

## Original Research Article

# Awareness, knowledge, and barriers to low vision services among eye care practitioners in Maharashtra

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## ABSTRACT

**Background:** Visual impairment is an important global health issue. 90% of the world's blind people reside in underdeveloped countries. According to population-based statistics, India has the most visually impaired persons (about 9 million). The world health organization (WHO) estimates that 285 million people worldwide are blind or have impaired eyesight. Hence it is necessary to have information about knowledge and awareness of low vision services among eye care practitioners to improve the low vision care in the world.

**Methods:** A prospective cross-sectional survey was done at Dr. D. Y. Patil medical college and research centre (Ophthalmology department) between eye care practitioners practicing in Maharashtra, India, through a pre-tested standardized questionnaire.

**Results:** In this study, retinal problems (76.1%) and glaucoma (11.1%) were reported as two major causes of low vision. Provision of best spectacle correction, rehabilitation, and referral to other hospitals/specialized centers was considered by 31.7%, 4.7%, and 23.8% practitioners, respectively. Magnifiers were found to be the most commonly prescribed low vision device (73%).

**Conclusions:** Low eyesight is a big health issue all over the world. Low vision services assist patients in improving and maintain their functional vision. It also enhances the quality of life and everyday living skills. There are many barriers and a lack of understanding about low vision services. They assess eye care providers' awareness, knowledge, and challenges to poor vision services in Maharashtra. This study results showed a lack of awareness (33.3%) and training (33.3%) among the practitioners were the significant barriers restricting low vision services.

**Keywords:** Low vision, Rehabilitation, Vision impairment, Awareness, Barriers

## INTRODUCTION

Visual impairment is an important global health issue. 90% of the world's blind people reside in underdeveloped countries. According to population-based statistics, India has the most visually impaired persons (about 9 million).<sup>1,2</sup> The WHO estimates that 285 million people

worldwide are blind or have impaired eyesight.<sup>3</sup> WHO defines visual impairment as low vision and blindness. A person with low vision has a visual acuity of less than 6/18 to light perception, or a visual field smaller than 10 degrees from the point of fixation but uses, or is theoretically able to use, vision for the planning and execution of a task that requires vision. Low vision is a

general term for conditions that result in diminished eyesight that is not fully reversible low vision services effectively reduce the functional and psychological effects of blindness.<sup>4</sup> It also improves the quality of life and daily living skills of the individual. The goal of any vision rehabilitation is to empower patients to lead fruitful lives.<sup>5,6</sup> Even as the frequency of visual impairment and low vision rises, uptake remains low in developing nations such as India.<sup>4</sup> The availability and use of low vision services have been studied globally as well as in India.<sup>7-9</sup> Patients' and ophthalmologists' barriers to low vision services have also been explored.<sup>10-12</sup> Hence it is necessary to have information about knowledge and awareness of low vision services among eye care practitioners to improve the low vision care in the world.

