



## Awareness and Attitude towards Refractive Error Correction in Gwalior Population

Mr. Roshan Kumar Yadav<sup>1</sup>, Mr. Sunil Kumar Sah<sup>1</sup>, Mr. Mathew George<sup>1</sup>, Ms. Shenbagam Narasimhan<sup>2</sup>, Mr. Sourajit Kumar Banerjee<sup>3</sup>, Mr. Jagdish Singh<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Optometry, School of Nursing Sciences, ITM University, Gwalior, M.P. India

<sup>2</sup>Assistant Professor, Department of Optometry, School of Health Sciences, Sushant University, Gurugram, India

<sup>3</sup>Assistant Professor, Department of Optometry, Centurion University of Technology and Management, Vizianagaram, Andhra Pradesh, India

<sup>4</sup>Assistant Professor, Department of Optometry, School of Medical & Allied Science, Sanskriti University, Mathura, U.P. India

**\*Corresponding author:**

**Mr. Roshan Kumar Yadav**

Phone (or Mobile) No.: +91-9871248705

Email: yadavrosan100@gmail.com

### ABSTRACT

**Purpose:** This study was designed to determine the level of awareness and attitude toward refractive error correction in Gwalior population.

**Methods:** A random sampling method was applied to choose subjects aged various optometry courses. A structured questionnaire with open-ended and closed ended questions was designed to gather the participants' demographic data as well as their awareness and attitude toward refractive correction method (spectacles, contact lenses and refractive surgery).

**Results:** overall, 26.2% of the participants had a clear idea of them 'ophthalmologist' and 'optometrist'. 71.4%, 58.8% and 71% of respondents had no information about contact lens side effects, respectively. 68.6% of participants were not aware of the possibility of refractive surgery for improving the sight. Awareness about refractive surgery's adverse effects was only 12%.

**Conclusion:** Developing Gwalior with a huge population with refractive error putting a burden on overall health care. Awareness and attitude towards refractive correction methods was moderately low among the participants of this study. Although, ophthalmologists were the first source of consultation

on sight impairments among respondents, one third percentage of subjects were not even aware of obvious differences between an ophthalmologist and an optometrist. These findings emphasize the necessity for proper public education on ophthalmic care and the available services.

**Key Words:** Refractive error correction, Gwalior population

## **INTRODUCTION**

The ultimate goal of world health organization has made refractive error correction a priority in the global initiative to eliminate avoidable blindness: vision 2022 (the right to sight). sight is significant indicator of health and quality of life & no person is going to be comfortable in his day to day activities without the normal sight . the universal symptoms like headache, watering, eye discomfort, blurring of distant and near vision with which patient visit the ophthalmologist may be related to the refractive errors. Uncorrected refractive errors are a foremost cause of visual impairment and blindness, globally. It is projected that 150 million people worldwide have distance vision worse than 20/60 due to uncorrected refractive errors. It is estimated that there are 36 million people who are blind, 2166 million have moderate to severe visual impairment and 188.5 million have mild v the leading cause of VI is uncorrected refractive error. Almost 19 million children aged 15 years have VI globally. In developing countries, 7-13% of childhood blindness is avoidable, 10-58% is treatable, and 3- 28% is preventable. . Visual impairment due to uncorrected refractive error affects 200-250 million people in the world. Correction of uncorrected refractive errors is a priority of vision 2022 the right to sight. Awareness about the refractive error its associated symptoms along with its treatment can play an important role in prevention of blindness. Refractive error is a condition in which the eye in its relaxed state is unable to sharply see images due to failure of the optical system to bring parallel rays of light reflected off objects of regard to a sharp focus on the retina. As a result, there is relatively poor vision as images of objects are seen to be blurred. Both Eyes is an eye condition in which light from a distant object is not focused on the retina; it might be focused in front of or behind the retina. A high risk of myopia has been reported among medical students for their many-tear intensive study routine. There are several options available to

