

Original Article**Knowledge and Preference for Refractive Surgery and Preferred Methods of Refractive Correction among Patients with Significant Refractive Errors Attending Bharatpur Eye Hospital, Nepal.****Puspa Giri*, Gopal Bhandari and Ranjeet Sah**

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Article Received: 14th November, 2019; Accepted: 20th February, 2020; Published: 30th June, 2020**DOI: <http://dx.doi.org/10.3126/jonmc.v9i1.29488>****Abstract****Background**

Refractive errors are a major cause of defective vision in all age groups. Although contact lens and refractive surgery are popular, still spectacles are the traditional and most widely used method of optical correction. The main objective of the study was to determine the knowledge and preference for refractive surgery and preference for refractive correction.

Materials and Methods

Questionnaire based study was conducted among 252 participants aged between 22-40 years with significant refractive errors ($>\pm 1.00D$) for a period of three months between June to August 2017. Participants who had prior refractive surgery and not willing to participate were excluded from the study.


Results

One hundred and forty (55.6%) were males and majority (76.6%) of the participants were in the age range 22-30 years. Myopia (60%) was more prevalent followed by astigmatism (38%) and hypermetropia (2%) with refractive power between 1-3 D in 72.5% of participants. Only 61(24%) of the participants had knowledge about refractive surgery. Forty three percentages of them knew from their friends, internet was source of information for 36% and only 19% of them knew from eye care professionals. Majority (87.3%) preferred spectacles 4.8% preferred contact lens and only 8% preferred refractive surgery as methods of refractive correction. Only 44% showed willingness for refractive surgery when available at Bharatpur Eye Hospital. Participants with prior knowledge ($p=0.002$), higher refractive error and longer duration of glass wear ($P=0.005$) had more preference for refractive surgery.

Conclusion

The knowledge, preference and willingness for refractive surgery were less with spectacle being the most preferred methods of refractive correction.

Key words: *Refractive errors, Refractive surgery, Spectacles*

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Introduction

Refractive error is one of the common causes of visual impairment and blindness worldwide [1]. Refractive error (Ametropia) is present when parallel rays of light entering the nonaccommodating eye do not focus on the retina. Refractive error includes myopia, hypermetropia and astigmatism. Studies have shown that lack of knowledge and awareness of refractive errors are important risk factors for uncorrected refractive errors [2]. Refractive error can be corrected by spectacles, contact lenses and refractive surgery, depending on patients' choices and needs. There is no single option that can be suitable for all [3]. Several factors like age, cost, individual preference, life style, occupation, other health condition, severity and type of refractive error are considered when choosing a corrective option. Among different refractive corrections options, spectacles are the oldest and used by most of the people of different age groups all over the world [4]. With the introduction of contact lens there is increase in the number of contact lens users worldwide [5, 6]. Refractive surgery is one of the latest developments in refractive correction methods. Different types of refractive surgeries include photorefractive keratotomy (PRK), Laser Epithelial Keratomileusis (LASEK), Radial Keratotomy (RK), conductive Keratoplasty (CK), Intraocular lenses (IOL) and limbal Relaxing Incision (LRD). There are several refractive techniques which use laser energy to reshape the corneal stroma and correct refractive errors. Laser-assisted in-situ keratomileusis (LASIK) is the most common of the procedures [7] and overall there is general agreement that refractive surgery is safe and effective [8].

To best of our knowledge no such study has been carried out to know perception of refractive correction methods among people with significant refractive errors attending eye centers with no refractive surgery facility. This study aims to find the preference and knowledge on different refractive correction options, especially refractive surgery.

Materials and Methods

Questionnaire-based cross-sectional study conducted on 252 participants with significant refractive error for a period of three months between June to August 2017 at the refraction unit in Bharatpur Eye Hospital Chitwan, Nepal. A consecutive series of patients with refractive error (spherical and cylindrical) more than $\pm 1.00D$ and age between 22-40 years who were willing to participate in the survey were included. Patients were excluded if they had refractive error less

than $\pm 1D$, if they had already undergone refractive surgery, or if they were not willing to participate. A sample size of 250 people would allow estimation of a 50% proportion with a confidence interval of approximately $\pm 6\%$. An informed verbal consent was also obtained from all participants before enrolling in the study. Ethical approval was obtained from the research committee at Nepal Netra Jyoti Sangh, Bharatpur Eye Hospital.

Results

More than 50% of participants were male. Majority of the patient were in the age range of 22-30 years and only 23% of patients were below 30 years of age. 74% of the participants were from the Chitwan District where the hospital is located and only 26% participants were from neighboring districts. Sixty percentages of the participants were students and others were service holders. Most of the participants had history of wearing glass for more than 5 years only 14.3% of them wearing glass for less than 1 year (Table 1). More than 60% of the participants were myopic and hypermetropia was present in only 1.2% of the participants (Figure 1).

