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Research Article

Understand the Patients' Attitude towards Presbyopia and the various Lenses Correction Options

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Abstract

Aim: To reveal the patients point of view about the selection of different presbyopic correction options from ophthalmic lenses and awareness about presbyopia.

Methodology: In this Prospective study, feedback questionnaire based study in North India, 126 subjects were enrolled and the offline questionnaire and responses were recorded. Participants' age ranged between 37 -75 years (using near correction). Evaluated the responses to know the reasons of chosen of different options for pre-presbyopia and presbyopia correction by the subjects and attitudes about it, its importance, and present conventional correction opinions including bifocals, progressive addition lenses and contact lenses.

Result: Among the all participants, number of participants between the age group 37- 45 (pre-presbyopes) were 35 (27.77%), between 45-55 years of aged group were 60 (47.61%) participants and rest of 31 (24.60%) participants were between 55-75 years of aged group. Forty eight participants (38.1%) were already wearing a near correction while seventy eight (61.9%) were not wear any near correction. Out of 126, the 6 (4.76%) subjects were chosen a near visual correction and separated glasses, 88 (69.84%) subjects were chosen the bifocal lenses, rest of all 32 (25.89%) subjects chosen the PALs. And no one was using contact lens for near correction. Few similarities were observed as age–related (75.38%), total unaware of word presbyopia (85.71%), comfort, convenience and appearance concerned (63%).

Conclusion: The spectacles were most preferred for the correction of presbyopia. Bifocals are taken by majority of population. After educating about Presbyopia and advantages of PALs, it was revealed that most of the subjects wanted to choose PALs because of comfort and convenience to see all distances but most of them denied due to cost and 4-8 days adaptation time. So most of the subjects were chosen the bifocal lenses even they knew the disadvantages of it like image jump and segment line, while comfort, convenience and cosmetic appearance were seen as the preferred than cost. But cost also played role while finalize the lens and its coatings types.

Keywords: Presbyopia; Attitudes; Progressive Addition Lens; Bifocal; Single Vision

Introduction

It has been estimated using multiple population-based surveys that around 1.04 billion people globally have presbyopia [1]. Presbyopia is an ability of human eye to accommodation decreases as the age increases due to decrease of elasticity of crystalline natural lens [2]. It is progressive decrease in ability to focus at near object on the fovea due to less accommodation ability with increasing age and progressively loss of elasticity of crystalline lens. The natural loss in accommodation that occurs with age such as person who are emmetropic or having distance refractive error correction in some way starts to have a problem with near vision after age of 36 years nowadays. The varieties of factors are involved including the lens hardening, change in lens capsules elasticity, lens shape and size, length of zonular attachments and contraction of ciliary muscles.

The participants' aged from 36 to 44 years classified as the pre-presbyopes have insufficient accommodation. The participants added more than 44 years classified as presbyopes and they complains more blurred vision and other symptoms compared to younger participants. Research undertaken reports that functional presbyopia result in difficulty with near tasks in 53% of Indians [3]. Previous study in UK said that more women than men wear both glasses (72% vs. 66%) and contact lenses (16% vs. 11%), with 82% of people either wearing corrective eyewear or having had laser eye surgery [4].

Currently there are various options for presbyopia corrections like surgical and non-surgical. The non-surgical options like spectacles (single vision, bifocals and PALs) and Contact lens. In this study we were covered the spectacles options.

1. **Single vision lenses:** It was the better options for those patients who were required the spectacles only for the near correction as well as who was required separate glasses for distance correction and near correction needs of large area for near. In this type, only one power present within a lens for near only.

2. **Bifocal lenses:** It means two focuses, single line and has two different powers in two portions. It contains two different prescriptions, on upper portion to allow distance vision and bottom portion for near vision correction. It provides a vision clarity at both distance and near within a single glass but it contain a visible line differentiating the area if contrasting prescription It has a disadvantages like,

    a. Image jump when visual axis passed from distance to reading segments (abrupt change in image size).
    b. Prismatic effect on near vision that entails an apparent of quality of image.
    c. Visible segment line, which divide the segment from major portion of the lens.

3. **Trifocal lenses:** The Trifocals has two segment lines on the lens. These two lines divide lens into three distinct parts. The upper most portions power prescribed for distant vision, mid for intermediate and the lower for near vision usually. These types of lenses have similar problem like Image jump, prismatic effect and visible segment lines as in bifocals.

4. **Progressive addition lenses (PALs):** PALs are special type of lenses; those have clear vision for all distance. It is a type multifocal lenses do not have a distinct lines or segments. It was an advanced spectacle correction for presbyopia.

Nowadays, digital PALs have advanced optical designs allowing for smooth,

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easy adaptation and enhanced vision and comfort. Lack in proper and accurate measurement was the primary reason for non-adaptation to progressive lenses. And secondary are size, shape of frame and proper adjustment on the face.

