Dissatisfaction with glasses

Insatisfação com as lentes corretoras oculares

Newton Kara-Junior1  https://orcid.org/0000-0002-0857-6640
Marcus Safady2  https://orcid.org/0000-0002-1040-7627
Newton Kara José3  https://orcid.org/0000-0002-5481-550X

INTRODUCTION

Ophthalmologists’ interest in patients’ satisfaction with prescribed corrective lenses, as well as their concern with assessing patients’ complaints and their reasons, play an essential role in improving the refractive technique and in the effectiveness of their clinical practice. (1-3)

Refractometry is the procedure mostly adopted in ophthalmic practice and, certainly, it has the strongest impact on visual acuity improvement. (1-3)

Refractometry learning process starts with theoretical and practical classes in specialization courses; however, this expertise is only enhanced throughout individuals’ professional career. There is no guarantee that patients will be satisfied with their glasses even when the proper optical diopter is prescribed. It happens because variables involved in this process – such as patients’ age, height, professional features, contrast sensitivity, corrective lens types, eyeglass frame shape, as well as likely mistakes in lens’ manufacture process – go beyond the subjectivity of refractive tests. (1-3)

Thus, ophthalmologists’ professional experience and, most of all, their analysis on patients’ dissatisfaction with prescribed corrective lenses, are the factors enabling them to continuously improve their technique and sensitivity to refractometry.

Anamnesis enables ophthalmologists to better understand patients’ visual habits in order to select the best correction method to be prescribed. Defining patients’ daily visual request (i.e., whether their daily activities require better visual acuity to see things from a distance or up close), as well as their visual ergonomics’ duration and type enable gathering important information used to define the best correction method in each case.

Copying refraction test results on patients’ prescription is a common cause of error.

Analyzing the main causes of patients’ dissatisfaction with prescription eyeglasses

Excessive presbyopia correction: Individuals with presbyopia, mainly the young ones, do not feel comfortable with reading glasses because they compromise their middle-distance vision. They complain that “their glasses are too strong” since they need to bring objects closer to get focus. It is customary prescribing the addition of near vision correction at the bottom of glass lenses based on a 30-cm distance between readers’ eyes and a book. If glasses were only used to read books, that would be fine; however, nowadays, individuals’ main short-distance activities comprise cell phones and computer screens, which lie approximately 40 cm away from individuals’ eyes. Thus, either ophthalmologists explain the purpose of adding a 30-cm-distance focus to patients’ glasses or they reduce such an addition - mainly in the case of young individuals who still have good focus versatility - or they prescribe occupational (regressive) lenses, which can focus both near and mid-distance images.

Height: One must calculate the distance patients prefer to position their reading material whenever corrective lenses are prescribed for book reading purposes. Overall, tall individuals, who have long arms, feel more comfortable when the book to be read is positioned at greater distances than the “conventional” 30-cm one.

Eyeglasses must be personalized for each patient, whose needs and features should be taken into consideration. If ophthalmologists do not take these issues into account, refractometry may be better performed in the future through devices capable of calculating objective refraction, testing subjective lenses and prescribing the best correction method based on personal information analyzed by artificial intelligence.

Professional features: The distance and dynamics of the desired short-vision focus of each patient must be taken into account, mainly in presbyopia cases:

• Computer: individuals’ distance from the screen should be considered;
• Computer/book alternations: occupational lenses should be considered;
• Dentists: short-/very short-distance (patients’ mouth) and middle-distance (instrument bench) focus should be considered. Occupational lenses may be eventually recommended;
• Musicians: position of the music score should be considered;
• Teachers: short- (blackboard) and long-distance (students) vision should be considered. Multifocal lenses may be

1University of São Paulo, São Paulo, SP, Brazil.
2Bom Sucesso Hospital, Rio de Janeiro, RJ, Brazil.
3University of São Paulo, São Paulo, SP, Brazil.

The authors declare no conflict of interest

Received for publication 4/11/2019 - Accepted for publication 21/2/2020.
Dissatisfaction with glasses is widely used in clinical research. In these cases, ophthalmologists based on Contrast Sensitivity Tables such as ETDRS, which is decentralized. This difficulty can be evidenced by visual acuity measurements of eventual complaints that the prescribed eyeglasses, which provide better distance visual acuity under low light conditions. It happens because pupil mydriasis enables the increased amount of light hitting the corneal periphery (region presenting greater spherical aberration) to enter the eye. The difference between these two lens types lies on the fact that the visual outcome of IOLs is often minimized because ophthalmologists do not take into consideration the real spherical aberration of each individual and, mainly, because IOLs with multiple aspherical values are not available for individualized correction.

Nasopupillary distance: Eyeglass prescriptions must provide patients’ nasopupillary distance (NPD) – both for distance and near vision – to enable measuring eye convergence. The manufacturing process of most progressive lenses adopts 2.5 mm convergence for both eyes. If this value meets patients’ eye convergence value, they will be using proper lenses capable of matching their short-distance visual axes with the center of the short-distance vision area of the lenses. Otherwise, whenever eye convergence differences are greater, or lesser, than 2.5 mm, the short-distance visual axis does not pass through the center of the short-distance vision area of the lenses. Consequently, individuals use the sides of that area, which has poorer optical quality and leads to oscillations between sharp and slightly turbid images in their short-distance vision.

In these cases, ophthalmologists must add this difference to the short-distance vision NPD and instruct opticians that the cross marking the distance vision on the lens should not be positioned in front of the pupil. In fact, it should be mostly placed at temporal or nasal position depending on whether the eye convergence difference is greater, or lesser, than 2.5 mm.

