

ORIGINAL RESEARCH

Outcome of Ophthalmic Screening of Healthcare Workers at a Medical College Hospital

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ABSTRACT

Aim: To assess the ocular health status of healthcare workers at a medical college and to identify the profile of ocular diseases among them. **Method:** This hospital based, prospective, cross-sectional study was done over one month. Sample was grouped as: Clinicians, Pre and Para-clinical doctors, Paramedical staff and all other hospital staff. Comprehensive ocular examination was done including anterior and posterior segment evaluation, gonioscopy (if indicated) and intra-ocular pressure (IOP) measurement. Vision was categorized based on W.H.O. classification of visual impairment. Data was reported and analyzed using descriptive statistics, chi-square test and paired student-t test. **Results:** A total of 150 health workers were screened. Female comprised 65.3%. Majority (88.6%) have no visual impairment, while 2% were found to have severe visual impairment. Males had more of severe visual impairment ($P=0.03$). No significant difference was found between the clinical and non-clinical staff ($P=0.62$). There was a weak positive correlation between IOP and cup-disc ratio. Refractive error and presbyopia were the commonest ocular morbidities. Cataract, blepharitis, pterygium, primary angle closure suspect etc. were identified. **Conclusion:** Uncorrected refractive error and cataract are the common ocular morbidities responsible for visual impairment among the health workers. This study underscores the need for periodic staff screening.

Key Words: Ophthalmic screening, Healthcare workers, Visual impairment, Ocular morbidities, Refractive error

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INTRODUCTION

Comprehensive eye examination before enrolment of healthcare workers is not the practice in most resource-limited countries. Though in some hospitals, newly employed persons undergo pre-employment medical examination, comprehensive eye test before enrolment is not part of the routine pre-employment examination. For this reason, delay in the of eye diseases and refractive errors is encountered.^[1]

The present study was done to assess the ophthalmic status of the health workers and to identify the profile of ocular diseases among them with a view to make a possible recommendation to integrate comprehensive eye examination in pre-employment medical check-up. The findings of such examination can also be of help in staff placement and assigning of responsibilities. Treatable ocular disease can as well be identified, treated and the person counselled appropriately.

MATERIALS & METHOD

This hospital based, prospective, cross-sectional study was done over one month at a 750 bedded government medical college and hospital of Chhattisgarh. Sample was grouped as: (1) The clinicians (defined as medical graduates who deal with the patients directly during the discharge of duties in the hospital including physicians, surgeons, and anesthesiologists), (2) Pre and Para-clinical doctors (defined as a medical graduate who do not come in direct contact with the patients during their discharge of duties in the hospital such as anatomists, physiologists, pathologists, microbiologists etc.), (3) paramedical staff (defined as hospital staff with paramedical qualifications such as physiotherapists, paramedical technicians) and nursing staff (4) All other hospital staff (Clerical staff, security guards, housekeeping staff).

Individuals were invited to participate in the study and written informed consent was obtained from willing. No incentive was provided to the participants. Non-

willing subjects and subjects with communication difficulties were excluded from the study. The study adhered to the tenets of Helsinki Declaration.

Comprehensive ocular examination was done including presenting visual acuity by Snellen's Vision Chart, without and with glasses (if available). Detailed Anterior segment examination was undertaken using Slit Lamp (AIA-11 2 SL Dynamic, Appasamy Associate, India). Posterior segment evaluation was performed by slit lamp biomicroscopy and direct ophthalmoscopy. Intra-ocular pressure (IOP) measurement was done using slit lamp mounted Goldman applanation tonometer. People with evidence of glaucomatous optic neuropathy or peripheral anterior chamber depth < 25% of corneal thickness had gonioscopy performed on them. Vision was categorized based on World Health Organisation (W.H.O.) classification of visual impairment.^[2]

All data was coded, entered and analyzed using Microsoft excel 2010 and Epi info 7 (7.2.2.6, Center for Disease Control and Prevention). Qualitative variables expressed using percentage and frequency. Quantitative variables expressed using means and standard deviation. Chi-Square test was employed to test for statistical significance in case of qualitative variables and paired Student-T test for quantitative variables. Correlation between IOP and cup-disc ratio was expressed by computing Pearson's correlation coefficient. Probability value (P) ≤ 0.05 was considered statistically significant.

RESULTS

A total of 150 health workers were screened, out of which 46 (30.67%) were clinicians. Majority of the respondents comprised females (65.33%) and most were ≤ 40 years of age (Table 1). Age ranged from 22 to 67 years with mean of 38.4 ± 4.81 years.

