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**The Influence of Personality on Quality of Vision after  
Multifocal Intraocular Lens Implantation**

SCIENTIFIC ARTICLE

OPHTHALMOLOGY

Study conducted under the orientation of

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## **LIST OF ABBREVIATIONS**

A: Agreeableness;

C: Conscientiousness;

CHUC: Centro Hospitalar da Universidade de Coimbra;

CDVA: Corrected distance visual acuity;

CNVA: Corrected near visual acuity;

DCIVA: Distance-corrected intermediate visual acuity;

DCNVA: Distance-corrected near visual acuity;

E: Extroversion;

HOAs: Higher-order aberrations;

IOL: Intraocular lens(es);

N: Neuroticism;

O: Openness;

OCEAN: Big-Five model of personality stands for Openness, Conscientiousness, Extroversion, Agreeableness and Neuroticism;

QoV: Quality of vision;

SPSS: Statistical Package for the Social Sciences

UCDVA: Uncorrected distance visual acuity;

UCIVA: Uncorrected intermediate visual acuity;

UCNVA: Uncorrected near visual acuity.

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## **ABSTRACT**

**Purpose:** To assess the possible correlation between patients' personality traits and the subjective perception of their quality of vision (QoV), after multifocal intraocular lens (IOL) implantation.

**Methods:** After cataract surgery and multifocal IOL implantation, patients answered the NEO-FFI-20 questionnaire to assess their personality traits and it was then calculated a value for each of the Big-Five personality dimensions – openness to experience (O), conscientiousness (C), extraversion (E), agreeableness (A) and neuroticism (N). Additionally, we assessed the patients' vision objectively (visual acuities) and subjectively, through a questionnaire that evaluated their quality of vision perception – QoV.

**Results:** There was a statistically significant negative and moderate correlation between conscientiousness and the QoV score ( $r_{sp} = -.682$ ,  $p = .043$ ). There was a statistically significant positive and moderate correlation between extroversion and the frequency of both glare ( $r_{sp} = .776$ ,  $p = .024$ ) and starbursts ( $r_{sp} = .751$ ,  $p = .032$ ). We found a statistically significant negative and moderate correlations between conscientiousness and both frequency ( $r_{sp} = -.714$ ,  $p = .031$ ) and intensity ( $r_{sp} = -.698$ ,  $p = .037$ ) of photic phenomena. In addition, there was a statistically significant positive and moderate correlation between agreeableness and degree of discomfort ( $r_{sp} = -.685$ ,  $p = 0.042$ ).

**Discussion:** Results showed that subjects with higher values of conscientiousness complained less regarding photic phenomena in general. It was also found that subjects with higher values of conscientiousness complained less concerning frequency and intensity of photic phenomena. Subjects with higher values of extroversion showed more complaints regarding the frequency of both glare and starbursts. Finally, subjects with higher values of agreeableness showed more complaints regarding the degree of discomfort caused by photic phenomena.

**Conclusion:** In spite of the small number of subjects, we were able to conclude that conscientiousness, extroversion and agreeableness seem to have a role on shaping the subjects' complaints regarding photic phenomena after multifocal IOL implantation.

**KEYWORDS:** Cataracts; Multifocal Intraocular Lens; Quality of Vision; Photic Phenomena; Personality.

## **INTRODUCTION**

Multifocal intraocular lens implantation (IOL) in cataract surgery patients can have a variety of different results, depending on a multiplicity of parameters, namely the pre- and postoperative visual acuity, the pre- and postoperative sphere and spherical equivalent and the presence of pre- and postoperative astigmatism.

The results of this surgery are measured using optical tests and scales and are complemented by the subjective assessment of patient satisfaction, concerning visual side effects of the surgery.

In clinical practice, health professionals may notice similarities in the degree of satisfaction of different patients, even with different objective parameters, both before and after surgery, but who have similar personality characteristics.

Thus, the question arises, "Do certain personality traits condition patients to reveal a better or worse degree of satisfaction after implantation of a multifocal IOL?"

