

Patient Perceptions of Eye Disease and Treatment in Bihar India

M. Brayden Lundquist¹, Nishant Sharma^{2*} and Kirti Kewalramani³

¹Bachelor of Science from the University of Utah, USA

²Bachelor of Science from the University of Saskatchewan, Saskatoon, Saskatchewan, Canada

³Health Sciences, Northeastern University, USA

Keywords: Preventable blindness; Eye care; Educational outreach; Bihar

Preventable blindness is an important issue in public health for developing nations around the world, especially in India [1]. Estimations of blindness in India by the World Health Organization (WHO) show 11.2% of the population suffering from preventable blindness with more than 2 million new cases expected each year [2]. With the second largest population after China, India's eye care professionals are overwhelmed with an astronomical number of patients. Nearly 70% of India's population resides in rural areas, and only 10,000 ophthalmologists are responsible for the care of the entire population—a ratio of 1 ophthalmologist per 100,000 people [3].

Cataracts plague the world with over 17 million cases [4]. The Indian population accounts for 1 of every 3 cases worldwide. Most of the patients suffering from cataracts are found in rural villages where money and education are scarce. Studies show that almost 30% of persons living in rural areas of India have never sought care from any kind of health care facility [5]. Many efforts have been made to provide free services to patients in these rural communities. As many as 70% of participants in a rural study of southern India reported an awareness of cataracts, and in the same study only 15% of participants knew what a cataract was and how it is treated [6].

Additionally health illiteracy among India's population is problematic, leading to residents who are not aware of prevalent eye diseases and possible treatments. Currently, India's adult literacy rate is 64.2% [7]. In an effort to address the nation's untreated eye conditions, the WHO and the International Agency for Prevention of Blindness (IAPB) partnered with the Indian government to create India's VISION 2020: Right to Sight [8]. In this initiative, seven focus areas are identified: cataracts, childhood blindness, refractive errors and low vision, corneal blindness, glaucoma, and diabetic retinopathy [9]. With this in mind, we developed a qualitative survey to get an initial picture of Patna city and rural resident's knowledge of prevalent eye diseases and treatments.

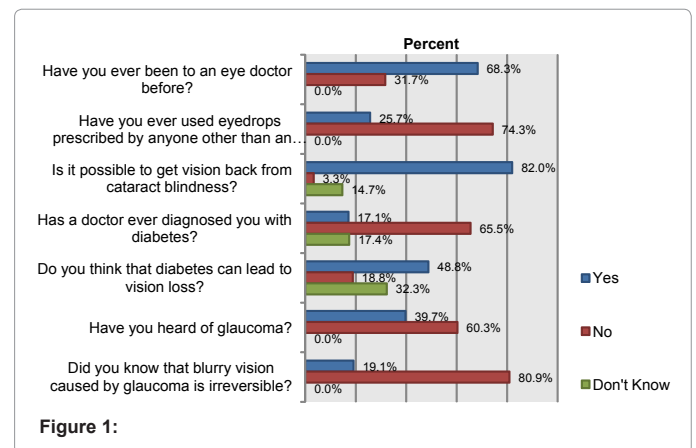
Methods

The present study was developed in collaboration with Unite for Sight, an American Non-Governmental Organization that supports local eye doctors in developing countries, and their partner clinic the A. B. Eye Institute, in Patna India. The communities identified in the outreach efforts of the A. B. Eye Institute served as an initial assessment of patient's baseline knowledge of eye conditions and possible treatment methods to aid in the future development of educational outreach initiatives and studies. The survey was administered verbally with the help of native speakers and translators to 304 subjects aged 40 and older (56.1% male, 43.9% female). The mean age of the participants was 53.89 (± 10.851) years. The study was conducted from March to September 2010. A convenience sample was used from the A. B. Eye Institute in Patna and its rural satellite clinics. Research has concluded that 90% of blindness occurs within this age group [1]. Questions were

based on prior research, including the focus areas in India's VISION 2020 initiatives, the A. B. Eye Institute, its patients, and the socio-economics of Patna. Multiple choice survey questions were translated into Hindi and read verbatim by native speakers. Verbal responses from participants were recorded by hand. Ethics review was received through the Institutional Review Board at the University of Utah. Study data was analyzed using PASW Statistics 18.0 software.

Results

Data collected showed that 61.3% of participants were living on 100 rupees or less per day. Previous eye doctor visits were reported by 68.3% of subjects. 25.7% of subjects reported using eye drops prescribed by someone other than a doctor, and of those, 52.6% reported not knowing that a doctor should prescribe eye drops (Figure 1). 71.9% of subjects accurately reported that a cataract is treated by surgery, while 23.4% did not know. Of those aware of cataract treatment, 41.9% learned about treatment from an eye care professional, and 36.4% from someone with a cataract (Figure 2). 17.1% of participants reported diabetic diagnosis by a doctor, and of those, 64.7% inaccurately reported how often diabetics should receive eye exams (Figure 3). Furthermore, 60.3% of patients reported no awareness of the condition glaucoma and 80.9% did not know that blurry vision caused by glaucoma is irreversible.



