

Awareness Perception and Preferred Modality of Refractive Error Correction Methods

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Abstract:

Objective: To determine the level of awareness and perception towards refractive error correction methods and to analyze the preferred corrective modality i.e. among spectacles, contact lenses and refractive surgery.

Methodology: This was a cross-sectional study conducted at a Tertiary Eye Care Hospital of district Rawalpindi. Age ranging from 18-35 years. Focusing on the objective of the study data was collected with the help of self-administered questionnaire after taking verbal informed consent Data analysis was done using Statistical Package for Social Sciences (SPSS) version 20.

Results: The study included 95 participants; all were spectacle wearers in age group (18-35) out of which 45 respondents were females and 50 were males. The respondents those were in age range between 18-23 (60.9%) had a good level of awareness while participants of age range 31-35(19.0%) had a poor level of awareness towards correction method. Their choice was according to their needs. On investigating preference of individuals regarding vision correction tools, spectacles (62.1%) were found to be the more preferred choice as compared to contact lens (10.5%) and refractive surgery (27.4%).

Conclusion: People with higher education and in age group 18-23 are more aware than those with basic education. Myths about correction methods were also found to be one of the hurdles towards treatment. Knowledge about refractive errors and benefits of using other correction modalities, their advantages and disadvantages should be addressed in the daily health talks to all patients and attendants visiting to eye care professionals. *Al-Shifa Journal of Ophthalmology 2023; 19(3): 121-127.* © Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.

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Introduction:

Vision is an important indicator of health and quality of life and no individual can enjoy his day to day routine work without a normal vision¹ Refractive errors are the major cause of visual impairment and blindness². There are three types of refractive error: Myopia (a state of refractive error in which image formed in front of the retina), Hypermetropia (a refractive error in which image is formed behind the retina) and Astigmatism (blur vision due to irregular shape of the cornea or sometimes the curvature of lens)². Globally around 8.2 million people are blind and approximately 145 million people have visual impairment due to uncorrected refractive error⁸. In 2008 The National Blindness and Visual impairment survey

were carried out in Pakistan on the adult population. According to that survey, the prevalence of Refractive errors estimated in Punjab was 67.5 %, in Sindh 57.1%, in NWFP 57.4 %, and in Baluchistan 60.4%. The total estimated 62.1% population of Pakistan was visually impaired due to refractive errors^{3,4,5}

To correct these errors different correction methods are now being used. Many people are familiar to spectacle use but other methods are also accessible nowadays such as the use of contact lens and refractive surgery. Some patients consider spectacles as the best choice. Contact lenses and refractive surgery are the correction method of choice in many other conditions depends upon the awareness and perception of that patient.^{6,7}

The prevalence of refractive error in the adult population of Pakistan was high and considered as the major risk factor of avoidable blindness. Many studies had shown that level of awareness among visually impaired about correction methods to correct refractive errors were very high but their perception and motivation level was challenging for them.¹

Marking this issue, we can improve standard and quality of life of a visually impaired person by the expansion of their knowledge and awareness about correction methods and abolishing their associated stigma to their well-being with some correction methods.¹

Material and methods:

This was a cross-sectional study based on a structured questionnaire. This study was. This study was carried out at a Tertiary Eye Care Hospital of district Rawalpindi and completed in duration of five months from October 2020 to February 2021. Population size (for finite population correction factor or fpc)(N): 100000, Hypothesized % frequency of outcome factor in the population (p):6.2% +/-5, Confidence limits as % of 100(absolute +/- %) (d):5%

Sample size $n = \frac{[DEFF * Np(1-p)]}{[(d^2/Z^2) - \alpha/2 * (N-1) + p * (1-p)]}$

By using above equation and prevalence of refractive error in Punjab (50%) it is estimated that sample size for the study will include 95 participants. After collection of data it was coded and entered into Statistical Package for Social Sciences (SPSS) version 20. For inferential analysis, Chi square test for independence was used for finding associations between outcome variables and independent variables. Chi square test was used to find an association between two categorical data sets and P value <0.05 was considered significant. The study was conducted after the approval of Hospitals Ethical review board. Verbal informed consent was taken from every participant who became part of the study. The data collected was used only for academic purpose and confidentiality of the data and the participant was ensured. Individuals seeking for help in better choice according to their refractive status were also guided.

