

International Journal of Medical Science and Current Research (IJMSCR) Available online at: www.ijmscr.com Volume 4, Issue 5, Page No: 398-406 September-October 2021



A survey on factors affecting the decision of Optometry students to work in rural areas after graduation: An Indian scenario

Gobinda Chandra Mondal¹, Md Zakaria Midya²,*Salal Khan³ (Corresponding Author), Ayan Kumar Bera⁴, Priti Chandra Halder⁵, Anneswa Ganguly⁶, Shahreen Khan⁷

¹Founder & Advisor at Optography, India ²National Head of Training & Analyst at Zylux Corporations Pvt. Ltd. India ³,⁷Optometry Scholar, Department of Optometry, UP University of Medical Sciences, Saifai, India ⁴Clinical Administrator at Private Eye Hospital, East Region, India ⁵Student, Haldia Institute of Management, Kolkata, India ⁶Student, North Bengal Medical College &Hospital, Kolkata, India.

*Corresponding Author: *Salal Khan

Optometry Scholar, Department of Optometry, UP University of Medical Sciences, Saifai, India

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Aim/Purpose:

The aim of the study was to investigate factors that will influence Indian Optometry students' decision to work in rural areas after completion of their graduation, and also create awareness about rural area practice.

Material & Methods:

A consecutive cross-sectional descriptive study was conducted among UG Optometry students in India [included all zone (Eastern, Western, Southern and Northern zone)]. A questionnaire delivered electronically among the students, who agreed to take part in this study. All data were collected electronically in excel sheet, and data were analysed by Chi-square test in SPSS version 21. **Results:**

It was found that out of 484 subjects (Male-48% & Female-52%), mean age 24 ± 2.6 , 5% married & 95% unmarried. Most of students from rural backgrounds (51%) wants to open their first (70.2%) or second practices (70.6%) in the rural areas while from urban background (49%) wants to open their (first- 58.8% & second- 62.1%) practices respectively. The common reason cited by the students for their unwillingness to work in the rural areas were financial concerns (36%), poor living conditions (27.7%), personal safety (24.4%) & language barriers (24.2%). The main factors that influence rural practice were scholarship for further studies (40.7%), financial incentives (22.3%), compulsory community services (29.5%). All parameters mentioned were found to be statistically significant (p<0.05) with the Pearson Chi-square test in IBM SPSS version 21.

Conclusion:

This research study has shown that Indian Optometry students from the rural backgrounds more inclined to return and practice in rural areas & few urban areas students have a desire to practice in rural areas after graduation. Few optometry students, irrespective of their background may opt to work in rural areas for NGOs or the Governments after their training.

Keywords: Rural area practice, Optometry, Education, Eye-care services, Visual impairment, Blindness. **INTRODUCTION**

Blindness and vision impairment continue to be significant public health problems in India.¹ Worldwide, 285 million people are estimated to be visually impaired, of whom 39 million are blind and 246 million living with low vision.²

The burden of visual impairment in India is estimated at 62 million; of these, 54 million persons have low vision, and 8 million are blind.³ Rural population (% of total population) in India was reported at 65.53 % in 2019, according to the World Bank collection of development indicators, compiled from officially recognized sources.⁴ Cataract continues to be the leading cause of blindness in India with three out of every four people, above the age of 50 years, blind due

398

to cataract.⁵ However, uncorrected refractive error remains a major cause of avoidable vision impairment and the second most common cause of blindness in India.

The World Health Organization (WHO) estimates that approximately 39.3 million, including 1.6 million children in India, are blind or visually impaired due to uncorrected refractive error.⁶ A recent report states a yet higher prevalence of uncorrected refractive error around 133 million people blind or vision impaired including 11 million children due to lack of an eye examination and provision of an appropriate pair of spectacles.⁷ In addition to this, in 2010, the number of people with glaucoma in India (most of whom are undiagnosed) was almost 12 million.⁸ Whilst most cases of visual impairment are preventable or manageable by surgery and/or refractive error corrections with glasses.⁹⁻¹²

To eliminate vision impairment and evitable/avoidable blindness, adequate standardized and regulated training of eye care personnel is important.

