

Perceived Barriers to the Provision of Low Vision Services among Ophthalmologists in India

Sarfaraz A Khan, MD; Shamanna BR, MD; Rishita Nuthethi, MSc

Purpose: To identify and report the perceived barriers to the provision of low vision services among ophthalmologists in India.

Methods: Seventy nine ophthalmologists responded to a structured self-administered questionnaire. Information was collected to understand the level of awareness and barriers/constraints to provision of low vision services. Significant factors associated with each barrier/constraint and perceptions on providing low vision care were investigated.

Results: Lack of training/knowledge [65 (82.3%)], lack of awareness [59 (74.7%)] and non-availability of low vision devices [57 (72.2%)] were perceived as the major constraints / barriers to providing low vision care. At least one significant factor was found for each of the above constraints/barriers in providing low vision care. The perception of *lack of awareness* as being one of the constraints/barriers was significantly higher [OR 3.97 (95% CI, 1.02 – 7.8)] among ophthalmologists from organisations providing low vision services. The perception of *lack of motivation* as constraint/barrier was significantly higher [OR 3.62 (95% CI, 1.3 – 10.3)] among ophthalmologists from organisations providing low vision services and/or those involved in VISION 2020: The Right to Sight programmes [OR 3.83 (95% CI, 1.4 - 10.4)]. The likelihood of responding that *low vision care is time consuming* was greater for those belonging to a teaching institute [OR 7.19 (95% CI, 2.0 – 26.1)], those involved in low vision services [OR 5.45 (95% CI, 1.8 - 16.5)] and those who knew that low vision is a priority in VISION 2020 [OR 15.1, 95% CI, 1.5 –155.4].

Conclusion: Ophthalmologists need more education about the benefits of low vision care in order to increase their level of awareness and knowledge.

Key Words: Ophthalmologists, low vision care, barriers

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Concern about the rapidly increasing burden of low vision globally, and more specifically, in the developing world, has resulted in identification of the provision of good quality low vision care as a key element of the “Comprehensive Eye Service” model of programme development within VISION 2020: The Right to Sight programmes.¹⁻³ Although low vision does not fall into the category of blindness *per se* it has enormous social and economic consequences in terms of productivity losses and dependency.⁴

Currently there are 45 million people worldwide who are blind and an additional 135 million with significant visual impairment or low vision. Nearly 90% of the world’s blind people live in the developing world.⁵ Many reasons have been identified for the rising tide of blindness and low vision, prominent among them being the increase of the world’s elderly population, particularly in developing countries.⁶⁻⁸ It is estimated that by the year 2025 there will be about 1.2 billion older people, with almost three-quarters living in developing countries.⁹ In India, the current life expectancy at birth of 64.5 years is projected to increase to 73-77 years by the year 2020, and the current percentage of the elderly population of 8-10% is expected to increase to 20%.⁹⁻¹¹ A population-based study has shown that the prevalence of low vision is 1.05% in southern India.¹² If the data are extrapolated to the estimated 1014 million population of India in the year 2000,¹³ 10.6 million people would need low vision services.¹²

Vision Rehabilitation Centres (SAK), and International Centre for Advancement of Rural Eye Care (SBR, RN), L V Prasad Eye Institute, Hyderabad, India

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Correspondence to Dr. Sarfaraz A Khan, Vision Rehabilitation Centers, LV Prasad Eye Institute, L V Prasad Marg, Banjara Hills, Hyderabad 500 034, India. E-mail <sarfaraz@lvpei.org>

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The uptake of low vision services continues to be relatively low even in more developed countries (3%-15%).¹⁴⁻¹⁶ Lack of referral by ophthalmologists could be a reason for the under-utilisation of low vision services.¹⁷

Concrete steps have not been taken to develop such services. Keeping this in view this study aimed to identify and report the perceived barriers to the provision of low vision services among a cross-section of a convenient sample of identified ophthalmologists.

