use of sophisticated technology may have a number of beneficial effects on the eyes. Benefits/Uses: This paradigm evaluates the pros and cons of smart technology that help disabled persons have fulfilling lives.

Kerri Janae Johnson-Jones (2017) The purpose of this study was to report on the perspectives of visually impaired pupils and their instructors towards inclusion in mainstream classrooms. In order to offer comprehensive, descriptive data based on the participants' experiences, this research aimed to gather and present interview data, supported by data from observation. The data was collected in a naturalistic context using a case study methodology. All of the students who participated in this case study had some degree of visual impairment, from completely normal vision to total blindness. There were four overarching themes found in this research that supported the distinct perspectives of the participants. Recognizing one's own identity, relying on one's social network, seeking a feeling of normality, and overcoming obstacles were identified as four overarching themes. Many implications for teacher training and support, as well as for delivering suitable services, emerged from these experiences of the participants.

Janet L. Leasher et.al (2016) Objective For the sake of health planning, it is crucial to determine the prevalence and number of people who are visually impaired due to diabetic



retinopathy (DR), a result of the rapid increases in worldwide diabetes, from 1990 to 2010. Methodology AND Research Scheme Estimated worldwide regional trends in DR, together with other causes of moderate and severe vision impairment (MSVI; exhibiting visual acuity 4%), were obtained using a meta-analysis of published population studies from 1990 to 2012 for the Global Burden of Disease Study 2010 (GBD). Conclusions Among the many causes of blindness and multiple-system visual impairment, DR is responsible for a growing share of victims. Sub-Saharan Africa and South Asia have a higher age-standardized prevalence of DR-related blindness/MSVI. As many as one in every 39 persons who are blind may trace their condition to DR, and the same is true of the one in every 52 people who are visually impaired.

GLOBAL TREND IN VISUAL IMPAIRMENT AND BLINDNESS, CHANGING PATTERN, CHALLENGES AND FACTS

According to the World Health Organization, the worldwide burden of illness due to visual impairment was 3.9% in 2004 when adjusted for disability. Cataracts, trachoma, glaucoma, retinal problems, age-related macular degeneration, infectious eye illnesses, vitamin A insufficiency, river blindness, and refractive errors were once the leading causes of vision impairment and blindness. Within the time frame of the midterm VISION 2020 poll. Over 285 million individuals worldwide have some kind of vision impairment, while another 39 million are completely blind. Refractive error and cataract were the leading causes of visual impairment in 2010, with cataract continuing to be the leading cause of blindness. Among those over the age of 50, 65% had some kind of vision impairment, with 82% completely blind.

Now that VISION 2020 is drawing to a close and the Global Action Plan (2014-2019) is coming to a close shortly, it is projected that there are 253 million people with visual impairment and blindness worldwide, of whom 36 million are blind. An astounding 1.29 billion individuals use close glasses for reading, while 124 million have uncorrected refractive defect and 65 million have cataracts. The World Report on Vision identifies the worrisome increase in non-communicable disorders like diabetes and hypertension as the current problem we face. Refractive error, cataracts, glaucoma, diabetic retinopathy, and age-related macular degeneration are the leading causes of blindness and low vision across the world today. It is well known that a diabetic, despite excellent blood sugar control, is liable to develop retinal changes over a period of time, and the number of people with diabetes is expected to increase dramatically between now and 2030 and again between 2050. This increase is due to the fact that more people are expected to develop the disease.

In addition to these data, it is important to note that 90% of ocular morbidities occur in low- and medium-income nations and that 75%-80% of these cases are preventable, treatable, or curable. For illustration's sake, it is estimated that 15.3% of the world's blind population is in the Africa area, and that 26.3 million individuals have visual impairment; Africa also has the greatest out-of-pocket cost for eye care facilities worldwide, at 73.0% of the global average. Problems we have in serving underprivileged areas with eye care include;



- Access to primary eye care is still limited and sometimes depends on NGOs.
- Neglecting one's eyesight and overall health is seen as a disease in and of itself.
- Lack of human resources/infrastructures.
- Governments' weak leadership on primary eye care issues.
- In order to achieve Universal Health Coverage, the current primary health care system must be integrated with the vertical strategy.
- Many Objectives for Sustainable Development (SDGs) Eight of them have anything to do with eye care and the need for advocacy.

IMPACT OF VISUAL IMPAIRMENT

Having trouble seeing has a significant impact on a person's life in many ways. Based on the kind and extent of the impairment, there are objective and subjective consequences. A classification of the kinds of impacts is deemed beneficial for educational reasons.

Visual impairment's tangible consequences are mental. The sensory organs are the brain's entryway. Any visual impairment will have a negative effect on one's mental capabilities. What's more, vision is the sense that is employed the most often. Insights gained via visual encounters are many. As a consequence, the after-effects of the vision are quite serious.