This is significantly the case in developing countries for mainly 4 'A' reasons:

- Availability: Eye care services are not promptly obtainable, either owing to a scarcity of trained personnel or because eye care practitioners are concentrated in urban areas.¹³⁻¹⁶ Consequently, folks in rural areas with treatable eye conditions are mostly unattended to, whilst town facilities stay underutilised.¹⁷⁻¹⁸
- * Accessibility: Many of us, significantly those in rural areas, don't have access to eye care services. Factors like lack of funds for transport to eye care facilities could lead to poor access to eye care services.¹⁹⁻²⁰
- * Affordability: As eye care services are typically provided by private practitioners or on a cost-recovery basis, instead of being freely obtainable through government facilities, many people can't afford them.²¹⁻²⁴
- Awareness: Eye care services having lack of awareness in rural communities, in order that several peoples affected from preventable or manageable conditions, however neither they have any eye examination schedule nor any

eye care professional aware them regarding their eye conditions.

However, some evidence exists²⁵⁻²⁹ that, even when eye services are obtainable, they're underused by potential beneficiaries.

Strategies to beat visual issues in rural communities:

Few strategies are described here which may overcome the visual issues in rural areas, if it'll followed aggressively:³⁰⁻³³

- 1. Eye care workforce development (attracting eye care professionals to rural areas and retentive them there)
- 2. Eye care service development
- 3. Improving eye care infrastructure-
 - Rural vision centres
 - Follow-up care services
- 4. Implementing preventive measures-
 - Vision screening
 - Affordable or free spectacles& eye drops
- 5. Eye health education-
 - Eye health promotion
 - School health programmes
 - Eye care awareness campaigns

Material & Methods:

Research design-

This study was a cross-sectional survey-based study amongst undergraduate Optometry students in the Eastern, Western, Southern and Northern zone of India. The study included all the undergraduate Optometry students (1st year to 4th year), who agreed to participate in this study. The study was conducted at all four zone of Indian Optometry institutions. Each institution offered undergraduate optometry programmes.

Time frame- It was conducted between April to July month of 2021.

Sample size-It was included 484 participants, including eastern, western, southern and northern zone of India.

Sampling procedure-

This study was included clustered-sampling methods to collect the data by adopted a validated questionnaire previously used in a related study in Abroad.³⁴⁻³⁷ The questionnaire was modified according to Indian scenario and it was entitled as a Google form questionnaire to delivered electronically in all zone of optometry institutions, who agreed to participate in this study.

It comprised 27 close-ended questions that explored demographic data, opinion about working in rural areas, factors affecting rural optometric practice.

Inclusion criteria- It was included only undergraduate Optometry students, who agreed to participate in this study.

Exclusion criteria- It was excluded post graduates or pass out students or practitioners.

Data Analysis-

Data were captured and analysed with the Statistical Programme of Social Sciences (SPSS) version 21. Descriptive statistics were used to analyse values such as frequencies, mean, standard deviation, cross tabulation and percentage of collected data. Chisquare test were used to analysed association between relevant variables. A p-value of <0.05 was considered statistically significant.

Characteristics	N= 484	%
Age		
15-20	126	26
20-25	314	64.9
25-30	33	6.8
>30	11	2.2
Gender		
Male	232	48
Female	252	52
Marital status		
Married	24	5
Unmarried	460	95
Place of origin		
Rural	245	51
Urban	239	49
Province of Institution		
Eastern	119	24.6
Western	123	25.4
Northern	122	24.8
Southern	120	25.2
Year of study		
1 st year	120	24.8

Volume 4, Issue 5; September-October 2021; Page No 398-406 © 2021 IJMSCR. All Rights Reserved Salal Khan al International Journal of Medical Science and Current Research (IJMSCR)

2 nd year	96	19.8
3 rd year	92	19
4 th year	176	36.4

 Table 1: Demographics of Indian Optometry students (N=484).

Results:

Out of 484 subjects (Male-48% & Female-52%), mean age , 5% married & 95% unmarried. Most of students from rural backgrounds (51%) wants to open their first (70.2%, p<0.05) or second practices (70.6%, p<0.05) in the rural areas while from urban background (49%) wants to open their (first- 58.8%, p<0.05 & second-62.1%, p<0.05) practices respectively. The common

reason cited by the students for their unwillingness to work in the rural areas were financial concerns (36%, p<0.05), poor living conditions (27.7%, p<0.05), personal safety (24.4%, p<0.05) & language barriers (24.2%, p<0.05). The main factors that influence rural practice were scholarship for further studies (40.7%, p<0.05), financial incentives (22.3%, p<0.05), compulsory community services (29.5%, p<0.05).