**METHODS**

*Sample size determination*

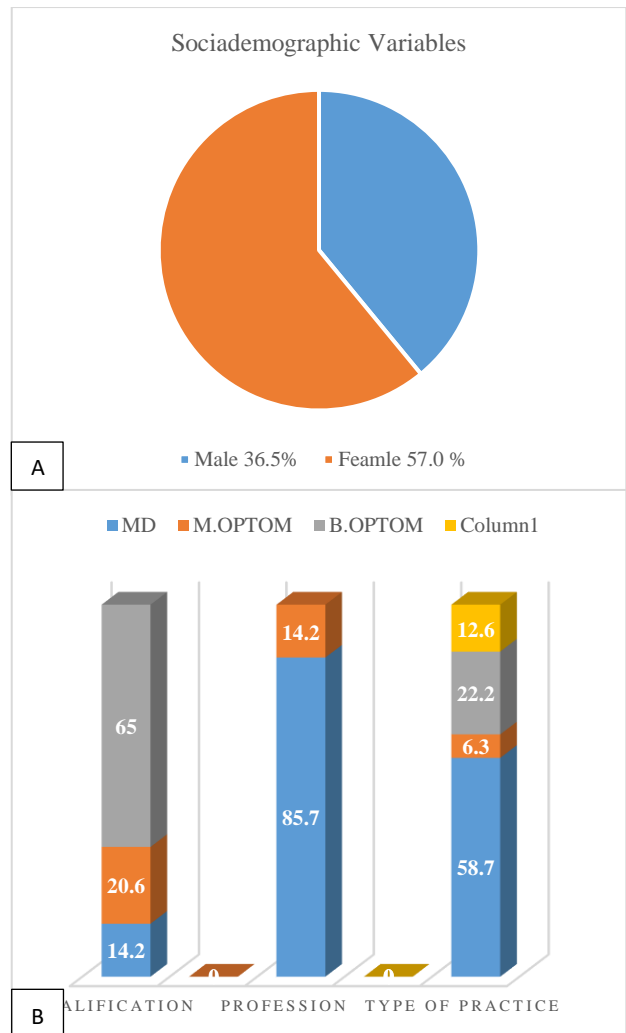
A prospective cross-sectional survey was done at Dr. D. Y. Patil medical college, and research centre (Ophthalmology department) between eye care practitioners practicing in Maharashtra, India, through a pre-tested standardized questionnaire (Annexure 1) in English using Google forms through various professional bodies. The questionnaire will contain closed-ended questions. This study was conducted from December 2020 to February 2021. All eye care practitioners in Maharashtra both male and female were included in the study. All participants were guaranteed anonymity and confidentiality of the information obtained. Participants other than the Maharashtra were excluded in this study. Approval was taken before the study from the eye care practitioners participating in the study. Informed consent was signed by all the subjects who were included in the study. Subjects were informed about the duration and procedures of the study, and the research was approved by the Institutional review board and the ethics committee for human research at Dr. D. Y. Patil Vidyapeeth, Pune

*Data analysis*

Statistical analysis was performed by WinPepi software. Data analysis was done using Google form, excel sheets, and graphs.

**RESULTS**

Questionnaires were sent to Optometrists and Ophthalmologists in Maharashtra, and 63 responses were obtained through a questionnaire. Among the participants, 9 (14.2) were ophthalmologists, and 54 (85.7) were optometrists from Maharashtra. Male and female participants were 23 (36.5) and 36 (57.0), respectively. The participants were distributed under 6 sectors, among which most of the eye care practitioners were from the hospital (58.7%) (Table 1 and Figure 1).



**Figure 1 (A and B): Sociodemographic variables and qualification profession type of practice.**

In this study, the flow of low vision patients in the clinic was found rare (49.2%) as per practitioner. Among the practitioner, 38% preferred to provide the low vision devices to the low vision patients visiting them. 58.7% of participants considered patients with low vision as per WHO criteria. In this study, retinal problems (76.1%) and glaucoma (11.1%) were reported as two major causes of low vision. Provision of best spectacle correction, rehabilitation, and referral to other hospitals/specialized centers was considered by 31.7%, 4.7%, and 23.8% practitioners, respectively. Magnifiers were found to be the most commonly prescribed low vision device (73%). According to participation, low vision rehabilitation is considered as a combination of training to use low vision devices (63.5%), mobility training (30.2%), adaptive training for a job (30.2%), and counselling (55.6%). Lack of awareness (33.3%) and training (33.3%) among the practitioners were the major barriers restricting low vision services. The major barrier for low vision uptake from the practitioner's perspective was lack of awareness among patients (42.9%) and availability of low vision care centers (47.6%) (Table 2).

**Table 1: Sociodemographic variables, (n=63).**

Gender	N (%)	Qualification	N (%)	Profession	N (%)	Type of practice	N (%)
Male	23 (36.5)	*MD	9 (14.2)	Optometrist	54 (85.7)	Hospital (Gov/private)	37 (58.7)
						Optical outlet	14 (22.2)
						Individual practice	4 (6.3)
Female	36 (57)	M.OPTOM	13 (20.6)	Ophthalmologist	9 (14.2)	Other	8 (12.6)
		B. OPTOM	41 (65)				

\*MD (Doctor of Medicine), M. OPTOM=Master of Optometry, B. OPTOM=Bachelor of Optometry