It is important measuring eye convergence even in patients without presbyopia. Anisometropia cases require ophthalmologists to guide the assembly of multifocal lenses by placing the optical center in the short-distance vision NPD in order to increase patients’ binocular comfort and to avoid anisophoria, which is mostly felt in short-distance vision.

Based on data defined in ophthalmologists’ prescriptions, opticians can carry out their work, which consists in guiding the choice of the eyeglass frame and in taking anatomical measures that play a decisive role in users’ good adaptation to eyeglasses. The third stage of their work comprises the production of lenses and their assembly in the eyeglass frame. The main issues often observed in these technical stages are:

Eyeglass frame shape: Opticians play an important role in guiding patients’ choice for the eyeglass frame by evaluating the correct vertex distance and anatomical inclination.

Curved lenses, which are widely used in sport eyeglass frames, do not enable high diopter-astigmatism correction.

Some types of frames can limit the short-distance vision area of progressive lenses and cause discomfort to patients.

Excessive flexible frames can oscillate on their axis and change the quality of vision of monofocal lenses with cylinder...
Lens manufacturing errors: Measuring patients’ pupillary height is an important step in opticians’ working process; this measurement is essential to enable the proper use of progressive lenses, which is the main cause of users’ complaints.

Multifocal lenses have lower base prism at the bottom due to change in power. However, it is not a problem, as long as these prisms are balanced and present the same value in both eyes. In case of prismatic imbalance between the two eyes, patients using these lenses may complain about their short-distance vision due to early tiredness symptoms. Thus, if patients complain about their failure to adapt to progressive eyeglasses, if the degree of these lenses is in compliance with the prescription and if the assembly of the lenses is correct, it is necessary checking the induced prism in both eyes. All manufacturers determine a symmetrical point in both eyes to enable this check. Complaints associated with upper base-induced prism comprise:

- The ground in front of individuals looks convex;
- Individuals feel like they are on a hill;
- Vertical objects look smaller than they are;
- Individuals feel like they are going down a mountain;
and
- Lens thickness increases the size of images and the weight of the eyeglasses.

Lower base-induced prism complaints:
- The ground in front of individuals looks concave;
- Individuals feel like they are in a depression in the ground;
- Vertical objects look larger than they are; and
- Individuals feel like they are going up a mountain.

Ghost images: They may result from reflections on untreated glass lenses, mainly on the high-index ones. Light passing through the eyeglass lenses reflects on the front and rear surface of the lens, which results in duplicate or triplicate images. Coating the lens with magnesium fluoride may help solving the problem. Anti-reflective coating can also minimize ghost images and help patients who have visual issues when driving at night.

Choosing the eyeglass frame: Several important parameters must be taken into account at the time to choose the eyeglass frame. Among them, one finds vertex distance and pantoscopic angle.

**Vertex distance**

It is the distance between the corneal apex and the posterior surface of the lens. It should be as small as possible to enable better using their field of vision by respecting patients’ anatomy, mainly their eyelashes, which cannot touch the lens.

It ranges from 8 mm to 18 mm, on average, depending on patients’ facial anatomy and on the selected eyeglass frame. The higher the ametropia, the more sensitive this parameter gets. Thus, in high ametropia cases, ophthalmologists must check in the refractor at what distance from the vertex the examination was performed and inform it in patients’ prescription. (Figure 1)
Communication with the optician

It is important to consider the optician as partner at the time to analyze and solve patients’ complaints. In case of eyeglass assembly errors, notes about changes must be recorded in a new prescription. Writing on the eyeglass prescription itself can be considered an aggressive behavior. Communication can also take place by phone or electronic means.

The use of any ophthalmic lens changes the sharpness, distance (zooms in or out), size, color and shape of observed objects. In addition, it decreases the visual field and induces prismatic effects and/or optical aberrations. Positive lenses increase image size, whereas negative lenses decrease it. These visual changes trigger specific responses in different individuals, since human brain needs to adapt to the new images received and to binocular vision. It is a complex process that can be accepted right away or take some adaptation time. Thus, ophthalmologists should explain to patients that no optical solution, regardless of how good it can be, will be the same as the emmetropic human eye.

Refraction outcome and the resulting patients’ satisfaction give the clinic a good reputation. A single dissatisfied patient communicates with 11 individuals, on average, whereas a single satisfied patient communicates with only four individuals. It is much easier and cheaper to maintain a patient than to get a new one. (5)

**REFERENCES**


A 4-mm difference can generate a 0.26D change in a +8.00D correction, as shown in Figure 2. This factor explains patients’ habit to approach or remove their glasses to improve visual acuity. Examples: nearsighted individuals who “press” their glasses against their eyes, when their myopia increases, as well as hyperopic individuals who move their glasses away to compensate hyperopia increase.

This reasoning is also useful at the time to interpret patients’ complaints about their glasses - whether they are new or have been used for some time -, since they may show hypo- or overcorrection of eye refraction.

**Pantoscopic angle:** Once the shortest apex distance possible for the patient is determined, the eyeglass frame should be adjusted with an inclination to allow patients’ eyes to remain distant from the lens. This distance must be equivalent for both distance and near vision in order to enable the lower rotation movement of the eye globe to follow the posterior curve of the lens. (Figure 3).

Accordingly, the use of distance and near vision fields will be the best possible. Inclination-free eyeglass frames are a frequent source of complaints from patients using multifocal lenses (Figure 4).

**How to deal with patients dissatisfied with their eyeglasses**

- Listen more than speak!
- Show interest and ability to solve problems;
- Analyze patients’ complaints;
- Check the eyeglasses (degree, interpupillary distance and optical center height);
- Repeat the exam, starting with anamnesis, if necessary.

**Comments**