Variables	Characteristics	Rural		Urban		Total	
		N	%	N	%	N	%
Establish first practice in the rural area	Yes	170	54.7	141	45.3	311	64.2
	No	74	42.8	99	57.2	173	35.8
Establish subsequent	Yes	171	53.6	148	46.4	319	65.9
practice in the rural area	No	73	44.2	92	55.8	165	34.1
Employed by the	Yes	107	49.8	108	50.2	215	44.4
Government	No	137	50.9	132	49.1	269	55.6
Community service for the graduates	Yes	166	48	180	52	346	71.7
	No	78	56.5	60	43.5	138	28.3
Employed by the NGO	Yes	125	46.5	144	53.5	269	55.6
	No	119	55.3	96	44.7	215	44.4
Motivating factors &	Good salary package	90	58.4	64	41.6	154	31.8
choosing to work in the rural	Proximity to home	102	79.7	26	20.3	128	26.4
	Extra incentives	32	45.1	39	54.9	71	14.7
	Inability to find a job in rural centres	45	58.4	32	41.6	77	15.9
	Service for the rural areas	172	59.7	116	40.3	288	59.5
	Financial concerns	114	65.5	60	34.5	174	36

Volume 4, Issue 5; September-October 2021; Page No 398-406 © 2021 IJMSCR. All Rights Reserved

Reason not to working in	Personal safety	64	54.2	54	45.8	118	24.4
rurai areas	Poor living conditions	90	67.2	44	32.8	134	27.7
	Language barriers	42	36.8	75	64.2	117	24.2
	Exposure to more optometric cases	62	50.4	61	49.6	123	25.4

Table 2: Respondents opinion about working in rural areas.



Figure 1: Main reason of the students for their unwillingness to work in rural areas.



Figure 2: Motivating factors & willingness to work in the rural area.

Factors	Level of attractiveness n (%)				
	NAA	<u>NRA</u>	<u>SA</u>	MA	VA
Opportunities for professional development	35 (7.2)	46 (9.5)	118 (24.4)	125 (25.8)	160 (33.1)
Scholarship for further studies	65 (13.4)	46 (9.5)	82 (16.9)	94 (19.4)	197 (40.7)
Better living conditions	40 (8.3)	56 (11.6)	143 (29.5)	128 (26.4)	117 (24.2)
Financial incentives	45 (9.3)	66 (13.6)	135 (27.9)	130 (26.9)	108 (22.3)
Acceptable classical working place	30 (6.2)	56 (11.6)	133 (27.5)	144 (29.8)	121 (25)
Outreach interaction between rural & urban health workers	29 (6)	44 (9.1)	125 (25.8)	153 (31.6)	133 (27.5)
Career ladder jump for rural health workers	36 (7.4)	55 (11.4)	139 (28.7)	137 (28.3)	117 (24.2)
Facilities of knowledge exchange to reduce sense of professional isolation	30 (6.2)	57 (11.8)	155 (32)	140 (28.9)	102 (21.1)
Enhanced profile of rural health workers	31 (6.4)	36 (7.4)	136 (28.1)	160 (33.1)	121 (25)
Compulsory community services	27 (5.6)	43 (8.9)	109 (22.5)	162 (33.5)	143 (29.5)
Enhance scope of optometric practice	27 (5.6)	25 (5.2)	90 (18.6)	139 (28.7)	203 (41.9)

Table 3: Factors that influence their decision for rural optometric practice.

(*NAA- Not attractive at all, NRA- Not really attractive, SA- Slightly attractive, MA- Moderately attractive, VA-Very attractive)

Discussion:

Quite similar results of opinion as well as factors among Optometry students were observed in all these studies regardless of the area & place of study.

Lack of awareness and shortage of healthcare employees in rural and remote areas remains a growing concern each in developed and developing countries. Within the face of growing eye care desires and high prevalence of visual disorders, Republic of Indian battles acute shortage of optometrists in rural areas. This study sought to seek out what factor's optometry students would consider when deciding on the location of their prospective Optometric practices. Quite half of the study respondents came from urban areas, but students with rural communities were more inclined to return and work in rural areas. The findings conjointly indicated that employment by government and NGOs would attract optometry graduates to rural areas despite their place of origin. The bulk of Indian optometry students, regardless of their background, would, however, not begin their initial practices in rural communities. In addition, we found that financial concern was the most hindrance for the optometrists to pick rural practice.