**Table 2: Questions-based on analysis among studied population.**

Questionnaire	Response rate (%)	
<b>How often do low vision patients visit your clinic?</b>	Rare	31 (49.20)
	Often	15 (25.39)
	Very rare	16 (23.80)
	Never	1 (1.58)
<b>What do you do when you get a patient with low vision?</b>	Provide low vision devices	24 (38.0)
	Provide best possible spectacle correction	20 (31.7)
	Refer to other hospitals/specialized centers	15 (23.8)
	Provide rehabilitation	3 (4.7)
	Not sure	1 (1.5)
<b>In your practice, you consider a person as having low vision based on.</b>	WHO criteria	37 (58.7)
	Patient needs	11 (17.4)
	Poor vision in both the eyes	9 (14.2)
	Not sure	4 (6.3)
<b>According to you, the criteria for low vision should be based on:</b>	Poor vision in one eye only	2 (3.1)
	Visual acuity and visual field	45 (71.4)
	Visual acuity	10 (15.8)
	Visual acuity or visual field	7 (11.1)
	Visual field	1 (1.5)
<b>Do you consider a person is having Low vision when the best-corrected visual acuity in the better eye is worse than?</b>	1/60	3 (5)
	3/60	13 (20.6)
	6/60	13 (20.6)
	6/36	3 (4.8)
	6/18	30 (47.6)
	Not sure	1 (1.6)
<b>Do you consider a person is having a low vision when their visual field from the point of fixation is worse than?</b>	10, degree	36 (57)
	20, degree	14 (22.2)
	30, degree	4 (6.3)
	Not sure	9 (14.3)
<b>How often do you provide Low vision devices in your practice?</b>	Rare	24 (38.0)
	Very Rare	19 (30.1)
	Often	13 (20.6)
	Never	7 (11.1)
<b>What kind of devices do you provide?</b>	Magnifiers	46 (73.0)
	Other assistive devices	15 (23.8)
	Telescopes	2 (3.1)
<b>What are the common causes of low vision that you have come across in your practice?</b>	Retinal problems	48 (76.1)
	Glaucoma	7 (11.1)
	Microphthalmos	5 (7.9)
	Post cataract surgery	3 (4.7)
<b>What, according to you, are the barriers to attending a low vision training program?</b>	Accessibility	25 (39.6)
	Lack of interest	14 (22.2)
	Lack of time	11 (17.4)
	Training programs are expensive	11 (17.4)
	Lack of man power	2 (3.1)

Continued.

Questionnaire	Response rate (%)	
<b>According to you, how can we improve low vision practice?</b>	Availability of Low vision devices at low cost	21 (33.3)
	Creating awareness among practitioners	14 (22.2)
	More training programs	12 (19.0)
	Creating public awareness	7 (11.1)
	Improving the availability of low vision devices	5 (7.9)
<b>According to you, what are the barriers to the patients to access low vision services?</b>	Unavailability of Low vision care centers	13 (20.6)
	Lack of awareness	11 (17.4)
	Lack of interest/motivation	10 (15.8)
	Low vision service is expensive	6 (9.5)
<b>What are the major barriers that you face in your practice in providing low vision care?</b>	Cosmetically not acceptable	4 (6.3)
	Lack of awareness	21 (33)
	Lack of training	21 (33)
	Lack of interest/motivation	15 (23)
	More workload	6 (9)
	Non- availability of low vision devices	32 (50)
	Low vision care is time-consuming	13 (20)
	Low vision devices are expensive	22 (34)
	Low vision care is less profitable	3 (4)
	Lack of manpower	7 (11)
<b>What, according to you, is low vision rehabilitation?</b>	Low vision care is not effective	0 (0)
	Difficulty in satisfying patients	14 (22)
	Training to use low vision devices	40 (63.5)
	Mobility training	19 (30.2)
	Adaptive training for Job	19 (30.2)
<b>According to you, what are the areas in which a low vision patient is eligible to get a concession?</b>	Counselling	35 (55.6)
	Not sure	2 (3.2)
	Travel	35 (55.6)
	Postage	6 (9.5)
	Telecommunication	9 (14.3)
	Income tax concession	10 (15.9)
	Reservation of jobs	30 (47.6)
	Assistance for self-employment	20 (30.2)
	Bank loans	19 (30.2)
	Educational concession	30 (47.6)
Pension for old age	25 (39.7)	
Assistance for purchase or fitting of aids and appliances	25 (39.7)	

