

## Original Research Article

# A study on the ocular findings and management of differently abled persons: North-East India

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## ABSTRACT

**Background:** The study of the objective was to evaluate the different ocular problems and proper management in differently abled persons (DAP).

**Methods:** A randomised analysis of 530 DAP were done by a team of Ophthalmologists, Optometrists, Social workers and Psychologist, covering a few districts in North-East India, between August 2013 to July 2016 were included. Patients without parents' consent were excluded. History was taken and IQ tested by Clinical Psychologist. Utmost care was taken during ocular examinations to obtain the best results. External ocular examination was done by slit lamp, ocular motility was tested, fundus examined by direct Ophthalmoscope, visual acuity tested by Cardiff cards and E-charts and refractive status determined by auto-refractometer.

**Results:** Of the 530 persons examined, 304 (57.36%) male and 226 (42.64%) female; 144 (27.17%) were below and 386(72.83%) above 10 years. Mean IQ level was 44. A total number of 248 (46.8%) DAP had ocular problems. Most common being refractive error 115 (21.7%), squint 46 (8.68%), congenital ocular anomalies 34 (6.42%), cataract 28 (5.28%), Vitamin-A deficiency 15 (2.83%) and conjunctivitis 10 (1.89%). Among the 248 patients with ocular problems- 65 (26.21%) had down's syndrome, 6 (2.42%) maternal infections and drug exposures, 42 (16.94%) postnatal infections, 9 (3.63%) head trauma. 115 cases were prescribed spectacles; 21 cataract cases undergone operation; Vitamin-A deficiency, conjunctivitis and other ocular problems were properly managed.

**Conclusions:** Regular and periodic eye examination of these DAP and providing them with visual aid, proper treatment along with intensive training and counselling can help them to function in the society as a normal person.

**Keywords:** Community ophthalmology, DAP, North East India

## INTRODUCTION

Differently abled persons constitute a vulnerable group in the society. According to WHO, about 1 - 3% of world population are having mental retardation, of which 30% are having ocular problems.

According to DSM-IV criteria, they have significantly sub-average general intellectual functioning, that is accompanied by significant limitations in adaptive

functioning in at least 2 of the following skill areas- communication, self-care, home living, social/interpersonal skills used for community resources, self-direction, functional academic skills, work, leisure, health and safety.<sup>1</sup>

### Aims and objectives

- To find out the different ocular problems in differently abled persons (DAP) and to detect visual

handicap, if any, and try to ameliorate them, if possible.

## METHODS

Our study on 530 subjects which were screened by a team of ophthalmologists, optometrists, social workers and clinical psychologists, covering a few districts of North-east India for a period of 3 years, between August 2013 to July 2016. Informed consent and standard forms with relevant questionnaire were filled up for each patient. Patients whose parents or attendant refused the consent were excluded from the study.

Complete history was taken and due importance given on the following points:

- Family history
- Any inherited disorder
- Abnormalities during pregnancy or delivery
- Developmental milestones
- Behavioral disorders
- Any associated medical conditions

The ocular problems were categorized according to the intelligence quotient (IQ) score. IQ was tested and classified as: mild (IQ 50-70), moderate (IQ 35-49), severe (IQ 20-34), and profound (IQ below 20) [according to ICD-10 & DSM-IV criteria].<sup>1</sup> Data were entered in an excel sheet (SPSS software, 13.0, SPSS Inc. Chicago, Illinois) and was subjected to statistical analysis.  $P < 0.005$  was significant. Utmost care was taken during ocular examinations to obtain the best results:

- Visual acuity (Snellen/Cardiff cards/E-charts), along with colour vision (Ishihara Chart).
- Detailed slit-lamp examination
- Ocular motility was tested with cover/uncover test, any squint or nystagmus evaluated
- Refractive status was assessed with auto-refractometer/retinocope.
- Posterior segment evaluation done by direct/Indirect ophthalmoscope accordingly.

Cases with refractive error were prescribed with corrective glasses.

## RESULTS

Out of the total 530 subjects examined, the age group ranged between 5 yrs. to 38 yrs. Of them, 144 (27.17%) were below and 386 (72.83%) were above 10 yrs. of age. Male-female ratio = 304 (57.36%): 226 (42.64%). Mean IQ was 44; with majority falling under moderate-severe IQ subtype.

Among the 115 cases with refractive error (myopia, hypermetropia and astigmatism), 33 had low vision ( $VA \leq 6/60$ ). Also the above table shows a significant number

of treatable causes of blindness, viz. refractive error, cataract, squint, vitamin A deficiency and conjunctivitis.