Results:

A total of 95 participants were included in this study. The mean age of participants was 25.13 years (SD 5.197) ranging from 18-35 years Male participants constituted 52.6% of the whole sample. Age was categorized into three groups. Most of participants were undergraduate (62.1%), A higher proportion of participants had residency in Rawalpindi (78.9%)

Mostly respondents were aware of contact lens usage instead of spectacles 55(57.9%) and few were unaware 25(26.3%). About 41(43.2%) participants don't know about side effects of contact lenses while 38(40%) knew about side effects of contact lens usage. Most of participants 52(54.5%) were aware of the fact that colored contact lenses can be worn exclusively for cosmetic purpose on normal eyes while 26(27.4%) were unaware. About (48.4%) of participants had a good awareness that contact lenses could use for both refractive error correction and also for cosmetic properties. Almost 49 (51.6%) members were unaware of the possibility of

refractive surgery being used to improve the eyesight and decrease or eliminate the dependence on spectacles. While 38(40%) respondents were aware. Only 42(44.2%) of the respondents were aware of the side effects of refractive surgery while mostly respondents didn't know about side effects of refractive surgery 51(53.7%) Out of 95

participants 59 (62.1%) participants preferred spectacles as they feel it stable, comfortable and convenient way of correction. Lesser individuals 10 (10.5%) preferred contact lens for correction of refractive error while few of them preferred refractive surgery 26 (27.4%).

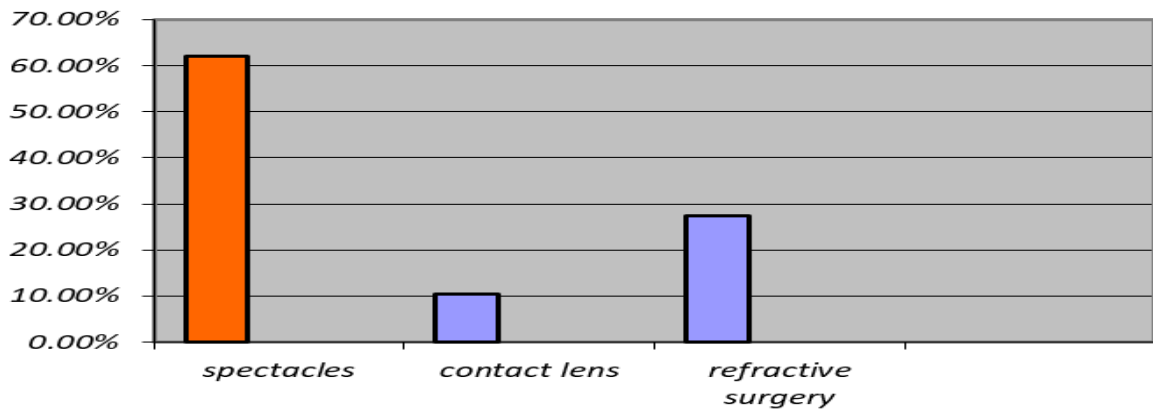


Fig 1: Graph showing preferred modality of correction of

Table 1: Level of perception towards correction methods

Characteristics	Frequency (N=95)	Percentage
Do you think wearing spectacles affects your opportunity for education?		
Agree	37	39%
Neutral	10	10.5%
Disagree	48	50.5%
Do you think wearing spectacles affects your opportunity for employment?		
Agree	27	28.5%
Neutral	21	22.1%
Disagree	47	49.5%
Do you think wearing spectacles affects your opportunity for marriage?		
Agree	14	14.7%
Neutral	26	27.4%
Disagree	55	57.9%
Do you believe wearing spectacles changes the way people perceive you as attractive?		
Agree	24	25.3%
Neutral	23	24.2%
Disagree	48	50.6%

Do you believe wearing spectacles reduces the power of the eyes?		
Agree	31	31.6%
Neutral	15	15.8%
Disagree	49	51.6%
Do you believe people perceive wearing spectacles as a sign of wealth?		
Agree	5	5.3%
Neutral	15	15.8%
Disagree	75	79%
Do you think, wearing spectacles is a cosmetic blemish?		
Agree	17	17.9%
Neutral	18	18.9%
Disagree	60	63.2%
Do you think, wearing spectacles is a sign of intelligence?		
Agree	6	6.3%
Neutral	19	20%
Disagree	70	73.7%
Do you think using spectacles can lead to reduced respectability?		
Agree	0	0%
Neutral	5	5%
Disagree	90	90%
Do you think wearing spectacles reduces personal activities such as sport?		
Agree	91	95.8%
Neutral	3	3.2%
Disagree	1	1.1%
Do you think the best way to prevent yourself from vision loss is wearing glasses?		
Agree	62	79.5%
Neutral	10	10.5%
Disagree	10	10.5%
Do you think , spectacles may be used to relieve discomfort such as headache , Photophobia and tearing?		
Agree	44	46.4%
Neutral	18	18.9%
Disagree	33	34.7%
Do you believe that using spectacles is only for old people?		
Agree	3	3.2%
Neutral	5	5.3%
Disagree	87	91.6%

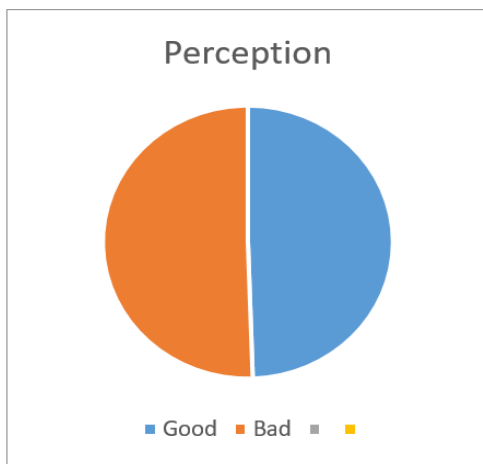
Overall perception:

Fig 2: Graph showing Perception of participants towards correction methods

Chi-square test was conducted to find the association of awareness towards demographic profile (age, Gender, education) of the participants, There is a significant association between age groups and educational status towards awareness (**P=0.001**) while there is no significant association between Gender and awareness of participants. Chi-square test was used to find out the association between perception level towards sociodemographic profile of participants. No statistically significant association was found.

