

A Clinical Profile of Causes of Visual Impairment at an Urban Health Centre in Goa

Jagadish A. Cacodcar, Ugam Usgaonkar, Tanvi Poy Raiturcar, Nitin Dhupdale
Goa Medical College and Hospital, Goa, India

Background: Many studies have been conducted in urban areas in other Indian states to study the profile of causes of visual impairment; however, such a study was lacking in Goa.

Methods: The study was conducted between January to March 2018, after Institutional ethical committee approval. The study population included 200 patients residing in households registered under the urban health centre in Santa Cruz Goa, who attended the Ophthalmology speciality outreach clinic. After informed consent, patients were interviewed based on a pre-tested proforma. Socio-demographic details and history was obtained and a detailed ophthalmic examination was done.

Abstract

Results: 42.5% were between 41-60 years of age, 75% used LPG as fuel; 44% participants had completed higher secondary education or graduation while only 4.5% were illiterate. 77% had no visual impairment, visual impairment Grade 1 and 2 was present in 14.5% and 4% respectively. 4.5% were grouped as blind. 87.5% had refractive errors, 0.5% had corneal opacities, 20% had cataract, 4% had glaucoma, 2% had optic atrophy, 7% had retinal and macular involvement.

Conclusion: A high prevalence of refractive errors and cataract was noted, which are both causes of preventable blindness and can only be prevented by creating awareness by means of health education.

Delhi J Ophthalmol 2019;29;35-37; Doi <http://dx.doi.org/10.7869/djo.415>

Keywords: Ocular morbidities, Urban, Goa

Introduction

The global estimate of visual impairment is around 324 million individuals¹, with 90% of the world's visually impaired being concentrated in developing countries such as India. This prevalence of visual impairment has constantly been increasing over the years, thus imposing a heavy burden on our economy.

Most cases of visual impairment are avoidable in nature and can be prevented with timely detection and appropriate management. Such cases include cataract (62.4%), uncorrected refractive errors (19.65%), glaucoma (5.83%), and corneal opacities (0.89%).²

Many studies have been conducted in urban areas in other Indian states to study the profile of visual impairment; however, such a study was lacking in Goa. Hence we conducted this study to study the profile of ocular morbidities in an urban area in Goa.

The objectives of the study were as follows-

1. To study the clinical profile of causes of visual impairment in an urban community of Goa.
2. To identify the socio cultural and demographic factors associated with the ocular morbidities.

Methods

A study was conducted between January 2018 to March 2018 upon approval from the institutional ethical committee of Goa Medical College.

The study participants included all patients irrespective of their age group, residing in the households registered under the Urban Health Centre (UHC) at Santa Cruz Goa, who

attended the Ophthalmology speciality outreach clinic.

The community Ophthalmology clinic is held regularly, once a week on every Friday and the speciality services are provided by one senior resident and one junior resident deputed from the Department of Ophthalmology, Goa Medical College on rotational basis.

Informed consent was obtained and patients were interviewed by the investigators and information was entered, based on a pre-tested pre-designed proforma. Socio-demographic details of each study participant were obtained.

History was obtained regarding any ocular complaints, and a detailed ophthalmic examination was done which included a detailed torch light examination, assessment of visual acuity using Snellen's distance vision chart and Times New Roman near vision chart, tonometry using Schiottz tonometer, and fundus examination using direct ophthalmoscope.

Thirty seven patients were called to the Ophthalmology clinic at Goa Medical College and Hospital for further evaluation, which included slit lamp examination, indirect Ophthalmoscopy and B-scan ultrasonography.

Data entry was done using Microsoft Excel 2010 version and statistical analysis included percentages and proportions.

Results

Age distribution: The majority of the participants (85, 42.5%) were middle-aged belonging to the age group of 41-60 years; while the least (10, 5%) were those aged more than 80 years (Table 1).

Sex distribution: 114 (57%) out of 200 participants were females, while 86 (43%) were males, i.e. they were almost equally distributed.

Table 1: Age distribution of the study participants

Age group (years)	Number of patients	Percentage (%)
1-20	14	7
21-40	39	19.5
41-60	85	42.5
61-80	52	26
> 80	10	5
Total	200	100

Fuel usage: The majority i.e. 150 (75%) participants used L.P.G as fuel at home; while coal, wood or cow dung was used by 40 (20%) and 10 (5%) used both.