## **BACKGROUND**

### **CATARACTS AND MULTIFOCAL INTRAOCULAR LENS IMPLANTATION**

Cataracts consist of opacifications of the crystalline lens (which are normally clear), due to age-related changes in its proteins, resulting in slowly progressive visual loss or blurring, usually over months to years, affecting one or both eyes.<sup>1</sup>

This is usually accompanied by presbyopia, which is the decreased ability to accommodate and is a result of changes in the elasticity of the crystalline lens and in the contractility of the ciliary muscle, which are also age-related.

Accommodation is the eye's ability to dynamically change its optical power, in order to create a sharp image of distant, intermediate, and near objects. It is a result of variations in the shape and position of the lens, due to changes in tension exerted on the zonular fibres by the ciliary muscle.

Cataract surgery with implantation of IOL can increase visual acuity and change the patient's refractive state. Binocular implantation is usually preferable to monocular implantation.

Multifocal IOLs have 2 or more fixed adapting focal points rather than 1 (monofocal), which means they can provide 2 or more fixed optical powers, providing good uncorrected visual acuity for both distance and near visual tasks. Therefore, multifocal IOLs result in two or more coexisting retinal images, in which only the image corresponding to the distance or near focal point will be sharp. This makes multifocal lens pseudoaccommodative instead of truly accommodative.<sup>2</sup>



Multifocal IOLs can be refractive, diffractive or use combinations of both optical principles. Refraction is based on the change in direction of a light ray due to a change in the optical density of the material through which the light travels, whereas diffraction is based on the fact that when light encounters a discontinuity or edge in the material in which it travels, it scatters in several directions, so it can be divided over 2 or more focal points. The type of optics used will influence the clinical results of the IOL.<sup>2</sup>

Studies show that implantation of multifocal IOLs, both refractive or diffractive, improves uncorrected near vision, and thus lowers spectacle dependence, without significantly compromising distance visual acuity, compared to monofocal IOLs implantation.<sup>2</sup>

Despite their benefits of uncorrected visual acuity at multiple distances, multifocal IOLs are associated with photic phenomena, such as halos, glare and starbursts (which are less frequent in patients with a monofocal IOL), that are one of the most frequent reasons for dissatisfaction after multifocal IOL implantation. Contrast sensitivity is also diminished in patients with multifocal IOLs, compared with monofocal ones; however, it is generally within the normal range of contrast in phakic individuals of the same age.<sup>2</sup>

Diffractive multifocal IOLs were associated with a similar uncorrected distance visual acuity and superior near visual acuity, compared to their refractive counterparts<sup>3</sup>, resulting in higher spectacle independence. Refractive multifocal IOLs also appear to be associated with more photic phenomena than diffractive multifocal IOLs, although there is no difference in contrast sensitivity.<sup>2</sup>

IOLs can, in addition, be divided into spheric and aspheric, where the latter have lower higher-order aberrations (HOAs).

Besides all the changes in the crystalline lens already mentioned, age also causes the crystalline lens to have less negative spherical aberration or even positive spherical aberration, causing the angle of refraction of peripheral rays to be larger than the paracentral rays (whereas young and healthy crystalline lenses compensate for the cornea positive spherical aberration). This results in an increased spherical aberration of the optical system.<sup>4</sup>

Aspheric IOLs were developed to compensate for the increased positive corneal aberration, so they have negative spherical aberration, which will lead to a better retinal image and optimized visual performance.<sup>5</sup>

Multifocal IOLs have been associated with higher levels of HOAs than monofocal IOLs, but studies show that aspheric multifocal IOLs have superior visual performance compared with their spherical counterparts (just like aspheric monofocal IOLs compared with their spherical counterparts) especially when it comes to mesopic vision (in low but not quite dark lighting situations) and contrast sensitivity.<sup>2</sup>

Multifocal IOLs can also be classified as pupil dependent or independent. In IOLs with zonal refractive and central diffractive designs, the division of the light rays is dependent on pupil size, while IOLs with a similar peripheral and central optical zone are pupil independent.