correct refractive errors dividing into optical and surgical. The preferred correction of refractive errors in all age categories is glasses and contact lenses. The exact cause of refractive error is hereditary, nutritional and environmental. There is no single method for correction of refractive errors that is worthwhile to patients. Some patients feel, spectacles as the best choice. Myopia and hyperopic are said to occur when the optical system of the eye brings parallel rays of light into focus in front and at the back fovea, respectively. Astigmatism on the other hand occurs when rays of light from different Contact lens or refractive surgery are the correction method of choice in other circumstances. Refractive error not only imposes a huge financial burden on the society but if left uncorrected could extensively affect patient's independence, quality of life and well-being. Refractive error is defined as a state of refraction, when parallel rays of light coming from infinity are focused either in front or behind the retina after passing through the dioptric power of the eye when the accommodation is at rest. It is estimated that there are 1.4 million blind children in the world, two thirds of whom live in the in the developing countries, and of all the blind children. Most of the children with uncorrected refractive error are asymptomatic and hence screening helps in early detection of refractive errors and timely interventions. It is estimated that 270,000 live in India; blindness is one of the significant social problem in India. No studies are available regarding the refractive error awareness among population to the knowledge therefore; we decided to perform this study for a better understanding about the level of awareness and attitude toward refractive error correction in Gwalior population.

## **METHODOLOGY**

A random sampling method was applied to choose subjects aged 17-18 year. The students were selected for the study was from different awareness and attitude toward refractive error correction. In our study we exclude optometry courses. An informed verbal consent was also obtained from all participants by the researcher. This study was assessed by a team of the ophthalmologist and psychiatrist for ease of comprehension and psychological aspects of the questionnaire. The questionnaire used in about the awareness toward refractive error correction methods guided us to formulate our questionnaire. Then, adjustments were made accordingly. The questionnaire had been standardized and was explained to the patient in his own language. The questionnaire comprised of five sections with 16 brief questions, both closed and open ended. Closed-ended questions were in the form of Yes/No and multiple choice with an option for "other". Open-ended questions were added to double-check the respondent answers to the related closed-ended questions. The first section contained questions according to demographic data such as gender, age, educational status and occupation. The second part was set to evaluate the ability of respondents to distinguish between an ophthalmologist and an optometrist. The remaining sections were arranged to assess respondents' attitude toward spectacles, contact lenses and refractive eye surgery. All interviewees were asked to

answer the closed-ended questions by placing a "×" mark over the box next to the response that they have chosen. Also, there was enough space after every open-ended question for respondents' answers. All questionnaires were filled in with the assistance of our trained interviewers. Statistical data analysis was conducted using spss software. A structured questionnaire was designed to gather information related to the awareness of the refractive correction.

#### DATA ANALYSIS

In the present study the statistical data analysis was conducted using Microsoft excel and SPSS version 16. The mean and standard deviation was calculated for age. Data were presented as frequency and percentage for the objectives.

