

# Refraction and the dissatisfied patient

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## Introduction

Within the ophthalmological practice, one of the most frequent consultations is due to poor vision, with refractive errors being the main cause for this problem. Population studies show us a general prevalence of ametropia that reaches 50% and approximately 70% of daily ophthalmological consultation is related to this issue, highlighting its relevance. We will all have to face the situation in which one of our patients returns due to discomfort with the prescription provided for his refractive error.

Our knowledge and management of the different situations that we face daily are based on what is published in different scientific journals, which present the guidelines to choose one treatment or another. However, if we look at the current bibliography, there are no new ophthalmological publications on such a recurring topic in our daily practice, with one of the latest publications dating back to 1973,<sup>1,2</sup> leaving this area to optometry and not giving it the importance it has for our field of interest, which is directly linked to a refractive result, often prescribing a lens to achieve the best possible vision for our patient. This gives us the false idea that the patient's refraction is a fully resolved issue, that we have fully mastered and, therefore, does not require our proper attention.

Refraction is an exact science. Hence, we physically know how the light beam behaves when passing from one medium to another. This knowledge leads us to seek the best visual acuity as the main objective when we refract our patient, but also, secondarily, it is necessary to look for the accompanying visual discomforts related to alterations that go beyond what is described in the physical understanding of refraction, and it is the improvement of the symptomatology that the patient can present from his perspective. Since this point is usually not considered, the risk of a patient who is dissatisfied with the prescribed refraction is eminent, despite the diligent care applied.<sup>2,3</sup> When a patient for whom we refract and who received a prescription, returns to the doctor's practice, he usually experiences some discomfort which, in summary, can be attributed to three main causes: that he sees badly with his new lens, that he presents discomfort with the new refraction or that the inconvenience that initially caused the query persists.

## Stillerman separates the discomforts of patients into two large groups:

The first one considers problems related to visual acuity. In this case, certain aspects can be identified objectively which are altering the vision and a medical error is present (the recognition of this being crucial). In this group the solution to the discomfort will be easier to find, since there will be an identifiable and easily correctable factor.

The second group that he describes is the one that has problems with the lens, which, being well prescribed, induces discomfort. This discomfort is often times subjective and psychological and functional factors enter that are responsible for the alterations. In the case of patients which form part of the second group, the identification and management of the discomforts is more challenging. The patient is the one who is aware of the problem, he is the one who is the most

familiar with the discomfort he experiences and the reason why he consults again, which brings with it an expectation of the solution he hopes to obtain. The ophthalmologist must achieve the technical identification of the problem presented and will be the one who has the ability to deliver a solution, realistically limiting the patient's expectations. When we carry out the refraction, we will close the gap between the problem and the solution with all the techniques that we have at our disposal to refract, but we must mix them with the knowledge of what the patient wants to achieve and the use that he will give it in his daily activity. This evaluation conducted at the time of performing the anamnesis and subsequent evaluation of the patient is what we call "the art of refraction" and this will lead us to discover possible causes of dissatisfaction (Figure 1).

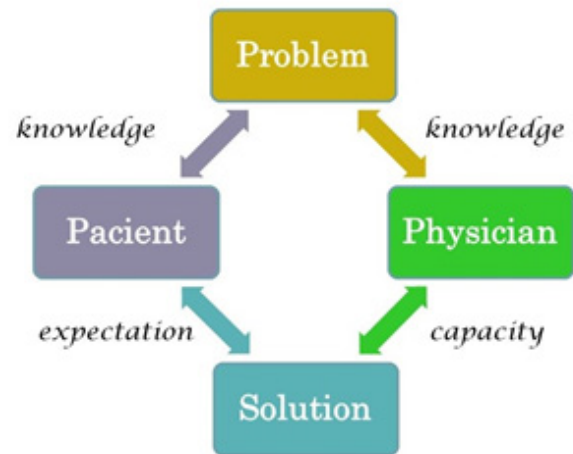
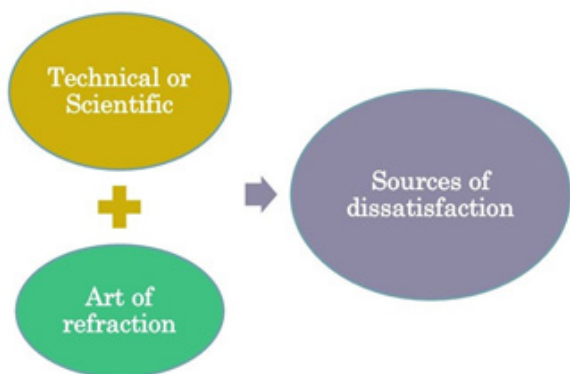


Figure 1 Art of refraction.

## Sources of dissatisfaction

There are different causes that can lead to a patient presenting discomfort with their optical lens, which can be observed objectively in the form of a poor prescription and other intangible causes, that may often times be difficult to determine, such as the working distance of each patient, which will be different in each case (Figure 2).