## PERSONALITY TRAITS

The Five-Factor Model<sup>6</sup> also known as the OCEAN model,<sup>7</sup> is a suggested taxonomy for personality traits, developed from the 1980s onwards in psychological trait theory. It organizes human personality traits in five dimensions: openness to experience (O), conscientiousness (C), extraversion (E), agreeableness (A) and neuroticism (N) – which represent differences in behavioral, emotional and cognitive patterns between individuals.<sup>8</sup>

Openness to experience is associated with intellectual curiosity, imagination, creativity and search for new experiences. People with low O (closedness) are more likely politically conservatives and religious fundamentalists<sup>9</sup>, with a “black or white” way of thinking and very reluctant to change their beliefs.

Conscientiousness is related to responsibility, positive health habits (safe driving, exercise, healthy diet) and, therefore, people with high C are more likely to be healthy and live longer.<sup>10</sup> They also tend to be punctual, hardworking and more productive employees or students, making C the most consistent predictor of job performance.<sup>11</sup> However, high C might also be associated with negative traits, such as work obsession or compulsive cleaning. People with low C are less responsible, careless and distracted.<sup>12</sup>

Extraversion is associated with popularity, social success, enterprising self-promotion and higher lifetime income.<sup>13</sup> People with high E (extraverts) tend to be happier than introverts, warm, fun, energetic, optimistic, friendly and good at leadership roles. People with low E, on the other hand, are more reserved and sober, even though they have adequate social skills.

When it comes to agreeableness, people with high A are more selfless, cooperative, empathetic, polite and nice, making them more likely to have better marital relationships.<sup>14</sup> People with low A are aggressive, hostile, rude, manipulative, cynical, self-centered and more likely to commit crimes and abuse drugs.<sup>15</sup>

Neuroticism is related to mental health and well-being, as it translates adaptation and emotional stability. People with high N tend to experience negative emotions – such as sadness, anxiety, stress, anger, and to have negative thoughts – such as worry, guilt, low self-esteem, self-doubt and inadequate coping. Neuroticism represents a predisposition to psychological distress, psychiatric disorders, such as depression and many of the personality disorders.<sup>16</sup> People with low N are emotionally stable, calm, relaxed, resilient and can adapt more easily to stress-inducing situations.

It is only understandable that these personality traits influence how people react to and deal with health-related issues. In this study we will focus on how the subjects respond to the possible visual side effects after multifocal IOL implantation, mainly the degree of discomfort they feel based on the frequency and intensity of said side effects.

## **METHODS**

The current study is an observational analytic study which included nine patients who underwent cataract surgery at the “Coimbra Hospital and University Centre” (CHUC), with multifocal IOL implantation.

At the third postoperative week, patients were given an inquiry to assess their personality traits. The questionnaire used was the Portuguese version of the NEO-FFI-20,<sup>17</sup> which is composed of four questions regarding each of the 5 traits of the Five-Factor Model (OCEAN) and establishes a value for each one.

At the same visit, subjects were objectively evaluated concerning their visual function – uncorrected near visual acuity (UCNVA), corrected near visual acuity (CNVA), uncorrected distance visual acuity (UCDVA), corrected distance visual acuity (CDVA), uncorrected intermediate visual acuity (UCIVA), distance-corrected intermediate visual acuity (DCIVA) and distance-corrected near visual acuity (DCNVA), for each and both eyes. Quality of vision was subjectively evaluated by giving the patients another questionnaire (Quality of Vision Questionnaire)<sup>18</sup> to assess the presence of visual side effects – glare, halos, starbursts, foggy vision, blurred vision, metamorphopsia, double/ multiple images, fluctuations, decreased focus ability and decreased depth perception – their frequency, intensity and degree of discomfort caused. A final score was then calculated for each patient, high values meaning more complaints and lower values meaning the opposite.

Statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) version 27.0 for Windows and involved measures of descriptive statistics (absolute and relative frequencies, means and respective standard deviations) and inferential statistics. The level of significance for rejecting the null hypothesis was fixed at  $(\alpha) \leq .05$ . To analyze the correlations between quantitative variables, Spearman's ordinal correlation coefficient was used.

The goal of this analysis was to look for correlations between the OCEAN personality traits scores of each patient and:

- The total value of the QoV score;
- The frequency, intensity and degree of discomfort of the 3 main visual side effects, which are glare, halos and starbursts;
- The total score of frequency (for all side effects), the total score of intensity (for all side effects) and the total score of degree of discomfort (for all side effects).

## RESULTS

This study included 9 patients submitted to multifocal IOL implantation.

The descriptive analysis regarding their OCEAN personality traits, QoV scores and visual acuities are shown in Tables 1, 2 and 3, respectively.

The majority of the patients were female (55,6% vs 44,4% of male).

Regarding the OCEAN personality traits, subjects demonstrated higher scores of conscientiousness (mean: 17,67) and lower scores of neuroticism (mean: 10,22).

Table 1 – Five OCEAN personality traits.

	Min	Max	Mean	SD
O	6	17	11,44	3,32
C	12	20	17,67	2,95
E	10	19	14,44	3,60
A	13	19	15,56	1,94
N	6	14	10,22	2,90

O: Openness to experience; C: Conscientiousness;  
E: Extraversion; A: Agreeableness; N: Neuroticism

Table 2 shows the total score and the scores regarding the frequency (sub-question A), intensity (sub-question B) and degree of discomfort (sub-question C) for the three main visual side effects: glare (question 1), halos (question 2) and starbursts (question 3).

The mean total QoV score observed was of 18,22.

Table 2 – QoV Scores.

	Min	Max	Mean	SD
<b>QoV</b>	0	44	18,22	15,82
<b>1A</b>	0	3	1,00	1,32
<b>1B</b>	0	3	0,89	1,17
<b>1C</b>	0	3	0,89	1,27
<b>2A</b>	0	3	1,56	1,56
<b>2B</b>	0	3	1,67	1,67
<b>2C</b>	0	3	1,22	1,09
<b>3A</b>	0	3	0,78	1,30
<b>3B</b>	0	3	0,78	1,30
<b>3C</b>	0	3	0,56	1,01

Table 3 – Visual Acuities, in logMAR.

	N	Mínimo	Máximo	Média	Desvio padrão
<b>UCNVA OU</b>	5	,10	,18	,11	,03
<b>CNVA OU</b>	2	,00	,10	,05	,07
<b>UCDVA OU</b>	8	-,04	,14	,03	,05
<b>CDVA OU</b>	7	-,10	,06	-,02	,06
<b>UCIVA OU</b>	2	,48	,60	,53	,08
<b>DCIVA OU</b>	1	,40	,40	,40	.
<b>DCNVA OU</b>	5	,00	,20	,09	,09

Uncorrected Near Vision Acuity (UCNVA); Corrected Distance Visual Acuity (CDVA); Corrected Near Vision Acuity (CNVA); Distance-Corrected Intermediate Visual Acuity (DCIVA); Distance-Corrected Near Vision Acuity (DCNVA); Uncorrected Distance Visual Acuity (UCDVA); Uncorrected Intermediate Visual Acuity (UCIVA); Binocular (OU).

Table 4 shows the correlation coefficient between each of the OCEAN personality traits and the total score obtained in the QoV questionnaire.

Table 4 – Correlation between OCEAN personality traits and total QoV scores.

	$r_{sp}$	$p$ value
O	,179	,645
C	<b>-,682*</b>	<b>,043</b>
E	-,604	,085
A	,547	,127
N	-,017	,964

\*  $p < .05$

O: Openness to experience; C: Conscientiousness;  
E: Extraversion; A: Agreeableness; N: Neuroticism

According to Table 4, a statistically significant correlation was found between conscientiousness and the total QoV score ( $r_{sp} = -.682$ ,  $p = .043$ ). The correlation coefficient is negative and moderate. Thus, subjects with higher values of conscientiousness have lower QoV scores, which means fewer complaints regarding photic phenomena in general.