Level of education: The majority of the participants i.e. 88 (44%) had completed higher secondary education or graduation, 35 (17.5%) had completed post-graduation or were professionals. Only a minority of 9 participants (4.5%) were illiterates.

Visual acuity: The participants studied were grouped into; no visual impairment i.e. 154 (77%), visual impairment Grade 1 i.e. 29 (14.5%), Grade 2 i.e. 8 (4%) or blindness Grade 3 i.e. 7 (3.5%), Grade 4 i.e. 2 (1%) based on WHO classification of low vision¹ (Table 2).

Table 2: Visual impairment among study participants

Categories of visual impairment	Vision	Number of patients	Percentage (%)
No visual impairment	>6/18	154	77
Visual impairment			
Category 1	6/18 - 6/60	29	14.5
Category 2	6/60 - 3/60	8	4
Blindness			
Category 3	3/60 - 1/60	7	3.5
Category 4	1/60 - PL	2	1
Total		200	100

Out of the 200 patients that were studied, majority i.e. 175 patients (87.5%) had refractive errors. In some cases, more than one type of refractive error was noted.

Majority of the participants 54 (27%) had hypermetropia, followed by myopia 42(21%) and astigmatism 30 (15%). In 65% of individuals aged 40 years and above, presbyopia was noted.

Corneal opacity: One patient (0.5%) had a nebular corneal opacity, which had developed following trauma with an iron nail.

Cataract: 40 patients i.e. 20% had cataract; out of which, 25 patients had bilateral cataract, and 15 patients had unilateral cataract.

Glaucoma: Eight patients (4%) that were studied were found to have glaucoma. Six patients were aged more than 40 years and had primary open angle glaucoma. One female patient aged 65 years was found to have narrow angle glaucoma and angle recession glaucoma was found to be present in one patient.

Optic atrophy: 4 patients (2%) had optic atrophy due to causes other than glaucoma.

Retinal and macular diseases: 10 participants (5%) presented with retinopathy due to diabetes or hypertension. 4 patients i.e 2% had macular diseases such as age related or hereditary macular degeneration (Table 3).

Table 3: Distribution of ocular morbidities among the study participants

Ocular morbidities	Number of patients	Percentage (%)
Corneal opacities	1	0.5
Cataract	40	20
Aphakia	1	0.5
Refractive Errors	175	87.5
Glaucoma	8	4
Optic Atrophy	4	2
Retinopathies	10	5
Macular diseases	4	2
Total	200	100

Discussion

Globally, it is estimated that there were over 38 million blind persons in the world, and 110 million people with low vision in 1994³, which has increased to 324 million in 2012.¹ 90% of the world's visually impaired live in developing countries, with the main causes of blindness being cataract, trachoma, glaucoma, onchocerciasis, xerophthalmia, diabetic retinopathy and age related macular degeneration.² Hence it is important that these changes are detected at their earliest so that visual disability can be prevented.

In our study, 87.5% of the study participants i.e. 175 were found to have refractive errors. The majority of the participants 54 (27%) had hypermetropia, followed by myopia 42 (21%) and astigmatism 30 (15%). Individuals aged more than 40 years had presbyopia 130 (65%). Our study findings are similar to the findings of a study by Agrawal et al conducted in urban Meerut where 86.4% participants had refractive errors.⁴ The high prevalence of hypermetropia in our study compared to that found by similar such studies by Haq et al⁵ could be due to a higher prevalence of cataract found in our study.

There are several studies done in India which have reported a high prevalence of hypermetropia after the 5th decade of life,^{6,7} which correlate with the findings of our study.

In our study, we also observed that the proportion of uncorrected refractive errors were greater in the lower educated group than the higher educated group, which is similar to that found in a study conducted by Prema et al⁸ and another study by Dandona et al,⁹ where they found that the proportion of uncorrected refractive error was higher among the lower educated individuals than the higher educated individuals.

A single participant (0.5%) had a nebular corneal opacity, which he had developed following trauma with an iron nail. Similar results (0.4%) were found by Agarwal et al in their study.⁴ However this value is much lower than that found in a study by Baldev et al¹⁰ in Northern India (30.5%). This shows greater level of awareness about ocular injuries and their prevention in the urban Goan community, as well as

good healthcare facilities and promptness to report to the ophthalmologist in the event of trauma.