#### RESULTS

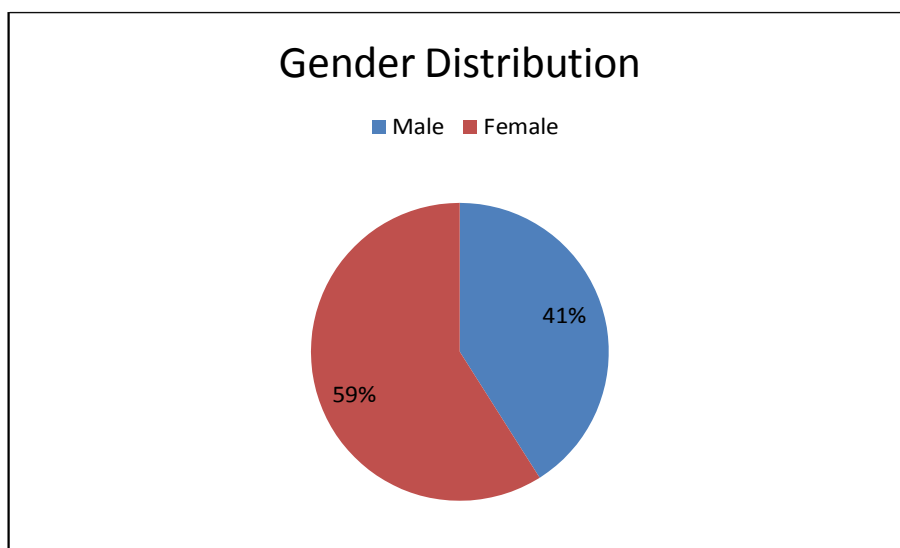


Fig 1: Gender wise Distribution

#### Overall awareness:

Out of the 200 respondents, 82 (41%) were male and 118 (59%) were female (Fig 1). The 44% of the subjects were having age less than or equals to 35 years age group, 30.5% in agegroup 36 -50 and 25.5% above 50% (Fig 2). The frequency distribution of different educational levels and occupation among the participants. The majority of participants had till higher secondary education (61.1%) and were and were unemployed. This indicated that gender biasness is still present in

middle and low income society. Out of 153, 56% (86) participants already had a history of wearing spectacles, while 67 (44%) were not using glasses though they had refractive error.

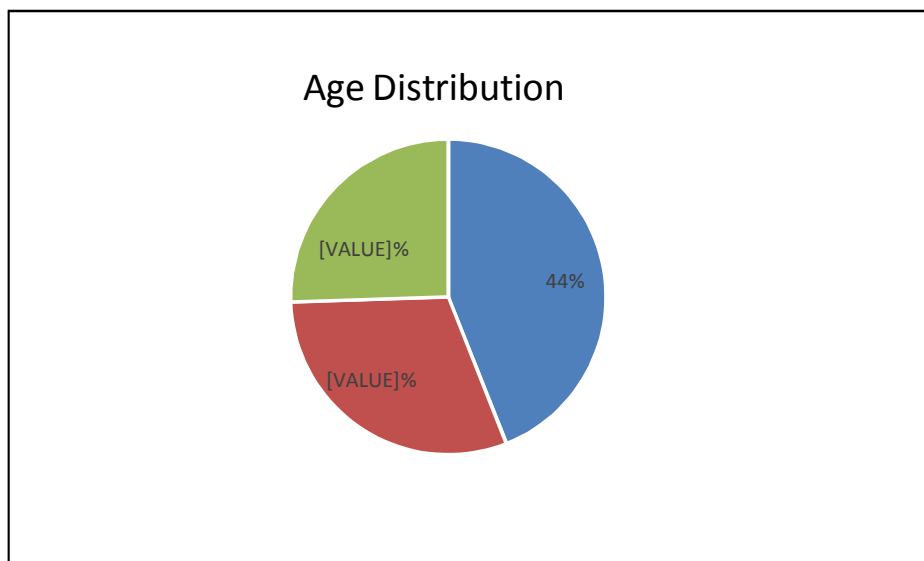


Fig 2: Age distribution

#### Attitude awareness and spectacles

Out of 400 subjects 158 reported that they had refractive error and the rest 242 were an emmetropes