Table 1: Demography of study participants

Category	Males		Females		Total
	≤40yrs	>40 yrs	≤40 yrs	>40 yrs	
Clinicians	12	10	16	08	46
Non-clinical doctors	05	06	09	08	28
Paramedical staff and nurses	04	03	24	11	42
Other hospital staff (Clerical staff, security guards, housekeeping staff)	05	07	19	03	34
Total	26	26	68	30	150

Majority of the respondents (88.6%) have normal vision (presenting visual acuity of 6/12-6/6), however 2% have severe visual impairment by W.H.O. classification [Figure 1]. There was a statistically significant difference in visual impairment between male and female respondents (P= 0.03). However, we observed no significant difference between the clinical and non-clinical staff (P = 0.62). The mean cup-disc ratio (CDR) in the right eye (RE) and the left eye (LE) were 0.45 and 0.42 respectively. No

significant difference between the RE and LECDR (P = 0.52). The mean IOP in the RE and LE were 16.2 and 16 mmHg respectively. Weak positive correlation was observed between IOP and CDR [Figure 2]. Refractive error and presbyopia were the commonest ocular morbidities. Cases of cataract (12 eyes), blepharitis (14 eyes), pterygium (04 eyes), primary open angle glaucoma (04 eyes), glaucoma suspect (02 eyes), primary angle closure suspect (08 eyes), color vision defect (04 eyes) etc. were discovered [Figure 3].