Methodology

Definition of low vision

A person with low vision is one who has impairment of visual functioning despite treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception or a visual field of less than 10° from the point of fixation, but who uses or is potentially able to use, vision for the planning and/or execution of a task.¹⁸

Information was collected through a self-administered structured printed questionnaire in English given to respondents prior to the workshops and fellowship programmes at our institute (October 2001 – January 2002); and also to ophthalmologists in private and government eye hospitals providing secondary eye care services in Hyderabad and Bangalore (April – May 2002). The responses were collected immediately. Details of the questionnaire are given in Table 1. The questionnaire was validated by administering it to the ophthalmologists (n=12) who attended our first two low vision awareness programme (February and September 2001) and suitable modifications were made to arrive at the final questionnaire.

Information was collected from a variety of convenient sources among a cross-section of easily accessible ophthalmologists, to understand the perceived barriers to the provision of low vision services. As a part of the National Programme for Control of Blindness (NPCB) supported project on assessing the contribution of the private sector to the national programme in India, 25 ophthalmologists from private and government eye hospitals in Hyderabad and Bangalore providing secondary eye care services were met by a trained interviewer and asked to complete the questionnaire. Forty-seven short and longterm ophthalmology fellows undergoing training programmes at our institute were also asked to complete the questionnaire at the time of joining the programme. Seven ophthalmologists who attended a workshop on Community Eye Health between 17 and 21 June 2002 were given the questionnaire for responses on issues related to barriers to accessing low vision services. The purpose of this meeting was to give an

overview of the VISION 2020: The Right to Sight Initiative and to work out a local plan of action based on visually disabling disease/conditions prevalent in the local service area. In addition to identifying disease control priorities, the discussion focused on human resource development, infrastructure and technology, and sustainability. All the approached ophthalmologists responded to the questionnaire.

Statistical analysis

The associations among various factors and provision of low vision care were determined by univariate and multivariate analysis. Tests included a chi-square test or Fisher's exact test to find significant factors associated with each constraint/barrier in providing low vision care depending on the number of categories in the factor. For any factor containing two categories, the Fisher's exact test was performed and where there were more than two categories the chi-square test was done. Multivariate logistic regression analysis using the "enter" method was also performed for each constraint/barrier for providing low vision care by considering the factors found significant in the univariate analysis. If only one factor was found to be significant, then a univariate logistic regression was performed. A P-value <0.05 was considered statistically significant. Statistical analysis was performed by using SPSS 11.0 Windows (SPSS Inc, Chicago, IL USA).

Results

A total of 79 ophthalmologists responded to a structured questionnaire. This included information on the demographic data, primary area of activity, "VISION 2020: The Right to Sight Program" and questions to ascertain the levels of awareness and barriers/constraints to low vision services. The group included 56 (70.9%) men and 23 (29.1%) women. The socio-demographic data, the responses related to affiliation and the primary areas of eye care activity, knowledge and participation in the VISION 2020 programme are presented in Table 2. Responses related to the major constraints in providing low vision care are presented in Table 3. Lack of training / knowledge [65 (82.3%)], lack of awareness [59 (74.7%)] non-availability of low vision devices [57 (72.2%)] and lack of motivation [43 (54.4%)] were the major barriers to providing low vision care. Table 4 shows the significant factors associated with each constraint / barrier (*lack of awareness, motivation, belief that low vision services are not effective in helping patients, low vision care is not lucrative and time consuming*) in providing low vision services. The perception of *lack of awareness* as a constraint / barrier was significantly higher [OR 3.97 (95% CI, 1.02 – 7.8)] among ophthalmologists from organisations providing low vision services. The perception of *lack of motivation* as being one of the constraints/barriers was significantly higher [OR 3.62 (95% CI, 1.3 – 10.3)] among