Since the total score of the QoV lacks information regarding which are the most common complaints, it was also evaluated the potential correlation between the OCEAN personality traits and the frequency (sub-question A), intensity (sub-question B) and degree of discomfort (sub-question C) for the three main visual side effects: glare (question 1), halos (question 2) and starbursts (question 3). The results are shown in Table 5.

Table 5 – Correlation between OCEAN personality traits and the frequency, intensity and degree of discomfort for glare, halos and starbursts.

	1A	2A	3A	1B	2B	3B	1C	2C	3C
O	-,026	,477	-,213	,000	,412	,500	,236	,000	-,500
C	,534	,000	,376	,000	,108	-,500	-,577	,197	,500
E	<b>,776*</b>	,156	<b>,751*</b>	,833	,394	,866	,943	,548	,866
A	,325	-,629	,357	-,632	,191	,000	,000	,111	-,866
N	-,459	-,083	-,177	,333	-,657	,000	,236	-,300	,866

\*  $p < .05$

O: Openness to experience; C: Conscientiousness; E: Extraversion; A: Agreeableness;  
N: Neuroticism

Based on the results shown in Table 5, there are statistically significant correlations between extroversion and question 1A ( $r_{sp} = .776$ ,  $p = .024$ ) and between extroversion and question 3A ( $r_{sp} = .751$ ,  $p = .032$ ). The correlation coefficients are positive and moderate. Therefore, subjects with higher values of extroversion show higher scores in questions 1A and 3 A, which translates into more complaints regarding the frequency (sub-question A) of both glare (question 1) and starbursts (question 3).

Finally, it was also calculated the correlation coefficient between the OCEAN personality traits and the frequency, intensity and degree of discomfort for all the visual side effects together.

Table 6 – Correlation between OCEAN personality traits and the frequency, intensity and degree of discomfort for all visual side effects.

	Frequency	Intensity	Discomfort
O	,090	,111	,142
C	<b>-,714*</b>	<b>-,698*</b>	-,529
E	-,592	-,607	-,502
A	,569	,549	<b>,685*</b>
N	,035	,035	-,097

\*  $p < .05$

O: Openness to experience; C: Conscientiousness;

E: Extraversion; A: Agreeableness; N: Neuroticism

Table 6 shows statistically relevant correlations between conscientiousness and frequency ( $r_{sp} = -.714$ ,  $p = .031$ ), between conscientiousness and intensity ( $r_{sp} = -.698$ ,  $p = .037$ ) and between agreeableness and degree of discomfort ( $r_{sp} = -.685$ ,  $p = 0.042$ ). The correlation coefficients of conscientiousness are negative and moderate and that of agreeableness is positive and moderate. This means that subjects with higher values of conscientiousness show lower scores (and, therefore, complain less) in questions concerning frequency and intensity of photic phenomena, and subjects with higher values of agreeableness have higher scores (i.e. show more complaints) in the questions regarding the degree of discomfort caused by photic phenomena.

## DISCUSSION

The results revealed that people with higher values of conscientiousness show fewer complains in photic phenomena in general, and in the frequency and intensity of those photic

phenomena. Conscientiousness is related to goal setting and self-discipline; therefore, it can have a positive effect on the self-perception of one's own health. People with high C expressed more satisfaction with the postoperative visual acuity outcomes.<sup>19</sup>

We also found that people with high E complain more concerning the frequency of glare and starbursts. Extroverts tend to be more easy-going, optimistic, friendly, assertive and active, which would lead us to think that they would not focus so much on negative outcomes, such as the surgery's side effects. Again, that is not what the results showed. One explanation could be that since people with high extroversion levels are very sociable and less reserved, it becomes easier for them to share their complaints, in this case regarding the frequency and intensity of the photic phenomena.