Methodology

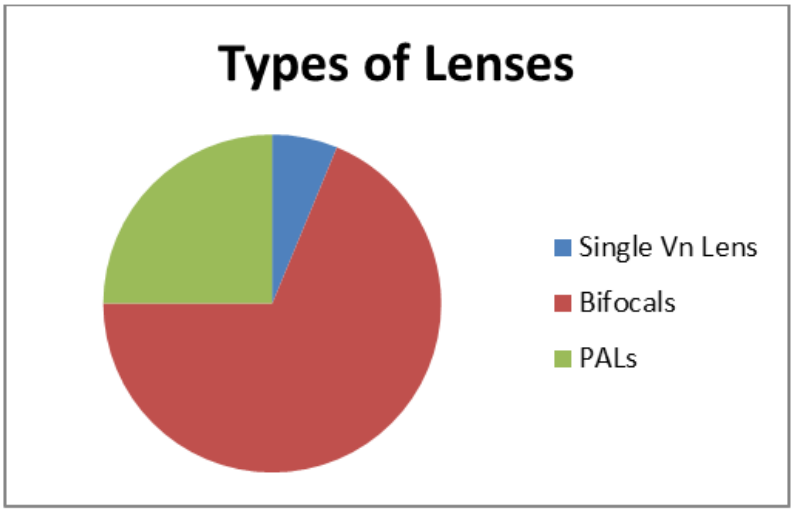
The participants were recruited between December 2020 to January 2021 at the AR Optometry Eye and Vision Care, Etawah, Uttar Pradesh, India. There were 126 participants participated in this feedback questionnaire based study conducted in optical section of the hospital of North India. The participants were represented a variety of background like health care, academics, farmers as well as office work professionals. We had taken the written information consent to participate in this study. Inclusion criteria for this study, which were presented presbyopic comes under the age range of 37-75 years. Exclusion criteria were who had selected a trifocal lenses, other accommodative anomalies, contact lens user and ocular disease.

The questions on the feedback forms were like this-

1. What was yours last spectacle lenses?
2. Why were you using bifocal or single vision lenses?
3. Do you like Progressive addition lenses?
4. Why do you wants to choose Progressive addition lenses?
5. Do you want to change your lenses form bifocal to progressive addition lenses?
6. If you like PAL then why didn't you choose it?

Data collection

The same author educated all the participants about presbyopic correction options of spectacle lenses after taking the consent of participation in this study. Participants completed a feedback questionnaire relative to their ophthalmic correction of presbyopia by different options in ophthalmic lenses. Topics guided were provided to each participant prior during the filling of feedback paper example some participants were chosen single vision lenses, some were chosen bifocal lenses while rest were choose progressive addition lenses.



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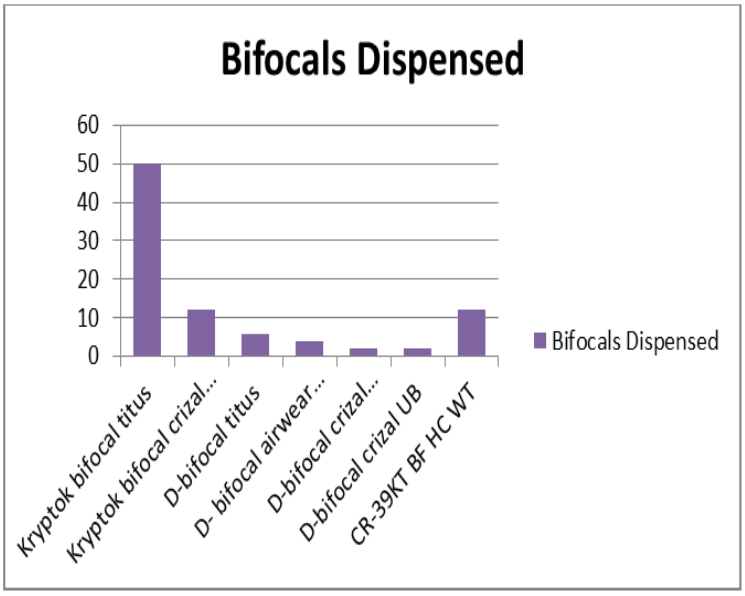