Table 2. Socio-Demographic data of respondents

	N	%
Age		
(mean + SD)	35.45 ± 8.3	—
(min, max)	(26, 62)	—
Sex		
Male	56	70.9
Female	23	29.1
Qualification		
PG Degree	48	60.8
PG Diploma	22	27.8
PG Diplomate	9	11.4
Organization of Attachment		
Teaching Hospital	50	63.3
Private practice	21	26.6
Others	8	10.1
Primary areas of eye care activity		
Eye examination	78	98.7
Community eye health	58	73.4
Training of eye care personal	43	54.4
Low vision services	31	39.2
Community-based rehabilitation programs	15	19.0
Knowledge & Participation in VISION 2020: The Right to Sight		
Awareness - VISION 2020 program	76	96.2
Low vision priority in VISION 2020	72	91.1
Involve in VISION 2020	41	53.2

ophthalmologists from organisations providing low vision services and or those involved in VISION 2020 programme [OR 3.83 (95% CI, 1.4 - 10.4)]. The likelihood of the belief that low vision services is “not lucrative” was a constraint was 6.29 (95% CI, 1.6 - 24.1) for the diploma holders compared to ophthalmologists with a postgraduate degree. The likelihood of responding that low vision services are time consuming was greater for those from the teaching institute [OR, 7.19 (95% CI, 2.0 - 26.1)], among those from organisations providing low

vision services [OR, 5.45 (95% CI, 1.8 - 16.5)] and for those who knew that low vision is a priority in VISION 2020 [OR, 15.1, 95% CI, 1.5 -155.4].

In the univariate analysis, factors such as age (> 35 years, $p=0.010$), type of organisation (private practice, $P=0.006$) and those involved in the VISION 2020 programme ($P=0.016$) were significant for the constraint that low vision services are not effective in helping patients.

Table 3. Major barrier/constraint expressed in providing low vision care

	N	%
Q1 Lack of training / knowledge in low vision care	65	82.3
Q2 Lack of awareness about low vision services	59	74.7
Q3 Non availability of LVDs	57	72.2
Q4 Lack of motivation	43	54.4
Q5 Low Vision Care is time consuming	37	46.8
Q6 Busy in providing general ophthalmology services	35	44.3
Q7 Low Vision Care is not lucrative	14	17.7
Q8 Low Vision Services are not effective in helping patients	10	12.7

Table 4. Significant factors associated with each constraint for low vision services

Constraint	Significant factors In Univariate analysis Categories	No. answered in favor of outcome / total in the category (%)	p value = †	OR [95% CI]
Lack of awareness				
a. Low Vision Services				
	Yes	28/31 (90.3)	0.016	3.97[1.02-7.8]
	No	31/48 (64.6)		1.00
Lack of motivation				
a. Low Vision Services				
	Yes	23/31 (74.2)	0.006	3.62[1.3-10.3]
	No	20/48 (41.7)		1.00
b. Involvement in vision 2020				
	Yes	29/41 (70.7)	0.003	3.83[1.4-10.4]
	No	14/39 (35.9)		1.00
Low Vision Services are not effective in helping patients				
a. Age (years)				
	≤ 35	1/42 (2.4)	0.010	1.00
	> 35	8/36 (22.2)		2.12[0.1-33.7]
b. Organization				
	Teaching Institute	3/50 (6.0)	0.006	1.00
	Private Practice	7/21 (33.3)		4.4 [0.5-37.9]
	Others	0/8 (0)		0.46[0.03-6.6]
c. Involvement in vision 2020				
	Yes	9/41 (22.0)	0.016	4.49[0.4-55.2]
	No	1/36 (2.8)	1.00	
Low Vision Care is not lucrative				
a. Qualification				
	MD	4/48 (8.3)	0.016	1.00
	DO	8/22 (36.4)		6.29[1.6-24.1]
	DNB	2/9 (22.2)		3.14[0.5-20.5]
Low Vision Care is time consuming				
a. Organization				
	Private Practice	17/50 (34.0)	0.005	1.00
	Teaching Institute	16/21 (76.2)		7.19[2.0-26.1]
	Others	4/8 (50.0)		1.43[0.3-7.7]
b. Low Vision Services				
	Yes	21/31 (67.7)	0.005	5.45[1.8-16.5]
	No	16/49 (33.3)		1.00
c. Low Vision is priority in vision 2020				
	Yes	31/72 (43.1)	0.047	1.00
	No	6/7 (85.7)		15.1[1.5-155.4]