Table 1: Duration of glass wear

	Number	Percentage (95% CI)
First time	51	20.2%
Less than 1 year	36	14.3%
1-5 years	60	23.8%
>5 years	105	41.7%

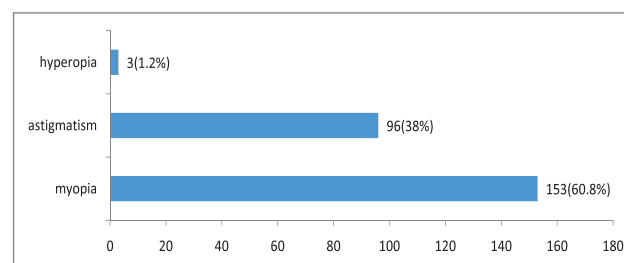


Figure 1: Refractive error distribution

Majority of the participants have refractive power in the range of 1-3D and only 7.5% have the refractive error $>6.00D$ (Table-2).

Table 2: Refractive error range in Diopters

Power range	Number (%)
1-3D	182(72.20%)
4-6D	51(20.20%)
$>6.00D$	19(7.50%)
Total	252(100.00%)

Seventy-six percentage of the participants responded that they had not even heard about refractive surgery and only 24% of them had knowledge on refractive surgery as one of the



options for refractive correction. Among those with knowledge 43% knew from their friends and relatives with eye care provides being the source of information for only 11% of the participants (Figure 2).

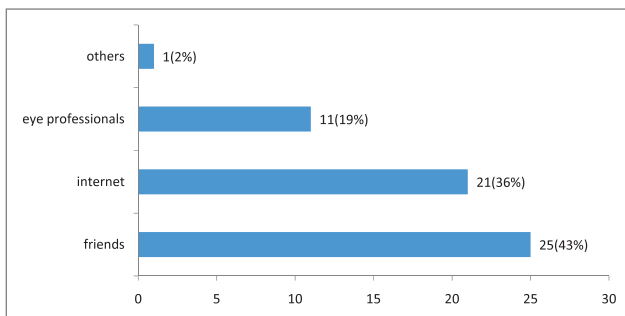


Figure 2: Source of information

Majority of the participants (87.3%) preferred spectacles for refractive correction. Almost 8.00% of the participants preferred refractive surgery for correction (Figure 3). Participants who were students were those who had prior knowledge of LASIK surgery than service holders.

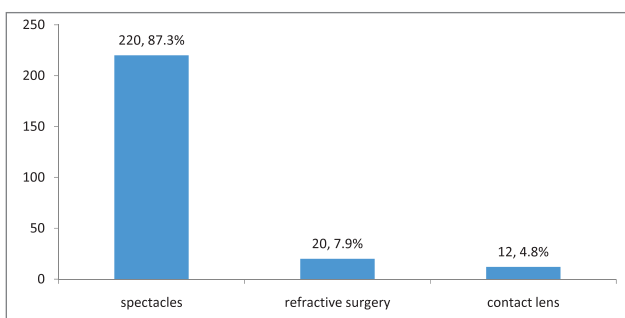


Figure 3: Preference among refractive correction options

Students have more preference for LASIK surgery than service holders but overall preference is greater for spectacles. Preference for refractive surgery is higher among participants wearing glasses for more than 5 years. This was statistically significant ($P=0.005$) (Figure 4).

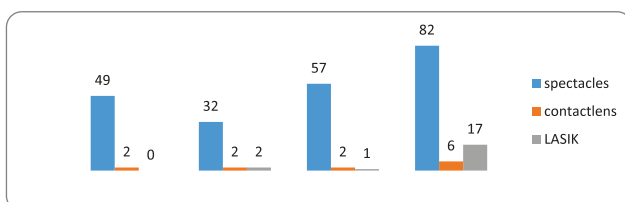


Figure 4: preference with duration of refractive correction

Participants with lower power range had more preference for spectacles and those with higher power range had preference for refractive surgery. The longer the duration of refractive correction the greater the preference for refractive surgery ($P=0.005$). None of the participants recently diagnosed with refractive error showed preference for refractive surgery.

Discussion

People seeking refractive surgeries for correcting their refractive errors are increasing, because of the advantage of freedom from glasses and cosmetic, particularly among people with moderate to high refractive errors. This study is the hospital based survey among patients in Bharatpur Eye Hospital, which is one of the peripheral eye hospitals without refractive surgery facility to explore the knowledge and attitude regarding refractive surgery and preferences for refractive correction methods. The obtained result could help for decision making for the establishment of refractive surgery unit in the hospital. Majority of the participants (60%) were myopic and 72.2% had power range of 1-3D and only 7.5% had power $>6.00D$. Spectacles was the most preferred method of refraction correction (87.3%), the reason may because of only 24% of the participants had knowledge on refractive surgery of which 43% of them knew from their friends and relatives. Preference for refractive surgery was greater among participants with higher refractive errors. In the present study the correlation between duration of glass use and preference for refractive surgery was statically significant.