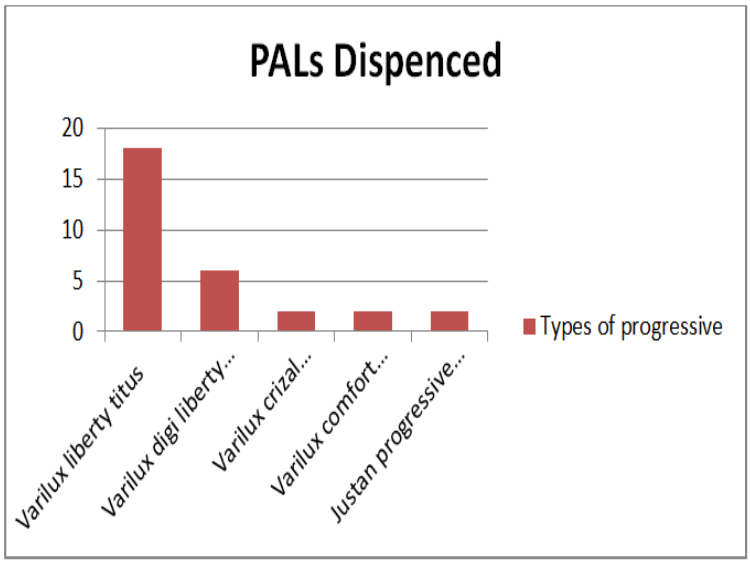

Result

It was found that out of 126 participants (aged group between 37-75 years of age), number of 35 (27.77%), between 45-55 years of aged group were 60 (47.61%) participants and rest of 31 (24.60%) participants were between 55-75 years of aged group. Forty Eight participants (38.1%) were already wearing a near correction while seventy eight (61.9%) were not wear any near correction. Out of 126, the 6 (4.76%) participants were chosen a near visual correction separated glasses, 88 (69.84%) participants were chosen the bifocal lenses, rest of all 32 (25.89%) participants chosen the progressive addition lenses. No one was using the contact lens for near correction. Bifocals and PALs wearing them 85-90% of the time, while those using near single vision lenses using 30% of the total time.

Out of 126 participants 88 were choose the various types of bifocal lenses. 50 (56.81%) were chosen the Kryptok bifocal titus, 12 (13.63%) were choose Kryptok bifocal crizal UV, 6 (6.8%) were chosen D-bifocal titus, 4 (4.54%) were chosen D- bifocal airwear crizal UV, 2 (2.72%) were choose D- bifocal crizal sapphire 360 UV, 2 (2.72%) were chosen D-bifocal crizal UV and rest

12 (13.63%) were chosen CR -39 KT BF HC WT. Out of 126, 30 participants were chosen the various type of Progressive addition lenses, 18 (60%) were chosen the Varilux liberty titus, 6(20%) were chosen Varilux digi liberty 3.0 transition, 2 (6.6%) were chosen Varilux crizal sapphire 360 UV, 2 (6.6%) were chosen Varilux comfort 3.0 crizal UV, 2 (6.6%) were chosen justan progressive 360.

Few similarities were observed as age–related (75.38%), total unaware of word presbyopia (85.71%), comfort, convenience and appearance concerned (63%), whereby cost is of less importance. But cost played role in finalize the lens. In bifocals and PALs types, the participants had chosen the different-different designs accord.

Discussion

This study elaborates the attitudes towards presbyopia and corrective measures. Generally, participants were aware of presbyopia as a 'natural aging process'; however, the term 'presbyopia' itself was not considered common knowledge.

Any ECPs is advised to give the all information about presbyopia and its correction options. Fylan and Grunfeld [5] reported that 70% of participants within their study wished for their Eye Care Professional (ECP) to inform them more about their eyesight in general, as well as difficulties with their vision.

Although the patients like and understand the enormous benefits of Progressive Addition Lenses. The feedback as well as discussion with the participants revealed that patient did not choose the PALs as the primary preference due to its high cost and 4-8 days adaptation time. So after the counseling about lenses, low cost PALs might be the first choice. That shows in the above pie chart, low cost lenses cover more area (most of the patients selected).

It was also observed that if participants already wore PALs from last few months sometimes they were not choosing it now again due to small width corridor space than the power/vision space in low cost PALs, so if were suggested a large width of corridor than the power/ vision space then they were chosen it. In this study the results showed that low cost progressive becoming more popular day by day. Information and education about natural crystalline lens function, presbyopia and PALs play a significant role in up gradation of near correction option. It is important to discuss with patients the principal distance of the tasks they generally perform and the forms of presbyopic correction used from the outset [6].

Limitations

The small population size with limited demographic representation.

Conclusion

The need for a near reading and working correction was perceived as a sign of age. Still the spectacles were most preferred for the correction of presbyopia. Bifocals are taken by majority of population. After educating about Presbyopia and role of PALs, it was revealed that most of the subjects wanted to choose PALs because of comfort and convenience to see any distance but they denied due to cost and 4-8 days adaptation time. So most of the subjects were chosen the bifocal lenses even they knew the disadvantages of it like image jump, prismatic effect (abrupt change in the image size) and segment visible line, while comfort, convenience and cosmetic appearance were seen as the preferred than cost in small cities of developing countries. But cost is also playing a role in selection of near correction and But cost also played role while finalize the lens and its coatings types. Cosmetically more conscious that's reason most of them go for K- bifocals in which segmented line not visible easily. That's why they are low cost progressives are becoming more popular than the high cost bifocals. Most of them unaware about the term presbyopia [7].

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Conflicts of Interest

The authors do not have a conflict of interest.

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