An person with vision impairment "imposes three essential limits," as stated by Berthold Lowenfeld. Such limitations include (i) a smaller pool of potential stimuli, (ii) a diminished capacity for mobility, and (iii) a diminished capacity for shaping one's own surroundings and influencing one's own experience.

A visually impaired individual must rely on touch observations alone to learn about the spatial features of items. Physical interaction is crucial to this kind of understanding. Direct contact with the things being observed is required for any touch observations to be made. The retina is the only sensory organ capable of performing the function of color perception, which is an essential part of vision. Due to the need of physical contact with the items being viewed, children with visual impairments frequently acquire only a limited understanding of their world via touch. One other factor contributing to this limitation is that touch is often only active while being used for cognition, whereas sight is active for as long as the eyes are open and bearing is active continuously until its organ is hindered.

The kids who are blind can't go about on their own. Complete blindness forces a person to rely on his other senses, which in turn causes him to move more slowly and with more difficulty. This limitation is often cited as the most devastating aspect of having impaired vision. The inability to see has a profound impact on the social life of a person and the experiences they may have. If they can't see, they can't go places or be stimulated in the same ways that sighted people



can. He can't just decide on the spot to pursue a wide variety of interests, including those that could lead to greater understanding and fulfillment, and then do so.

There are two parts to one's mobility: the ability to physically move about and the ability to mentally orient oneself. These two aspects of movement are integral to one another and cannot be considered alone. Mental orientation may be seen of as the capacity to perceive one's surroundings and their Temporal and geographical links to oneself, whereas locomotion is the process by which an organism moves from one location to another using its own physiological mechanism.

There are two ways in which visual impairment might impact a person's mental growth: directly and indirectly. Effects that are a direct cause and consequence of a person's visual impairment are often detrimental to their growth and development. The resulting cognitive growth is mostly attributable to the indirect effect. The inability to see may hinder several aspects of information management.

MATERIALS AND METHODS

Adilabad District is one of the most undeveloped districts in Andhra Pradesh and India according to a number of health indices because of the large number of tribal people that live there. Government of India guidelines define a tribal territory by a set of features unique to that area. There are a total of 2,479,347 people living in the district, or 3.1% of the population of the state, and 18% of those people are tribal members, as reported by the 2001 census. Primitive tribal groups tend to avoid contact with the outside world, live in isolation, and maintain a culturally and economically unique society. With a literacy rate of 53.5% compared to the state average of 61%, agriculture is the major source of income in this area. According to estimates, over one-fifth of the population was 65 and above.

Refractive error was defined as VA worse than 6/18, improving to 6/18 or better with a pinhole, while blindness and VI were defined as VA worse than 6/60 and VA worse than 6/18 to better than or equal to 6/60, respectively, in the better eye with available correction, if any. Cataracts were characterized as clouding of the lens that impairs vision without a red reaction (partly or completely). After ruling out more common causes including cataracts and refractive errors, a diagnosis of posterior segment pathology might be made. All patients with visual acuity (6/18 or worse) in at least one eye were referred. One may say that the criteria for blindness in APEDS and RACSS were the same.

RESULT

The RACSS counted 2300 people and examined 2160 of them (93.9%); 123 people were unavailable for testing, and 17 people flat-out refused. There were 521 participants younger than 50 from the same area included in the APEDS dataset. Overall, there was a statistically significant difference between the ages of participants in the APEDS dataset (60.5+7.6 years) and the RACSS dataset (63.7+8.1 years) ($p < 0.001$). The percentage of women undergoing testing differed significantly between APEDS (54.9%) and RACSS (60.1%) ($p = 0.04$).



In Table 1 we can see how the rates of blindness and VI in APEDS stack up against those in RACSS. Both the prevalence of blindness ($p=0.03$) and VI ($p<0.001$) were significantly lower in RACSS than in APEDS among the same group. Women benefited more than males from this decline in blindness prevalence ($P=0.0004$).

Table 1: Categories of blindness and visual impairment in Andhra Pradesh Eye Disease Study and Rapid Assessment of Cataract Surgical Services

Presenting visual acuity in better eye	APEDS (N=521)		RACSS (N=2160)		P value*
	N (%)	95% CI	N (%)	95% CI	
≥6/18	254 (48.8)	44.5–53.0	1694 (78.4)	76.6–80.1	<0.001
<6/18–6/60	210 (40.3)	36.1–44.5	293 (13.6)	12.2–15.1	<0.001
<6/60	57 (11)	8.3–13.7	173 (8)	6.9–9.1	0.03

* P value < 0.05 (2-tailed) for the whole study (Chi-square test), 95% CI (95% confidence interval), APEDS (Andhra Pradesh Eye Disease Study), and RACSS (Rapid Assessment of Cataract Surgical Services).

Age and gender adjusted prevalence [Table 2] showed that blindness was rising with age but that there was no significant gender difference in blindness in the APEDS and RACSS datasets.