**Figure 2** Dissatisfaction causes.

### Lens manufacturing or assembly

The first thing we must do is check that the prescription provided is correct. It is imperative to always confirm that the dioptric strength is indicated accurately. The pupillary distance is part of the medical indication. Hence, it must be specified in our prescription, since an imprecise distance can lead to a prismatic effect, which will bring great distortion with the use of the lens. The prescription must be clear, without giving room for doubts or misinterpretations. For example, astigmatism will generate an increasing distortion if the axis is altered, being able to produce an alteration of one diopter with alterations of only five degrees on the axis.

Technical elements of the eyeglass construction must also be reviewed. The chosen frame can give many alterations that, despite having a correct indication, will lead to various types of discomfort while using the glasses. The base curve of a frame can create a distortion in the patient's vision since it can create a deficient relation between the optical axis of the glass and the visual axis of the patient. The pantoscopic angle is the one formed between the lens and the patient's face, which must be 80 degrees in order to prevent distortion. The frame chosen by the patient must be well positioned on the face, considering the height of the visual axis with respect to the optical axis of the glass, pantoscopic angle and its weight distributed among the respective support points of each frame, in order to avoid malpositioning that will lead to visual distortion, which will be worse if the lens is bifocal or multifocal (which will always depend on correct lens positioning on the face).

### Patient's personality

It is important to try to determine what type of personality our patient has, since those with obsessive or very detail-oriented personalities may have great difficulty adapting to multifocal lenses, being very picky about the quality of vision obtained with their lens. This is also important to take into consideration when deciding to change the previous prescription or the one currently in use. As a recommendation, if a patient is seeing well and is comfortable with his lens, ideally we should keep them until a further deterioration of the vision is detected and the change becomes necessary.

### Patient's activity

It is necessary to know what the patient does on a daily basis, what he does for work and what his profession is, since the combination of the patient's needs rising from his profession and the refractive

error will give us the working distance, which is essential in close-up activities, making the correction of presbyopia dynamic and variable between patients instead of static and according to a table. In this sense, a patient who is a computer scientist may require an intermediate distance for his computer, or a great reader may require a smaller distance for his reading, or a musician, may have to read at a greater distance than the intermediate one and in non-ideal light conditions (Figure 3).



**Figure 3** Working distance.

### Refractive error

It should always be remembered that extreme measures will be more problematic. Highly myopic or highly hyperopic people will have a lot of discomfort if they lack a good centering between the visual axis and the optical center.<sup>4</sup> High astigmatism will be very sensitive to the prescribed axes and the effective axes, with the effective axis being the one that will finally remain with the lens assembled and placed on the patient's face (the frame may be tilted and change the axis). It is also necessary to try to achieve that the axes of both eyes add up to 180 degrees, this will help improve the tolerance of the lens. Increasing the difference between the actual axis and the target axis of 180 degrees, will increase the likelihood of discomfort for the patient.

Anisometropia can be another source of discomfort for the patient. While a difference of up to three diopters may be tolerated easily, a greater difference may result in discomfort and their full correction may not be usable, making it necessary to seek a progressive improvement based on tolerance. The older the patient, the more difficult it will be to achieve the adaptation of their optical lens with marked anisometropia.<sup>5,6</sup>

### Eye pathology

Correcting refractive errors must always be based on understanding the patient's context, since each patient may be subject to different ophthalmological pathologies that limit final vision, which must lead us to seek the best vision and not necessarily what is considered normal. The existence of a cataract, leukomas, retinal alterations or scotomas may lead us to give the indication not to use a bifocal or multifocal lens and limit the use of monofocal lenses in order to improve visual comfort and final vision quality.<sup>4</sup>

### Extraocular pathology

It should be remembered that the patient is a complete unit, therefore, when prescribing the lens, not only the lens itself should be

considered but also the concomitant pathologies which the patient may present. Diabetes, myasthenia, cervical disc disease, etc., are general conditions that can affect the patient's vision, causing the visual capacity to fluctuate in a matter of weeks or even during the day, or that generate vicious postures that limit comfort of using multifocals and making it necessary to recommend the use of a monofocal.<sup>7</sup>

## Conclusion

The dissatisfied patient is a fact that touches all of us who are faced with providing a lens prescription. Therefore, it is of utmost importance to give it the required importance, since every time a patient returns dissatisfied with his lens, the revision of the case can take up to 30 minutes. Considering the aforementioned, the lens measurement can be performed optimally, and the necessary recommendations can be provided in order to ensure that the patient's lens will fit in the best possible way. Refracting is an art which does not only require us to copy what the auto refractometer presents us. We must consider the eye as a functional and anatomical part of a complete individual, considering various elements that can affect each person, seeking to meet two major conditions that are to achieve greater visual acuity and greater visual comfort, thus allowing the patient to have the lens that helps them the most in their everyday life.

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## Conflicts of interest

The authors have no conflicts of interest to declare.

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