**Table 1: Table shows the most common ocular problems in DAP.**

Ocular problems	No. of DAP(%)
<b>1. Refractive error</b>	115 (21.7)
<b>2. Squint</b>	46 (8.68)
<b>3. Cong. ocular anomalies</b>	34 (6.42)
i. Telecanthus	6 (1.13)
ii. Cong. ptosis	8 (1.51)
iii. Coloboma and nystagmus	8 (1.51)
iv. Corneal opacity	8 (1.51)
v. Microphthalmos	4 (0.75)
<b>4. Cataract</b>	28 (5.28)
<b>5. Vitamin A deficiency</b>	15 (2.83)
<b>6. Conjunctivitis</b>	10 (1.89)

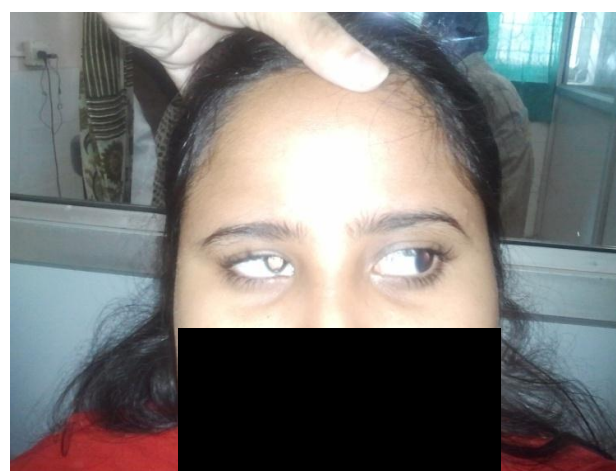
**Table 2: Among the 248 (46.8%) cases with ocular problems, the past history showed the following common causes of mental retardation.**

Causes of mental retardation	No. of DAP (%)
<b>Down's syndrome</b>	65 (26.21)
<b>Maternal infection &amp; drug exposures</b>	6 (2.42)
<b>Post-natal infections</b>	42 (16.94)
<b>Head trauma</b>	9 (3.63)

Above table shows causes of morbidity in DAP, which can be reduced with early diagnosis and necessary management in the gestational period.

**Table 3: Gender distribution in DAP.**

Sex	No. of DAP (%)
<b>Male</b>	304 (57.36)
<b>Female</b>	226 (42.64)



**Figure 1: Cataract.**



**Figure 2: Squint.**

## DISCUSSION

In our study of the total 248 subjects with ocular problems, 115 cases were dispensed spectacles along with low vision aids. 34 cases had undergone operations of which 21 for cataract 9 for squint and 4 Ptois surgeries.

Vitamin A deficiency, corneal opacities and conjunctivitis were treated accordingly with proper medications. With increase in health care initiatives - vitamin A deficiency- and measles-related blindness in children has declined substantially, although it persists in some focal settings in these parts of North east India.

Govind et al found that overall 68% of children with cerebral palsy had ocular anomalies, refractive errors accounting for 28.5%, strabismus 35.7%, and optic atrophy for 10%.<sup>2</sup> Gogate et al have reported that nearly half children with learning disability had ocular disorders and one-fourth had their vision improved following intervention.<sup>2,3</sup>

Early vision screening, visual function assessment, correction of refractive error, and frequent follow -up are recommended in Children with Special Needs<sup>4,5</sup>. Warburg found the prevalence of myopia to be at 43% and of hypermetropia at 21% in severe/profoundly intellectually impaired adults.<sup>6</sup> Van den Broek found refractive errors in 22% of adults with severe and profound multiple disabilities.<sup>7</sup>

With reductions in nutritional and infectious causes of blindness, intra-uterine and genetic causes of blindness (e.g., cataract and congenital anomalies) have assumed increased importance and need tertiary care-level interventions and long-term follow-up to achieve good visual rehabilitation.<sup>3</sup>

The present study shows most prevalent number of cases were found to be having refractive error (myopia, hypermetropia and astigmatism), i.e. 115 (21.7%), followed by squint 46 (8.68%) cases and cataract 28

(5.28%) cases. From the above study it is evident that a considerable number of cases with blindness in DAP, can be corrected with early diagnosis and prompt treatment.



**Figure 3: (A and B) Both corrected with spectacles.**

## CONCLUSION

Screening and detection of ocular problems of Differently Abled Persons at an early age group is very important as it will help us in prompt recognition, referral, treatment and rehabilitation accordingly. Also early diagnosis and treatment of high risk pregnancy in the early gestational period can prevent morbidity in DAP.

Our goal with outmost care is to prevent morbidity of these DAP and help them to function normally in the society by providing them with proper visual aid, treatment, intensive training and proper awareness and counseling of the parents.

Periodic and regular ophthalmic examination, with visual stimulation is very important factor for the overall development of the child- more so in DAP. Moreover from this study, it becomes apparent that quiet a good number of ocular problems in DAP can be visually rehabilitated with correction of Refractive error, Cataract surgery and other treatable cause of blindness.

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