Cataract: Forty patients i.e. 20% had cataract; out of which 25 patients had bilateral cataract, and 15 patients had unilateral cataract. Our findings are similar to that reported by Dandona et al¹¹ in Southern India (25.3%). The highest rates of cataract were among elderly individuals, those from lower social classes using coal wood and cow dung as fuel, and among illiterates. Younger individuals who presented with cataracts were those following trauma, or other complicated cataracts following uveitis, or keratitis. 29.5% of the patients who had cataract were illiterates and 32% were those using coal, wood or cow dung as fuel, suggesting lower socio economic background. Similar results were found by Haq et al⁵, where 32.8% were illiterates and 24.9% belonged to low socio economic background. The high percentage of patients with cataract is probably due to higher average life expectancy in Goa, low socio economic status, illiteracy and lack of awareness about the treatable nature of cataract. Eight patients (4%) were found to have glaucoma. Six patients were aged more than 40 years and had primary open angle glaucoma. One female patient aged 65 years was found to have narrow angle glaucoma. The prevalence of glaucoma in our study is lower than that found by Baldev et al¹⁰ in their study (11.1%).

In our study, 2% patients had optic atrophy due to causes other than glaucoma, these included one patient who developed optic atrophy secondary to traumatic optic neuropathy, one participant who had developed optic atrophy secondary to tobacco and alcohol usage, and two participants who had developed optic atrophy secondary to optic neuritis in the past.

Conclusion

From our study, we have found a high prevalence of refractive errors and cataract, which are both causes of preventable blindness. Hence health education and creating a greater awareness among the population are the only means by which they can be identified at the earliest and treated accordingly. This will reduce the burden of visual impairment and blindness, which will in turn reduce the economic burden on our society.

References

1. Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. *Br J Ophthalmol* 2012; 96:614-8.
2. Murthy GV, Gupta SK, Bachani D, Jose R, John N. Current estimates of blindness in India. *Br J Ophthalmol* 2005; 89:257-60.
3. Thylefors B, Négrel AD, Pararajasegaram R, Dadzie KY. Global data on blindness. *Bull World Health Organ* 1995; 73:115-21.
4. Agrawal D, Singh JV, Sharma MK, Mitthai S. Ocular morbidity pattern of an urban population of Meerut. *Indian J Prev Soc Med* 2011; 42:74-78.
5. Haq I, Khan Z, Khaliq N, Amir A, Fatima A, Meena Z. Prevalence of common ocular morbidities in adult population of Aligarh. *Indian J Community Med* 2009; 34:195-201.
6. Raju P, Ramesh SV, Arvind H, George R, Baskaran M, Paul PG, et al. Prevalence of refractive errors in a rural South Indian population. *Invest Ophthalmol Vis Sci* 2004; 45:4268-72.
7. Dandona R, Dandona L, Naduvilath TJ, Srinivas M. Refractive errors in an urban population in South India: The Andhra

Pradesh eye disease study. *Invest Ophthalmol Vis Sci* 1999; 40:2810-8.

8. Prema R, George R, Sathyamangalam R, Hemamalini A, Baskaran M, Kumaramanickavel G, et al. Comparison of refractive errors and factors associated with spectacle use in a rural and urban South Indian population. *Indian J Ophthalmol* 2008; 56:139-144.
9. Dandona R, Dandona L, Kovai V, Giridhar P, Prasad MN, Srinivas M. Population based study of spectacle use in South India. *Indian J Ophthalmol* 2002; 50:145-55.
10. Baldev VF, Chopra R, Batra N, Singh S. Pattern of ocular morbidity in the elderly population of North India. *J Clin Diagn Res* 2017; 11:NC20-NC23.
11. Dandona L, Dandona R, Naduvilath TJ, McCarty CA, Srinivas M, Mandal P, et al. Burden of moderate visual impairment in an urban population in Southern India. *Ophthalmology* 1999; 106:497-504.

Cite This Article as: Cacodcar JA, Usgaonkar U, Raiturcar TP, Dhupdale N. A Clinical Profile of Causes of Visual Impairment at an Urban Health Centre in Goa.

Acknowledgments: Nil

Conflict of interest: None declared

Source of Funding: None

Date of Submission: 03 August 2018

Date of Acceptance: 18 September 2018

Address for correspondence

Tanvi Poy Raiturcar MBBS, MS, FICO

Senior Resident

Department of Ophthalmology

Goa Medical College and Hospital

NH17, Bambolim, Tiswadi, Goa - 403202, India

Email id: tanvi1491@gmail.com



Quick Response Code