Present study	African study ³⁸	Ghanaian study ³⁹			
1. Study conducted in India.	1. Study conducted in South Africa.	1. Study conducted in Ghana.			
2. Cross-sectional survey based study (April-July, 2021)	2. Cross-sectional quantitative study (June- October, 2013)	2. Cross-sectional survey based study (2017)			
3. 484 students responded to the questionnaire.	3. 438 students responded to the questionnaire.	3. 333 students responded to the questionnaire.			
4. Students of urban background did want to open their first (58.8%) or second practice (62.1%) in the rural area.	4. Students of urban background did not want to open their first or second practice in the rural area.	4. Students of urban background did not want to open their first or second practice in the rural area.			
5. Students of rural background did want to open their first (70.2%) or second practice (70.6%) in the rural area.	5. Students of rural background did want to open their first (77.2%) or second practice (79.4%) in the rural area.	5. Students of rural background did want to open their first (65.8%) or second practice (86.6%) in the rural area.			
6. Data analysis was performed using Chi square test by SPSS version 21.	6. Data analysis was performed using Chi square test by SPSS version 19.	6. Data analysis was performed using Chi square test by SPSS version 21.			
7. A 'p' value of < 0.05 was considered as significant.	7. A 'p' value of < 0.05 was considered as significant.	7. A 'p' value of < 0.05 was considered as significant.			

Conclusion:

This research study has shown that;

- Indian Optometry students from the rural backgrounds more inclined to return and practice in rural areas &
- Few urban areas students have a desire to practice in rural areas after graduation.
- Few optometry students, irrespective of their background may opt to work in rural areas for NGOs or the Governments after their training.

Few Common factors would be motivating to attract graduating optometry students to rural areas, regardless of their origin.

There is also a high need for governments and NGOs (involved in eye care health activities) to ensure that the necessary incentives and policy measures on monitoring and evaluation are implemented to ensure that those who are posted to rural areas and do not prematurely vacate Optometrist post in rural areas, but commit to improving access to quality eye care with the view of eliminating avoidable blindness in rural areas & also motivate the rural communities for their eye care health and its associated ocular causes or conditions as well as systemic consequences related to eye problems.

Acknowledgement:

Author would like to thanks Mr. Hamza Qureshi (MD-Optocraft), Mrs. Sravani Mereddy (HOD Optometry from Centurion University of Technology & Management, Andhra Pradesh), Mr. Zeeshan Akhtar (Assistant Professor, Department of Optometry, School of Health Science, Sushant University, Gurgaon), Ms Simi Afroz (Assistant Professor, Department of Optometry, Sharda University, Noida), who have contributed in data collection and assisted greatly till the execution of this article. I acknowledge students who voluntarily participate in it. Authors are also grateful to authors /editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

Author contributions:

All authors contributed in data collection, analysis and drafting the manuscript, reviewed and edited the manuscript, study design, gathering relevant research papers, conceptualisations, read and approved the final manuscript.

Source of Funding:

This work was supported by Zylux Corporations Pvt Ltd, India. It is an Ultra Advanced Spectacle lenses manufacturing company which specializes in making Thin, Light & Easy to Maintain Lenses.

REFERENCES:

- 1. Neilsen De Souza et al; The role of optometrists in India: An integral part of an eye health team; Indian J Ophthalmol. 2012 Sep-Oct; 60(5): 401–405.
- Mariot SP. Global data on visual impairment 2010. Bull World Health Organization. 2012. WHO/NMH/PBD/12.01.
- Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. Br J Ophthalmol 2012;96:614-18.
- 4. https://www.tradingeconomics.com/india/rura l-population-percent-of-total-population-wbdata.html
- 5. Neena J et al. Rapid assessment of avoidable blindness in India. PLoS One. 2008;3:e2867.
- 6. Resnikoff S et al. Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. Bull World Health Organ. 2008;86:63–70.
- 7. International Centre for Eyecare Education, Delhi declaration on optometry and blindness prevention. 2009.
- 8. Quigley HA, Broman AT. The number of people with glaucoma worldwide in 2010 and 2020. Br J Ophthalmol. 2006;90:262–7.
- 9. Lewallen S, Courtright P. Blindness in Africa: present and future needs. Brit J Ophthalmol. 2001;85(8):897–903.