## DISCUSSION

The posterior segment illnesses were shown to be the primary causes of poor vision in this investigation. These findings were in line with earlier research.<sup>13-16</sup> In our study, the major barriers to access low vision services by the patients from practitioners' perspective were a lack of awareness (43.5%) and availability of low vision care centers (48%). The following studies support our results. Khan et al in their study, found that the lack of knowledge and awareness about low vision can act as a barrier to the provision of low vision services among ophthalmologists in India.<sup>11</sup> Judy Jose et al in their study, found that there is a lack of awareness among eye care practitioners about low vision services, which acts as a major barrier to the effective delivery of these services.<sup>17</sup> Another study done by Okoye et al among ophthalmologists in Nigeria cited non-availability of low vision devices within the country, lack of training in low

vision care, lack of public awareness of low vision care and its practitioners, and the ophthalmologists' preoccupation with general ophthalmic practice as the major barriers in clinical low vision provision.<sup>18</sup> Current health issues and patients' perception of low vision were the reasons for accessing low vision services among patients, as reported in a study conducted by Matti et al in South Australia, emphasizing the need to raise patient awareness to increase low vision service uptake.<sup>15</sup> This is consistent with our study findings. Improved communication between eye care practitioners and low vision services can increase low vision uptake, as Keeffe et al reported. Barriers to the referral for low vision rehabilitation may be due to misconceptions about referral criteria and lack of information, as observed by Adam and Pickering in their study.<sup>19,20</sup> From the participant's responses to the questionnaire, we observed that the awareness and knowledge about low vision services were less among the ophthalmologists and

optometrists. This emphasizes the need for education to improve awareness and knowledge about the delivery of low vision services. A comprehensive study on low vision services, which comprises the perceived barriers for low vision care, and distribution of low vision services in the country, would help policymakers plan and upgrade the future network of low vision services in India, according to Ilango and Krishna.<sup>21</sup> Listing the professionals at different geographical locations or states with their contact details can help better service provision to the needy. Moreover, a multi-dimensional and multi-disciplinary approach from different professionals is desirable to provide an effective service delivery to the low vision patients, which is the need of the hour.<sup>22,23</sup> As response was obtained very limited (sample size was small) and this study was conducted in only Maharashtra state between graduate optometrist and ophthalmologist. We have not included diploma optometrist in our study, so this is the limitation of this study. We recommend that further study required in large scale outside of Maharashtra state

## CONCLUSION

Low eyesight is a big health issue all over the world. Low vision services assist patients in improving and maintain their functional vision. It also enhances the quality of life and everyday living skills. There are many barriers and a lack of understanding about low vision services. They assess eye care providers' awareness, knowledge, and challenges to poor vision services in Maharashtra. This study results showed a lack of awareness (33.3%) and training (33.3%) among the practitioners were the major barriers restricting the provision of low vision services. The major barrier for low vision uptake from the practitioner's perspective was lack of awareness among patients (42.9%) and availability of low vision care centers (47.6%).