† = Chi Square / Fisher's exact test

OR – odds ratio, 95% CI – 95% Confidence Interval

Discussion

To the best of our knowledge, these are the first data on awareness of low vision among ophthalmologists in India. The data are of particular importance because it is estimated that 10.6 million people are in need of low vision services.^{12,19}

Almost three-fourths of the ophthalmologists surveyed [59 (74.7%)] cited *lack of awareness* as a barrier in providing low vision services. We have demonstrated in an earlier study the importance of increasing awareness

about low vision services among ophthalmologists and the public.²⁰ It is therefore recommended that a well designed education/awareness campaign be created to develop awareness of services for people with visual impairment, targeting eye care practitioners and the public.

A significant majority of ophthalmologists (82.3%) identified *lack of training* as one of the major barriers to providing low vision care. Most low vision services in India are provided at tertiary eye care centres and most

of them are located in cities where trained low vision professionals are available. The availability of low vision services is related to the availability of trained human resources. The human resource base must be increased through training in low vision services, to meet the need for these services. Appropriate professionals may include ophthalmologists, mid-level eye care personnel and rehabilitation workers.¹² Hence, it is necessary to find ways to include low vision services as part of different ophthalmic curricula. A major effort must be made at both the pre and in-service levels of medical education to sensitise the medical community to low vision services and to train them to make the appropriate referrals.

In this study, likelihood of belief that *low vision services are not effective in helping patients* as a constraint/barrier was more significant among those who were > 35 years of age (P=0.010, Fisher's exact test) compared to those who were < 35 years of age. Hence, it is clear that low-vision professionals need to provide more information to ophthalmologists in this age group about the benefits of low-vision devices and services. Improved communication and information exchange

between ophthalmologists and low vision service providers has been suggested to improve practitioners' awareness of the services and to increase the rate of referral of visually impaired patients.²¹⁻²² In addition, low vision centres should make information about their services available to ophthalmologists who can then pass it on to their patients.

Two-thirds of the ophthalmologists who responded (72.2%) cited *non-availability of low vision devices locally* as a barrier to low vision services. Attempts have to be made to educate eye care professionals about the availability of low cost, good quality low vision devices in the country. Innovative methods are available to make simple optical magnifiers.²³⁻²⁴ The feasibility of developing a 'low vision assessment kit' should be pursued and field-tested.

A limitation of our study was the small sample size drawn from convenient resources. This may not represent the entire community of ophthalmologists in the country. Hence a further study with a larger sample is needed.

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Table 1. Questionnaire

Name:

Age: years Sex: M F

Qualification: MD DO DNB

Organization: Teaching Hospital Private Practice

Address for Correspondence

House / Office.:

Tel / Fax / E-mail:

Primary Areas of Activity: (Tick all that apply)

Eye examination Yes No

Training of eye care personnel Yes No

Community Eye Health / Prevention of blindness Yes No

Low Vision Services Yes No

Community Based Rehabilitation Yes No

VISION 2020: THE RIGHT TO SIGHT (Tick all that apply)

Are you aware of **VISION 2020** Program Yes No

Did you know that low vision has been identified as priority concern in **VISION 2020** program Yes No

Are you involved in any of the activities of Vision 2020 in your area Yes No

How much do you know about Low Vision Service? (Tick all that apply)

Have you heard about low vision Yes No

Do you refer patients for low vision care to other centres Yes No

Do you provide low vision service Yes No

Do you know about the availability of low vision devices Yes No

What do you think are the major constraints in providing low vision care? (Tick all that apply)

Lack of training / knowledge in low vision Yes No

Lack of awareness Yes No

Non availability of low vision devices Yes No

Busy in providing general ophthalmology services Yes No

Lack of motivation Yes No

Low Vision Services are not effective in helping patients Yes No

Low Vision Care is not lucrative Yes No

Low Vision Care is time consuming Yes No