Discussion:

This study was a population based survey on refractive error correction methods awareness, perception and their preference of correction methods amongst the random selected people of Al-Shifa Trust Eye Hospital Rawalpindi. The maximum participants (78.9%) belong to urban area of Rawalpindi city. This study was hospital based survey and participants were randomly selected without any criteria except specified age group (18-35). Awareness in this study does not mean that respondents had complete knowledge about the subject, because it was found that even with the reality that untreated refractive error is the leading cause of visual impairment and blindness globally, the level of awareness towards correction

methods of refractive error was comparably low among population

On investigating preference of individuals regarding vision correction tools, spectacles (62.1%) were found to be the more preferred choice as compared to refractive surgery (27.4%) followed by contact lens (10.5%). Contact lenses were the least preferred choice due to fear of their side effects. Some of the respondents unexpectedly mentioned fear of refractive surgery and its complications are the main reason for not undergoing such correction method.

A study was conducted on awareness and attitude towards refractive error correction methods and preferred modality in paramedical students in Era University, Luck now, India. This study concluded that 14.2% were aware of refractive surgery while according to our findings only (51.6%) about the awareness of refractive surgery to eliminate dependency on spectacles and to improve vision. ⁽¹⁾

In another study which was conducted in Nepal in which majority (87.3%) preferred spectacles 4.8% preferred contact lens and only 8% preferred refractive surgery as method of refractive correction and same in this research spectacles (62.1%) were found to be the more preferred choice as compared to contact lens (10.5%) and refractive surgery (27.4%).⁽⁸⁾

A survey was carried out in Mashhad by Moghaddam et al in 2013 on Awareness and attitude toward refractive error correction methods. This study demonstrated that Awareness and perception of refractive correction methods was low among the participants of this study. Although, ophthalmologists were the first source of consultation on sight impairments among respondents, a predominant percentage of subjects were not even aware of obvious differences between an ophthalmologist and an optometrist and very low level of knowledge of vision correction tools. In this study more than half of the participants

(53.7%) were unaware of the difference between both professions.^(9,14)

Another study by S.Usgoankar and Priyanka Tambe in 2018 to check level of awareness and attitude towards correction methods in Goa, India concluded that overall, 75% of the participants had a clear idea of 'ophthalmologist' and 'optometrist' terms. 59%, 77.5% and 62% of respondents had no information of contact lens application instead of spectacles, cosmetic contact lenses and contact lens side effects, respectively. 64% of participants were not aware of the possibility of refractive surgery for improving their sight and decreasing their dependency on spectacles. Awareness about refractive surgery's adverse effects was only 12%. Awareness and attitude towards refractive correction methods was moderately low among the participants of this study whereas in this study awareness towards contact lens usage instead of spectacles, contact lens side effects and idea of cosmetic contact lens was predominantly low among participants.^(10,15)

In contrast with other studies it is noticed that our community had very low level of awareness towards refractive error correction methods, level of awareness depends upon the educational status and the age of participants. with spectacles being the most preferred method of refractive correction. Developing country like India and Pakistan with a huge population with refractive errors, putting a huge burden on generally medical eye care. Effective counseling of all patients related to choose of corrective modality in eye hospital may also change their level of awareness and perception^(11,12,13).

Conclusion:

The results of this study demonstrate the major loose ends in the awareness towards correction methods and importance of educational status of participants in increasing the level of awareness towards correction methods, People with higher education and in age group 18-23 are more

aware than those with basic education. The perception level of the participants had no significant relation towards Age, gender and educational status, almost half of the participants had good perception (49.5%) and remaining had bad perception (50.5%) towards vision correction tools. On investigating preference of individuals regarding vision correction tools, spectacles (62.1%) were found to be the more preferred choice as compared to refractive surgery (27.4%) followed by contact lens (10.5%) Their choice was according to their needs still there is much need to emphasize the publicity level of awareness towards correction methods. Myths about correction methods were also found to be one of the hurdles towards treatment.

Knowledge about refractive errors and benefits of using other correction modalities, their advantages and disadvantages should be addressed in the daily health talks to all patients and attendants visiting to eye care professionals.

Recommendations for the future:

Further such studies should be conducted on a larger scale with large sample size Awareness and educational programs should be organized for the community about latest technologies of vision correction methods.

For future researchers it is recommended that impact survey should be carried out by firstly removing all the hurdles and myths related to vision correction tools and educating them about all corrective modalities.

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