Finally, this study showed that people with high levels of A complain more concerning the degree of discomfort caused by photic phenomena. This goes against the present literature, since Rudalevicius et al. (2020) found that patients with agreeableness as the prevailing personality trait had a similar correlation with the positive postoperative outcomes to those who can boast of conscientiousness. Agreeable personalities tend to demonstrate less criticism and hostility, therefore agreeableness can be considered a positive trait.<sup>18</sup> However, the sample is small (9 patients) and the personality questionnaire is a self-answer type of questionnaire, which may skew the answers obtained, and therefore, the patient's self-assessment of their kindness trait.

Based on the characteristics of people with high levels of neuroticism – such as insecurity, pessimism, worry, inadequate coping and anxiety, we would expect to find a correlation between this personality trait and the QoV dissatisfaction, as these people can also be hypochondriacs and have difficulty dealing with stress. However, no correlation was found, yet that could be due to the small sample size.

## **CONCLUSION**

This study allowed us to understand that the subjects' personality plays an important role on how they handle photic phenomena as side effects of multifocal IOL implantation. This role is not by influencing *per se* the frequency, intensity and degree of discomfort of said side effects, but by moulding people's perception of whether it bothers them (and, if it does, to what extent) and the necessity or assuredness to express those complaints.

However, our sample was too small (9 subjects) for concrete and significant inferences to be made based on the results. For a better evaluation of the correlation between personality traits and subjective quality of vision reports, bigger samples ought to be used.



Further investigation should, therefore, be made, as knowledge about this association between personality and photic phenomena complaints in patients submitted to multifocal IOL implantation would allow for a better pre-operative assessment of risk-benefit ratio and of what results to expect for a certain patient. This information could even change the course of action or, at least, anticipate for post-operative care, whether that would be treatment of the photic phenomena or ways to mitigate them.

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Finally, I thank Dan for also supporting me and helping me through the hard times.

## ANNEX 1: QoV Questionnaire

Neuroadaptation after cataract and refractive surgery study - NECSUS

Subject Initials    Subject ID      Date       
Month Day Year

### Questionário da Qualidade da Visão (QoV)

Center (check one):

- Coimbra  Maastricht

Visit Number (check one):

- Visit 1 (3<sup>rd</sup> week after 1<sup>st</sup> eye surgery)  Visit 2

Este questionário é composto por 10 itens, cada um com três perguntas sobre a frequência, intensidade e incómodo relativos à sua visão. Compare cada sensação com a explicação gráfica das imagens que lhe serão disponibilizadas.