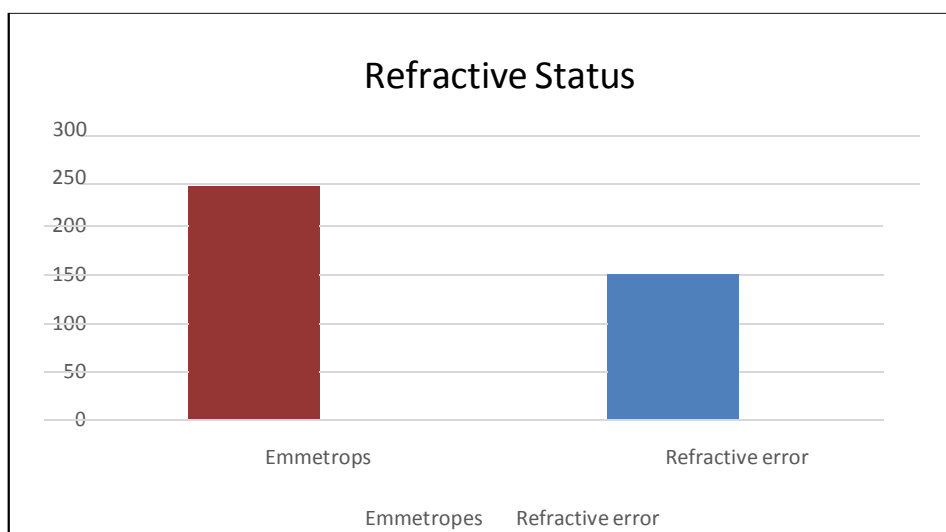


Fig 3: Refractive status

Refractive error in different gender using glasses:

The subjects who did not get an eye examination till the period of survey after conducting a visual examination. 70 individual had a visual acuity less than 6/9 in one or both eye.

Contact lens awareness and attitude:

A 50% of respondents were not aware of contact lens usage instead of spectacles. There was a significant statistical correlation between the individual educational level and their knowledge about contact lens.

## **DISCUSSION**

This study is the only population-based survey on refractive correction method awareness in the Indian population and mostly one of the first in our region. Awareness in our study did not mean that participants were aware of the topic fully. The obtained results could have a possible significant effect on public health education because it was found that despite the fact that uncorrected refractive errors are a major cause of visual impairment and blindness globally, the level of knowledge about this issue and its correction methods is low in our region. The study participants were randomly selected without any criteria. The study participants were randomly selected without any criteria. Majority of the participants were not aware about refractive surgery as a method for correction

These findings says that not only most of our region's population does not get informed about these subjects by the eye care authorities but also gather information from unreliable sources. In the present study, there was a considerable correlation between educational status and awareness about contact lens applications and refractive error correction. Although there are no other surveys which have particularly examined the awareness of the general public on refractive error correction methods, several published original researches have revealed the factors affecting the awareness of a population about under corrected refractive errors and other major eye diseases. A disappointing result of this survey is the fact that 73.8% were not knowing the difference between ophthalmologist and optometrist, 23.8% were using glasses and 26 % were thinking glasses as a limiting factor in their daily routine work ,this might provide the clue to the fact that they might not using the glasses. Effective health education in eye care may manipulate the behavior of individuals towards considering regular ocular care.

These findings says that not only most of our region's population does not get informed about these subjects by the eye care authorities but also gather information from unreliable sources. In the present study, there was a considerable correlation between educational status and awareness about contact lens applications and refractive error correction. Students believed that wearing spectacle will further a vision or they will become dependent to it.

Some of the participants did not have an idea about contact lens and refractive error correction.

## **CONCLUSION**

The results of our study demonstrate major loose ends in the awareness about the role of ophthalmologists as well as refractive error correction modalities. Creating awareness about such important issues in general public will be a major step in improving proper ophthalmic services and preventing avoidable visual impairments. The source of information was largely from family and friend. Therefore, we recommend refractive error correction method be introduced by physicians in ophthalmology rotations during medical and provide students with more information about the safety and efficacy of these surgeries. These students educated response to question from patients regarding this common refractive error correction. Thus, it is crucial for eye care management that ophthalmologists, general practitioners and optometrists provide proper information in details to patients about their refractive error condition and the available correction option.

## **LIMITATION OF THE STUDY**

Relation of visual perceptual skills with the age was not assessed. During initial comparison between the reading skills of normal population and special population using colored overlays was not assessed. Comparison in the effectiveness of colored overlays of different tints (red, blue, etc.) was not assessed among special population. Relation of visual perceptual skills with the emmetropia and ametropia was not compared. It may also examine whether colored overlays improve reading abilities over time through this mechanism, rather than through a direct effect on visual strain.