***Corresponding author:** Nishant Sharma, Bachelor of Science from the University of Saskatchewan, Saskatoon, Saskatchewan, Canada, E-mail: nsharma.usask@gmail.com

Received February 07, 2012; **Accepted** March 17, 2012; **Published** March 20, 2012

Citation: Lundquist MB, Sharma N, Kewalramani K (2012) Patient Perceptions of Eye Disease and Treatment in Bihar India. J Clin Experiment Ophthalmol 3:213. doi:10.4172/2155-9570.1000213

Copyright: © 2012 Lundquist MB, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

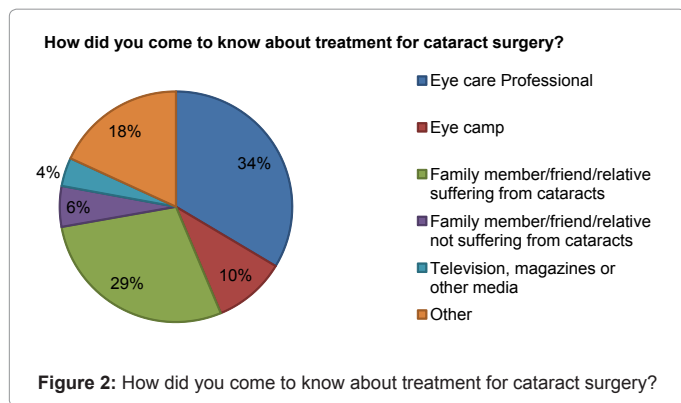


Figure 2: How did you come to know about treatment for cataract surgery?

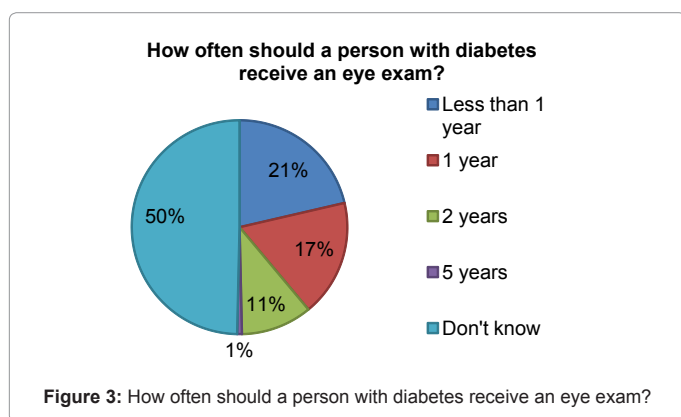


Figure 3: How often should a person with diabetes receive an eye exam?

Interpretation

Prescription eye drop usage

There is limited research on the topic of eye drop usage in India. Due to cases of ocular damage from incorrectly prescribed eye drops resulting from misdiagnosis and treatment by village practitioners and shopkeepers, A. B. Eye Institute ophthalmologists suggested this topic be addressed. Roughly one quarter of the study participants (25.7%) reported using eye drops prescribed by someone other than an eye doctor. Our study found that 52.6% of participants did not know that an eye doctor should prescribe eye drops. This data suggests that both the rural population as well as the rural practitioners would benefit from educational outreach regarding correct diagnosis and corresponding prescription eye drop treatment. Specific questions for future study exploration may include: patient awareness of eye care specialists/specialties and incidence or prevention of irreversible eye damage due to improper eye drop usage.

Diabetes

The progression of diabetes can lead to many systemic complications, including diabetic retinopathy. In our study, 17.1% of participants had a confirmed diagnosis of diabetes, and of those, 64.7% inaccurately reported how often diabetics should receive an eye exam. Rani et al. conducted a study in Tamil Nadu (south India) examining awareness about diabetic retinopathy and found that one third of the participants with a confirmed diagnosis of diabetes were under the impression that adequate glycemic control was sufficient enough to avoid consultations by an ophthalmologist [9]. The study also found a positive correlation between education, socioeconomic status and awareness regarding vision impairment due to diabetes. Because of the

stratified nature of Indian society, the rural population would be at a heightened risk of misinformation due to lower educational standards and the economic struggles which accompany rural life. In 2008, World Bank concluded that Bihar had one of the highest incidence of poverty compared to the other states of India, with 40% of its population living below the poverty line, while the national average was 29% [10]. With increasing incidence of diabetes, Bihar is at a heightened risk of developing secondary complications of diabetes due to the positive correlation between poverty, education, and awareness.