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## REFERENCES

1. Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP et al. Global data on visual impairment in the 2002. Bull World Health Organ. 2004;82:844-51.
2. Murthy GV, Gupta S, Ellwein LB, Munoz SR, Bachani D, Dada VK. A population-based eye survey of older adults in a rural district of Rajasthan: I-Central vision impairment, blindness, and cataract surgery. Ophthalmology. 2001;108:679-85.
3. Media Centre: Visual Impairment and Blindness; Fact Sheet No. 282. 2012.
4. Dandona R, Dandona L, Srinivas M, Giridhar P, Nutheti R, Rao GN. Planning low vision services in India: A population-based perspective. Ophthalmology. 2002;109:1871-8.
5. Lamoureux EL, Pallant JF, Pesudovs K, Rees G, Hassell JB, Keeffe JE. The effectiveness of low-vision rehabilitation on participation in daily living and quality of life. Invest Ophthalmol Vis Sci. 2007;48:1476-82.
6. Overbury O, Wittich W. Barriers to low vision rehabilitation: The Montreal Barriers study. Invest Ophthalmol Vis Sci. 2011;52:8933-8.
7. Ntsoane MD, Oduntan OA. A review of factors influencing the utilization of eye care services. S Afr Optom. 2010;69:182-92.
8. Hoppe E, Bowyer NK, Evans S. Access to vision rehabilitation services for older adults. Optom Vis Sci. 1993;70:164.
9. Ciang PP, O'Connor PM, Le Mesurier RT, Keeffe JE. A global survey of low vision service provision. Ophthalmic Epidemiol. 2011;18:109-21.
10. Kovai V, Krishnaiah S, Shamanna BR, Thomas R, Rao GN. Barriers to accessing eye care services among visually impaired populations in rural Andhra Pradesh, South India. Indian J Ophthalmol. 2007;55:365-71.
11. Shamanna B, Nutheti R. Perceived barriers to the provision of low vision services among ophthalmologists in India. Indian J Ophthalmol. 2005;53:69-75.
12. Pollard TL, Simpson JA, Lamoureux EL, Keeffe JE. Barriers to accessing low vision services. Ophthalmic Physiol Opt. 2003;23:321-7.
13. Matti AI, Pesudovs K, Daly A, Brown M, Chen CS. Access to low-vision rehabilitation services: Barriers and enablers. Clin Exp Optom. 2011;94:181-6.
14. Khan SA. A retrospective study of low-vision cases in an Indian tertiary eye-care hospital. Indian J Ophthalmol. (2000);48:201-7.
15. Shah SP, Minto H, Jadoon MZ, Bourne RR, Dineen B, Gilbert CE, et al. Prevalence and causes of functional low vision and implications for services: The Pakistan national blindness and visual impairment survey. Invest Ophthalmol Vis Sci. 2008;49:887-93.
16. Mohamed IA, Binnawi KH. Causes of low vision and visual outcome after using low vision devices in

- Sudanese children. *Sudanese J Ophthalmol.* 2009;1:37-40.
17. Jose J, Thomas J, Bhakat P, Krithica S. Awareness, knowledge, and barriers to low vision services among eye care practitioners. *Oman J Ophthalmol.* 2016;9(1):37-43.
  18. Okoye OI, Aghaji AE, Umesh RE, Nwagbo DF, Chuku A. Barriers to the provision of clinical low-vision services among ophthalmologists in Nigeria. *Vis Impair Res.* 2007;9:11-7.
  19. Keeffe JE, Lovie-Kitchin JE, Taylor HR. Referral to low vision services by ophthalmologists. *Aust N Z J Ophthalmol.* 1996;24:207-14.
  20. Adam R, Pickering D. Where are all the clients? Barriers to referral for low vision rehabilitation. *Vis Impair Res.* 2007;9:4550.
  21. Ilango K, Krishna RP. A comprehensive study on perceived barriers to low vision services. *Indian J Ophthalmol.* 2005;53:209.
  22. Hinds A, Sinclair A, Park J, Suttie A, Paterson H, Macdonald M. Impact of an interdisciplinary low vision service on the quality of life of low vision patients. *Br J Ophthalmol.* 2003;87:1391-6.
  23. Markowitz SN. Principles of modern low vision rehabilitation. *Can J Ophthalmol.* 2006;41:289-312.

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## ANNEXURE 1

### Questionnaire

S. no.	Questionnaires
1	How often do low vision patients visit your clinic?
2	What do you do when you get a patient with low vision?
3	In your practice, you consider a person as having low vision based on.
4	According to you, the criteria for low vision should be based on
5	Do you consider a person is having low vision when the best-corrected visual acuity in the better eye is worse than?
6	Do you consider a person is having a low vision when their visual field from the point of fixation is worse than?
7	How often do you provide low vision devices in your practice?
8	What kind of devices do you provide?
9	What are the common causes of low vision that you have come across in your practice?
10	What, according to you, are the barriers to attending a low vision training program
11	According to you, how can we improve low vision practice?
12	According to you, what are the barriers to the patients to access low vision services?
13	What are the major barriers that you face in your practice in providing low vision care?
14	What, according to you, is low vision rehabilitation?
15	According to you, what are the areas in which a low vision patient is eligible to get concession?