In study conducted by Gamerio Filho AR et. al. among medical students in state University of Londrina glasses were the most used method of visual correction and 85.7% of students had heard about LASIK surgery [9], which is much higher than our study, still this shows that even among medical students there is need for awareness on refractive surgery. In another study done by Puri SK et al 84.14% preferred spectacles for refractive correction followed by contact lens. In the study 92.5% were aware of refractive surgery and out of which 36.6% were willing to undergo refractive surgery [10]. In the study main source of information was eye care provider for 23.5% of students but only 19% in our study told they knew about LASIK form eye care provider. In study conducted by Yousef Aldebasi to determine public's awareness to refractive error deficiency knowledge about the different forms of optical correction showed higher preference for spectacles against contact lens and refractive surgery. An average of 75% said they preferred spectacles because of fashionable design and lower risk to eye [11]. In the study about 60-80% in average knew the existence of correction by laser surgery. Similarly in study in Ghana among undergraduate university students 77% did not know refractive surgery as one of the options for refractive correction [12]. Finding of this study is similar to our study where 76% of the participants were unaware



of refractive surgery but students were those who had knowledge on refractive surgery than other professions. In a survey conducted among 200 participants in Goa, India 64% of participants were not aware of refractive surgery for refractive correction and only 12% of the participants were aware of the adverse effects of refractive surgery [13]. This is less than the finding of our study was 76% were unknown about refractive surgery. Study conducted among 2,600 general populations in Western Region of Saudi Arabia found that primary source of knowledge was family and friends in 68% of the participants and only 53% had high level of knowledge on refractive surgery [14]. The findings are different in different studies because the level of knowledge depends on many factors like age, sex, education status and previous experiences.

Conclusion

The knowledge, preference and willingness for refractive surgery were less with spectacle being the most preferred methods of refractive correction.

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Conflict of interests: None

References

- [1] Rensikoff S, Pascolini D, Mariotti SP, Pokhrel GP, Global magnitude of visual impairment caused by uncorrected refractive errors in 2004, Bulletin of the World Health Organization. 1 (2004) 63-70. DOI:10.2471/BLT.07.041210
- [2] Rosman M, Wong TY, Wong W, Wong ML, Saw SM. Knowledge and beliefs associated with refractive errors and uncorrection: the Singapore Malay Eye Study. Br J Ophthalmol.1 (2009) 4-10. PMID:18567651
- [3] Riley C, Chalmers RL, Survey of contact lens- wearing habits and attitudes toward methods of refractive correction: 2002 verse 2004. Optom Vis Sci. 6 (2005) 555-61. PMID: 15976594
- [4] Dandona R, Dandona L, Kovai V, Giridhar P, Prasad MN, Srinivas M, Population-based study of spectacles use in Southern India, Indian J Ophthalmology. 50 (2002) 145-55. PMID: 12194576
- [5] Shimonosekishi U, Contact lens use among high school students, Ophthalmology (Japan). 43 (2001) 293-7. PMID: 19861753
- [6] Lee YC, Lim CW, Sam SM, Koh D, The prevalence and pattern of contact lens use in a Singapore community, CLAO J. 26 (2000) 21-5. PMID: 10656305
- [7] Wilkinson JM, Cozine EW, Khan AR. Refractive Eye Surgery: Helping Patients Make Informed Decisions About LASIK. Am Fam Physician. 10 (2017) 637-644. PMID: 28671403
- [8] Sandoval HP, Donnenfeld ED, Kohlen T, Morden Laser in situ- kerratomileusis outcomes. J Cataract Refract Surg. 8 (2016) 1244-1234. PMID: 27531300
- [9] Gamerio Filho AR, Aquino NMT, Knowledge in refractive surgery among medical students State University of Londrina. Rev Bras Oftalmol.3 (2013) 172-7. DOI: org/10.1590/S0034-72802013000300006
- [10] Puri SK, Perception of refractive surgery among undergraduate medical students and their preferred method of refractive correction. Int J Res Med Sci.4 (2016) 1031-34. DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20160680
- [11] Aldebasi Y, Young Public's Awareness to Refractive Error Deficiency. International Journal of Health Sciences, (Qassim). 1 (2011) 9-15. PMID: 22489225
- [12] Kobias-Acquah E, Essien E, Ablordeppey R, Donkor R, Ankamah-Lomotey S et. al. Attitude and Beliefs of Undergraduate Students to Spectacle wear in Ghana. Adv Ophthalmol Vis Syst.1 (2018) 00264. DOI: 10.15406/aovs.2018.08.00264
- [13] Usgaonkar Ugam P.S, Tamble Priyanka T, Awareness and Attitude towards Refractive Error Correction Methods, Among Goan Population. IOSR Journal of Dental and Medical Sciences 17 (3) (2018) 04-10. DOI: 10.9790/0853-1703110410
- [14] Abdul malik H, Alghamdi, A study of general population awareness about refractive surgery in the Western Region of Saudi Arabia, IJMDC. 3:10 (2019) 793-798. DOI: 10.24911/ijmdc.51-1562241479