Glaucoma

In our study, an overwhelming 60.3% of participants did not know about glaucoma. This is a significant proportion, and further highlights the need for outreach programs focused on patient education. Despite advanced surgical techniques that aim at controlling IOP, blindness caused by glaucoma continues to be a growing trend worldwide, especially in India [11]. One of the challenges in management of glaucoma is that symptoms do not present until the late stages of the disease. The majority of the developing world has limited access to routine eye exams, and consequently, these are the people at high risk of developing late stage symptoms and subsequent irreversible blindness. The association between a lack of awareness of glaucoma and late clinical presentation of the disease has been highlighted in studies around the world. The Barbados Eye Study (BES) found that of participants with primary open angle glaucoma, 51% were unaware of the term or nature of the disease [12]. More specific to India is the Andhra Pradesh Eye Disease Study (APEDS), which showed that awareness of glaucoma was very limited in rural populations in Southern India [13]. Our research suggests that educational outreach regarding glaucoma would benefit the communities of Patna, Bihar, India.

Cataract

Our study data indicates an encouraging level of awareness for cataracts and treatment methods. These results reflect positively on existing efforts to increase cataract awareness in Patna. Information about cataracts is being relayed effectively from doctor to patient, and patient to family and friends. Because of high participant awareness of cataracts and treatment, future educational outreaches should be focused on different areas of ocular health, such as diabetes-related vision problems and glaucoma [14].

Conclusion

Our data suggests that residents in Patna, Bihar India could benefit from educational outreach programs specifically addressing prescription eye drop usage and ocular health complications specific to diabetes and glaucoma. Increasing patient awareness of prevalent eye diseases and treatments could lead to an increase in patient acceptance of the importance of routine eye examinations for timely identification and treatment of many eye conditions. The data reported here will help eye care professionals and health educators target specific educational initiatives for the target population.

Acknowledgements

This study was developed in cooperation with Unite For Sight® and the A. B. Eye Institute, Unite for Sight's partner clinic in Bihar. Jennifer Staple-Clark, C.E.O. of Unite for Sight, and Dr. Satyajit Sinha of the A. B. Eye Institute, offered valuable suggestions to the study design. Special thanks to Dr. Nick Galli of California State University, Northridge for valuable mentorship, and Abhishek Mishra of the A. B. Eye Institute for translation and data collection assistance.

References

1. Murthy GV, Gupta SK, Bachani D, Jose R, John N (2005) Current estimates of blindness in India. *Br J Ophthalmol* 89: 257-260.
2. Dua AS, Muralikrishnan R, Praveen RK, Thulasiraj RD, Damodar B, et al. (2005) NCMH Background papers; Burden of disease in India. 299-305.
3. Gullapalli NR (2000) Ophthalmology in India. *Arch Ophthalmol* 118: 1431-1432.
4. Congdon NG, Friedman DS, Lietman T (2003) Important causes of visual impairment in the world today. *JAMA* 290: 2057-2060.
5. Gupta SK, Murthy GV (1995) Where do persons with blindness caused by cataracts in rural areas of India seek treatment and why? *Arch Ophthalmol* 113: 1337-1340.
6. Dandona R, Dandona L, John RK, McCarty CA, Rao GN (2001) Awareness of eye diseases in southern India. *Bull World Health Organ* 79: 96-102.
7. UNESCO (2009) UIS statistics in brief: literacy rates [Internet].
8. Deshpande M (2008) Vision 2020: The Right to sight – India. *MJAFI* 64: 302-303.
9. Rani PK, Raman R, Subramani S, Perumal G, Kumaramanickavel G, et al. (2008) Knowledge of diabetes and diabetic retinopathy among rural populations in India and the influence of knowledge of diabetic retinopathy on attitude and practice. *Rural Remote Health* 8: 838.
10. Boelaert M, Meheus F, Sanchez A, Singh SP, Vanlerberghe V, et al. (2009) The poorest of the poor: a poverty appraisal of households affected by visceral leishmaniasis in Bihar, India. *Trop Med Int Health* 14: 639-644.
11. Hennis A, Wu SY, Nemesure B, Honkanen R, Leske MC (2007) Barbados Eye Studies Group, Awareness of incident open-angle glaucoma in a population study: The Barbados Eye Studies. *Ophthalmology* 114: 1816-1821.
12. Quigley HA, Broman AT (2006) The number of people with glaucoma worldwide in 2010 and 2020. *Br J Ophthalmol* 90: 262-267.
13. Krishnaiah S, Kovai V, Srinivas M, Shamanna BR, Rao GN, et al. (2005) Awareness of Glaucoma in the rural population of Southern India. *Indian J Ophthalmol* 53: 205-208.
14. Brilliant GE, Lepkowski JM, Zurita B, Thulasiraj RD (1991) Social determinants of cataract surgery utilization in south India. The Operations Research Group. *Arch Ophthalmol* 109: 584-589.