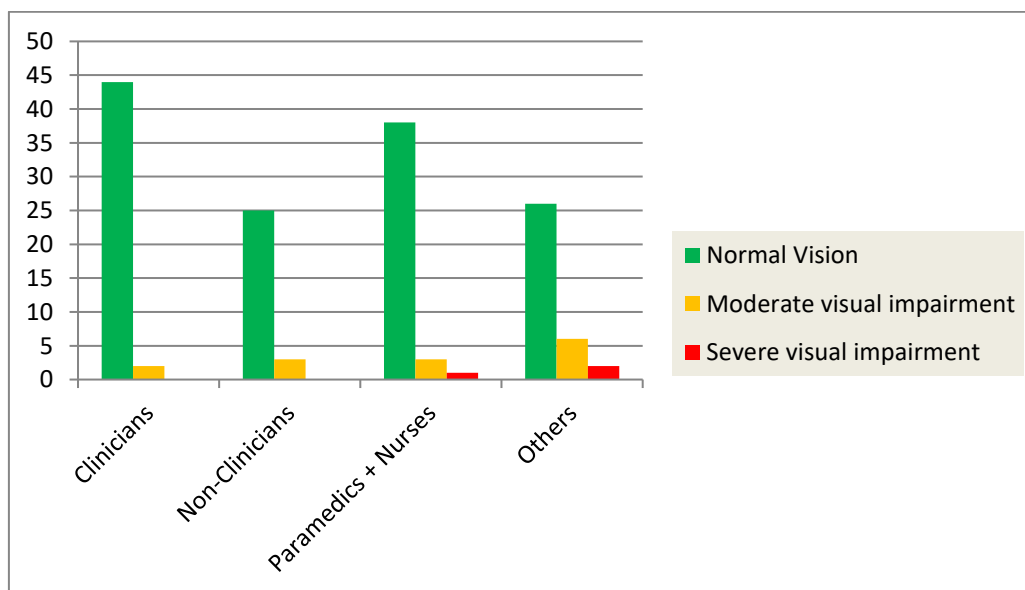


Figure 1: Level of visual impairment in participants

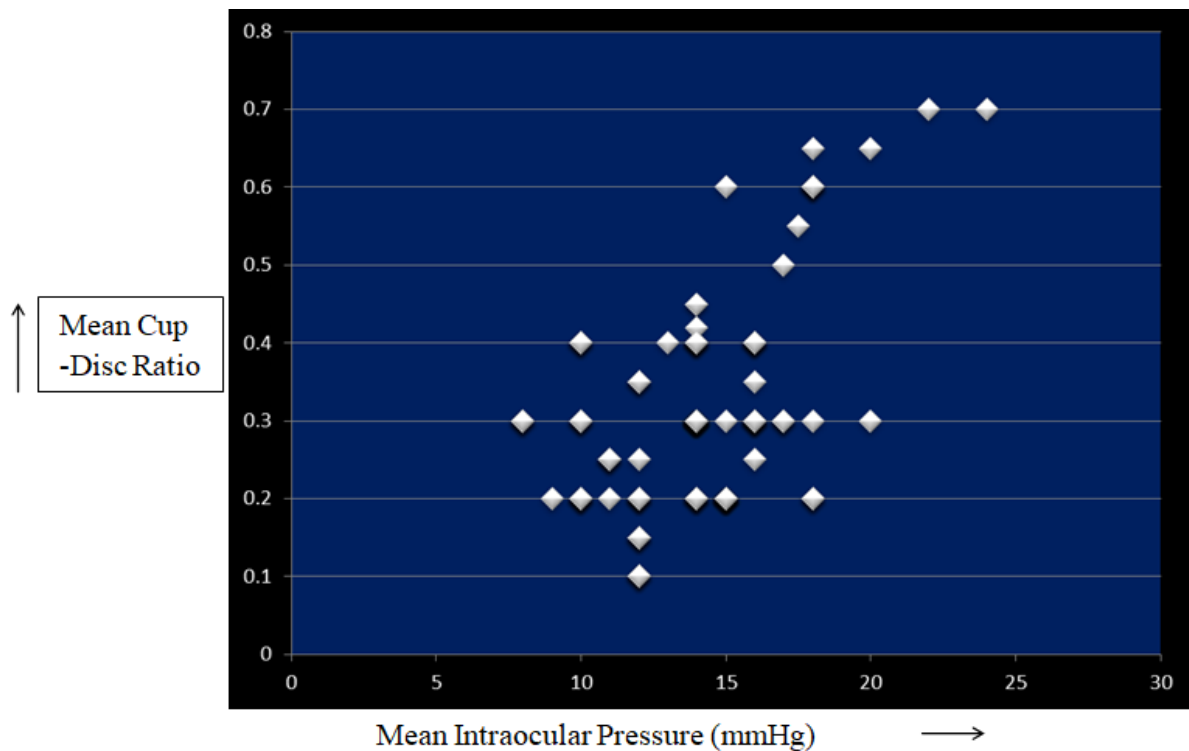


Figure 2. Correlation between Intraocular Pressure and Cup-Disc Ratio

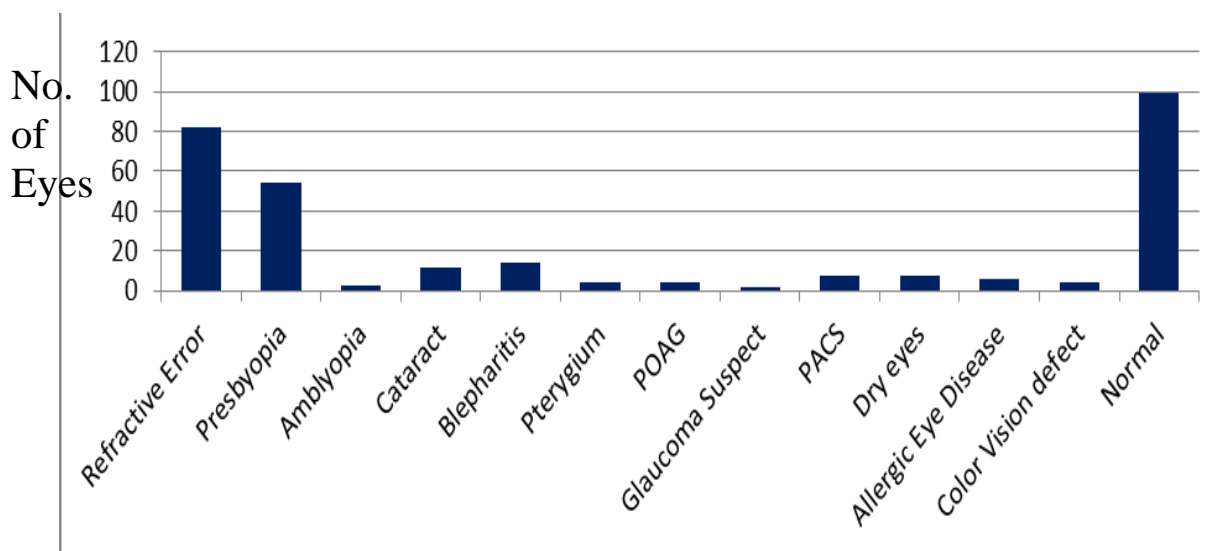


Figure 3. Ocular condition in participants

POAG: Primary open angle glaucoma, PACS: Primary angle closure suspect

DISCUSSION

In this study 65.33% of the respondents were females. This agrees with 121 male: 280 female ratio of respondents in a similar study at the University of Uyo Teaching Hospital.^[3]Females were found to be more in a hospital based study of eye diseases at Uttarakhand.^[4] Present study shows refractive error as the commonest cause of ocular disorder(27.33%). A study in Gujarat in a rural hospital in 2015 on policemen revealed 42% cases of refractive error.^[5] Study in Uttarakhand,reported refractive error (20.97%) as the commonest ocular morbidity.^[4] Uncorrected refractive error up to 41. 8% was

reported among health workers at a tertiary hospital in Nigeria and most were not using spectacles because they do not feel the need to do so.^[6]

In our cohort, 04 eyes had glaucoma while 10 eyes were glaucoma suspects. There are studies revealing unsatisfactory knowledge and deficient self-care practices concerning glaucoma among health-care personnel.^[7]In present study, color vision deficiency was detected in two persons (4 eyes). There is a sizeable body of evidence that color vision deficiency is a problem in the practice of medicine.^[8]There is risk of medical error and adverse consequences in diagnosis, investigation and treatment for patients if

their healthcare professional has color vision defects.^[9]

The paramedical staff and ancillary workers had significantly more ocular diseases. This group had more untreated cataracts, uncorrected refractive error, presbyopia, glaucoma suspects and pterygium. Similar findings were noted during ocular examination of 275 healthcare workers at a tertiary eye hospital at Nigeria.^[10] Some of these ocular diseases could have been treated and cured early in the service years if they had been detected earlier. It is worthy of note that at the time of this study, most staff were having their first ever comprehensive ocularexaminations, even though they had worked in hospitals previously.

CONCLUSION

This study underscores the need for pre-employment and periodic staff screening to enable prompt diagnosis and timely treatment of affected hospital staff to ensure effective health care delivery and reduce visual impairment. Spectacles could be used to correct refractive errors and presbyopia. This will enhance productivity as most workers need adequate vision for optimal output.

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