## **SUMMARY**

The results of our study demonstrate major loose ends in the awareness about the role of ophthalmologist as well as refractive error corrections modalities creating awareness about such important issues in general public will be major step in improving proper ophthalmic services and preventing avoidable visual impairments. This, it is crucial for eye care management that ophthalmologists, general practitioners and optometrists

Provide proper information in details to patients about their refractive error condition and available corrections options.

## **ACKNOWLEDGEMENT**

We would like to thank all the participants in this study and who supports this study in all manner.

## **DECLARATIONS**

Funding: Self financed and no financial aid applied or received. Conflict of interest: There are no conflicts of interest.

Ethical approval: Ethical approval was done by the ethical committee of ITM University, Gwalior, Madhya Pradesh, India



## REFERENCES

1. Usgaonkar, U. P. S., & Tambe, P. (2018). Awareness and attitude toward refractive error correction methods, among Goan population. *J Dent Med Sci [Internet]*, 17(3),04-10.
2. Saber, M. R. A., Pourmazar, R., & Gohary, I. (2013). Awareness and attitude toward refractive error correction methods: a population based study in Mashhad. *Journal of Patient Safety and Quality Improvement*, 1(1), 23-29.
3. Dandona, R., & Dandona, L. (2001). Refractive error blindness. *Bulletin of the World Health Organization*, 79, 237-243.
4. Resnikoff, S., Pascolini, D., Mariotti, S. P., & Pokharel, G. P. (2008). Global magnitude of visual impairment caused by uncorrected refractive errors in 2004. *Bulletin of the World Health Organization*, 86(1), 63-70.
5. Riley, C. O. L. L. E. E. N., & Chalmers, R. L. (2005). Survey of contact lens-wearing habits and attitudes toward methods of refractive correction: 2002 versus 2004. *Optometry and Vision Science*, 82(6), 555-561.
6. Zadnik, K., Satariano, W. A., Mutti, D. O., Sholtz, R. I., & Adams, A. J. (1994). The effect of parental history of myopia on children's eye size. *Jama*, 271(17), 1323-1327.
7. Watch, V. (2003). Vision correction market review..
8. Wolffsohn, J. S., Bhogal, G., & Shah, S. (2011). Effect of uncorrected astigmatism on vision. *Journal of Cataract & Refractive Surgery*, 37(3), 454-460.
9. Sathyamangalam, R. V., Paul, P. G., George, R., Baskaran, M., Hemamalini, A., Madan, R. V., ... & Lingam, V. (2009). Determinants of glaucoma awareness and knowledge in urban Chennai. *Indian journal of ophthalmology*, 57(5), 355.
10. Javitt, J. C. (1995). Preventing blindness in americans: the need for eyehealth education. *Survey of ophthalmology*, 40(1), 41-44.
11. Cook, P. A., & Bellis, M. A. (2001). Knowing the risk: relationships between risk behaviour and health knowledge. *Public health*, 115(1), 54-61.
12. Zieried, F. M., Alnehmi, D. A. A., & Osuagwu, U. L. (2020). A survey on knowledge and attitude of Saudi female students toward refractive correction. *Clinical and Experimental Optometry*, 103(2), 184-191.
13. Ayanniyi, A. A., Olatunji, F. O., Hassan, R. Y., Adekoya, B. J., Monsudi, K. F., & Jamda, A. M. (2014). Awareness and attitude of spectacle wearers to alternatives to corrective eyeglasses. *Asian Journal of Ophthalmology*, 13(3), 86-94.
14. Garg, P., & Malik, M. (2020). Awareness of Presence of Refractive error among Rural North Indian population. *Journal of Ophthalmology and Research*, 3(2), 16-26.