- 10. Nwosu SNN. Beliefs and attitude to eye diseases and blindness in rural Anambra State, Nigeria. Nig J Ophthalmol. 2002;10(1):16–20.
- Frick KD, Foster A. The magnitude and cost of global blindness: An increasing problem than can be alleviated. Am J Ophthalmol. 2003;135(4):471–476.
- 12. Klauss V, Schaller UC. [Tropical Ophthalmology prevention and therapy. 'Vision 2020' The right to sight.] German. Ophthalmologe. 2004;101(7):741–765.
- 13. Buchanan N, Horwitz SM. Health policy and eye care services in Jamaica. Optom Vis Sci. 2000;77(1):51–57.
- 14. Khan SA. Setting up low vision services in the developing world. Comm Eye Health. 2004;17(49):17–20.
- 15. Husainzada R. Situation analysis of human resources in eye care in Afghanistan. Comm Eye Health. 2007;20(61):12.
- 16. Okoye OI, Aghaji AE, Umeh RE, et al. Barriers to the provision of clinical low-vision services among ophthalmologists in Nigeria. Vis Imp Res. 2007;9(1):11–17
- 17. Di Stefano A. World optometry: The challenge of leadership for the new millennium. Optometry. 2002;73(6):339–350.
- Ashaye A, Ajuwon A, Adeoti C. Perceptions of blindness and blinding eye conditions in rural communities. J Natl Med Assoc. 2006;98(6):887–893.
- 19. Chandrashekhar TS, Bhat HV, Pai RV, et al. Coverage, utilization and barriers to cataract surgical services in rural South India. Results from a population-based study. Public Health. 2007;121(2):130–136.
- Dhaliwal U, Gupta S. Barriers to uptake of cataract surgery in patients presenting to a hospital. Indian J Ophthalmol. 2007;55(2):133–136.
- 21. Ndegwa LK, Karimurio J, Okelo RO, et al. Barriers to utilisation of eye care services in Kibera slums of Nairobi. East Afr Med J. 2005;82(10):506–508.

Volume 4, Issue 5; September-October 2021; Page No 398-406 © 2021 IJMSCR. All Rights Reserved

- 22. Habte D, Gebre T, Zerihun, et al. Determinants of uptake of surgical treatment for trachomatoustrichiasis in North Ethiopia. Ophthalmic Epidemiol. 2008;15(5):328–333.
- 23. Kovai V, Krishnaiah S, Shamanna BR, et al. Barriers to accessing eye care services among visually impaired population in rural Andhra Pradesh, South India. Indian J Ophthalmol. 2007;55(5):365–371.
- 24. Palagyi A, Ramke J, du Toit R, et al. Eye care in Timor-Leste: A population-based study of utilization and barriers. Clin Experiment Ophthalmol. 2008;36(1):47–53.
- 25. Venkataswamy PG et al. Social and economic barriers to cataract surgery in rural south India: a preliminary report. *Vis Impairment Blindness*. December1981;405-408
- 26. Brilliant GE et al. RD Social determinants of cataract surgery utilization in south India: the Operations Research Group. Arch Ophthalmol. 1991;109584-589
- 27. Brilliant GEBrilliant LB Using social epidemiology to understand who stays blind and who gets operated for cataract in a rural setting. *SocSci Med.* 1985;21553-558
- 28. Gupta SK et al. Where do persons with blindness caused by cataracts in rural areas of India seek treatment and why? *Arch Ophthalmol.* 1995;1131337-1340
- 29. Courtright P et al. Barriers to acceptance of cataract surgery among patients presenting to district hospitals in rural Malawi. *Trop Geogr Med.* 1995;4715-19
- 30. World Health Organization. Increasing access to health workers in remote and rural areas through improved retention: Global

recommendations. Geneva: World Health Organization; 2010.

- Reid SJ. Compulsory community service for doctors in South Africa: An evaluation of the year. S Afr Med J. 2001;91:329–336.
- Naidoo K, Savage B, Westerfall B. Creating a sustainable spectacle delivery solution. Vision. 2006;15 July/August.
- 33. Jose R, Sachdeva S. School eye screening and the National Programme for Control of Blindness. Indian Pediatr. 2009;46:205–208.
- 34. Oduntan AO et al. Perceptions, expectations, apprehensions and realities of graduating South African optometry students (PEAR study, 2006). S AfrOptom. 2007;66(3):94– 108.
- 35. Buykx P et al. Systematic review of effective retention incentives for health workers in rural and remote areas: Towards evidence-based policy. Aus J Rur Health. 2010;18(3):102–109.
- Reid SJ. Compulsory community service for doctors in South Africa – an evaluation of the first year. S Afr Med J. 2001;91(4):329–336.
- 37. Jutzi L et al. Recruiting medical students to rural practice: Perspectives of medical students and rural recruiters. Can Fam Physician.2009;55(1):72–73.
- 38. Mashige KP et al. Opinions of South African optometry students about working in rural areas after graduation. Afr J Prm Health Care Fam Med. 2015;7(1), Art. #799, 7 pages.
- 39. Boadi-Kusi *et al.* Factors influencing the decision of GHANAIAN optometry students to practice in rural areas after graduation. *BMC Med Educ* **18**, 188 (2018).