Table 2: Age and gender adjusted comparison of blindness in Andhra Pradesh Eye Disease Study and Rapid Assessment of Cataract Surgical Services

	APEDS			RACSS		
	Total N=521 (%)	Blindness N=57 (%)	†OR (95% CI)	Total N=2160 (%)	Blindness N=173 (%)	†OR (95% CI)
Age group (years)						
50–59	243 (46.6)	11 (4.5)	Ref	1157 (53.6)	33 (2.9)	Ref
60–69	216 (41.5)	25 (11.6)	2.75 (1.32–5.74)	768 (35.6)	73 (9.5)	3.58 (2.35–5.46)
≥70	62 (11.9)	21 (33.9)	11.52 (5.12–25.89)	235 (10.9)	67 (26.5)	13.58 (8.69–21.24)
Gender						
Male	235 (45.1)	21 (8.9)	Ref	862 (39.9)	67 (7.8)	Ref
Female	286 (54.9)	36 (12.6)	1.70 (0.93–3.09)	1298 (60.1)	106 (8.2)	1.06 (0.77–1.45)

Andhra Pradesh Eye Disease Study (APEDS), Rapid Assessment of Cataract Surgical Services (RACSS), 95% confidence interval (CI), age- and gender-adjusted odds ratio (95% CI), and 95% CI



CONCLUSION

During the course of a decade, the rate of blindness and VI fell dramatically in this rural Indian area. For the last decade, there has been a general decline in the rate of blindness and VI, as well as an increase in the success rate of cataract surgery in this area. This LVPEI secondary care center undoubtedly played a significant part in this effort given that there was no other eye care institution in the area throughout the preceding decade. With this year's World Sight Day having the subject of "Vision First," let's all do all we can to ensure that no one is excluded from society due to their inability to see well.

REFERENCE

1. JayasudhaSubburajet.,al “Visual Impairment People Towards Vision 2020 - A Review” Indian Journal of Science and Technology, Vol 12(5), DOI: 10.17485/ijst/2019/v12i5/141757, February 2019
2. Janet L. Leasher et.al “Global Estimates on the Number of People Blind or Visually Impaired by Diabetic Retinopathy: A Meta-analysis From 1990 to 2010” Volume 39, September 2016
3. Kerri Janae Johnson-Jones “Educating Students With Visual Impairments In The General Education Setting” May 2017
4. Soyoung Choi &JooYoungSeo (2021) Trends in Healthcare Research on Visual Impairment and Blindness: Use of Bibliometrics and Hierarchical Cluster Analysis, Ophthalmic Epidemiology, 28:4, 277-284, DOI: 10.1080/09286586.2020.1863993
5. Assefa, N.L., Admas, A.W. &Adimasu, N.F. Prevalence and associated factors of visual impairment among adults at DebreBerhan town, North Shewa, Ethiopia. BMC Ophthalmol 20, 316 (2020). <https://doi.org/10.1186/s12886-020-01586-8>
6. Banoo J. et al. Comparative Study of Differently Abled Adolescents on Visual Impairment and Physical Deformity on the basis of their Home, Social, School and Emotional Adjustment. Egyptian Nursing Journal, 2017;14(2), 70-77
7. Chaudhari N. and Phogat, D. A study of adjustment of visually challenged adolescents in relation to their anxiety and degree of impairment, International Research Journal, 2010; 1(11): 22-23.
8. Daryl R T and KeziahL. Adjustment to Vision Loss in a Mixed Sample of Adults with Established Visual Impairment, Investigative Ophthalmology & Visual Science ,2012, 53, 7227-7234
9. Registrar General of India Census of India. 2011. Cited from: <http://www.censusindia.net>.



10. Daniel K. Psychological Assessment of Visual Impaired Children in Integrated and Special Schools. *Education*, 2012; 2(1): 35-40 Retrieved April 3, 2016 from PDF DOI: 10.5923/j.edu.20120201.07
11. Gill S. Emotional, Social and Educational Adjustment of Visually Handicapped Students of Special Schools students. *International Journal of Scientific and Research Publications*. 2014, 4(3). 1-4
12. Gahlawat S. A study of personality and mental health of visually challenged and normal adolescents, *International Journal of Advanced Education and Research*. 2017; 2(4), 55-57
13. Kumar S. Singh J.; Emotional intelligence and adjustment among Visually Impaired and sighted school students. *Asian Journal of Multidimensional Research*. 2013; 2(8):1-8.
14. Lakshmi H.V Geeta C.V. Murthy K.N., Parental perspective towards the education of visually impaired children, *Asia Pacific Disability Rehabilitation Journal* 2009'20(2)
15. Rani, R. Emotional intelligence and academic achievement of visually disabled students in integrated and segregated schools, *Disabilities and Impairments*, 2011; 25(1 & 2), 44-50