#### 1A. Quantas vezes sente que vê brilhos à volta das luzes?

Nunca  Ocasionalmente  Frequentemente  Muitas vezes

>>Se respondeu "Nunca" passe para a pergunta 2 >>

#### 1B. Qual a intensidade desses brilhos?

Nenhuma  Leve  Moderada  Forte

#### 1C. Quanto incómodo lhe produzem os brilhos?

Nenhum  Algum  Bastante  Muito

#### 2A. Quantas vezes sente que vê "halos" à volta das luzes?

Nunca  Ocasionalmente  Frequentemente  Muitas vezes

>>Se respondeu "Nunca" passe para a pergunta 3 >>

#### 2B. Qual a intensidade desses "halos"?

Nenhuma  Leve  Moderada  Forte

#### 2C. Quanto incómodo lhe produzem os "halos"?

Nenhum  Algum  Bastante  Muito

#### 3A. Quantas vezes vê "riscos estrelados" nas luzes?

Nunca  Ocasionalmente  Frequentemente  Muitas vezes

>>Se respondeu "Nunca" passe para a pergunta 4 >>

#### 3B. Qual a intensidade desses "riscos estrelados"?

Nenhuma  Leve  Moderada  Forte

**3C. Quanto incómodo lhe produzem os “riscos estrelados”?**

Nenhum       Algum       Bastante       Muito

**4A. Quantas vezes sente a visão enevoada?**

Nunca       Ocasionalmente       Frequentemente       Muitas vezes

>>Se respondeu “Nunca” passe para a pergunta 5>>

**4B. Qual a intensidade dessa visão enevoada?**

Nenhuma       Leve       Moderada       Forte

**4C. Quanto incómodo lhe produz a visão enevoada?**

Nenhum       Algum       Bastante       Muito

**5A. Quantas vezes sente a visão desfocada?**

Nunca       Ocasionalmente       Frequentemente       Muitas vezes

>>Se respondeu “Nunca” passe para a pergunta 6 >>

**5B. Qual a intensidade dessa visão desfocada?**

Nenhuma       Leve       Moderada       Forte

**5C. Quanto incómodo lhe produz a visão desfocada?**

Nenhum       Algum       Bastante       Muito

**6A. Quantas vezes sente visão distorcida?**

Nunca       Ocasionalmente       Frequentemente       Muitas vezes

>>Se respondeu “Nunca” passe para a pergunta 7 >>

**6B. Qual a intensidade dessa distorção?**

Nenhuma       Leve       Moderada       Forte

**6C. Quanto incómodo lhe produz a distorção?**

Nenhum       Algum       Bastante       Muito

**7A. Quantas vezes vê imagens duplas ou múltiplas?**

Nunca       Ocasionalmente       Frequentemente       Muitas vezes

>>Se respondeu “Nunca” passe para a pergunta 8 >>

**7B. Qual a intensidade das imagens duplas ou múltiplas?**

Nenhuma       Leve       Moderada       Forte

**7C. Quanto incómodo lhe produzem as imagens duplas ou múltiplas?**

Nenhum       Algum       Bastante       Muito

**8A. Quantas vezes sente flutuações na sua visão?**

Nunca       Ocasionalmente       Frequentemente       Muitas vezes

>>Se respondeu “Nunca” passe para a pergunta 9 >>

**8B. Qual a intensidade dessas flutuações?**

Nenhuma  Leve  Moderada  Forte

**8C. Quanto incómodo lhe produzem as flutuações?**

Nenhum  Algum  Bastante  Muito

**9A. Quantas vezes sente dificuldades em focar?**

Nunca  Ocasionalmente  Frequentemente  Muitas vezes

>>Se respondeu "Nunca" passe para a pergunta 10 >>

**9B. Qual a intensidade dessas dificuldades em focar?**

Nenhuma  Leve  Moderada  Forte

**9C. Quanto incómodo lhe produzem as dificuldades em focar?**

Nenhum  Algum  Bastante  Muito

**10A. Quantas vezes sente dificuldade na percepção de distância ou profundidade?**

Nunca  Ocasionalmente  Frequentemente  Muitas vezes

**10B. Qual a intensidade provocada pela dificuldade de percepção da distância ou profundidade?**

Nenhuma  Leve  Moderada  Forte

**10C. Quanto incómodo lhe produz a dificuldade de percepção da distância ou profundidade?**

Nenhum  Algum  Bastante  Muito

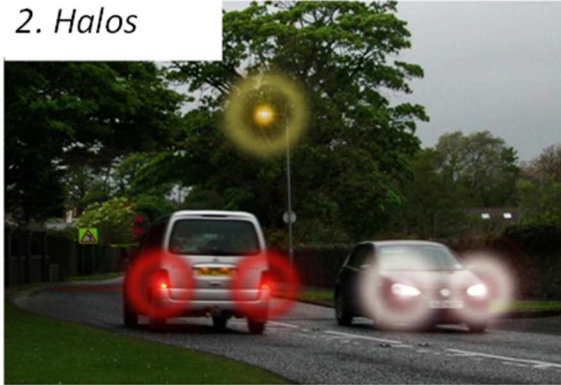
# QoV Pictures

McAlinden et al. The development of an instrument to measure quality of vision: the Quality of Vision (QoV) questionnaire. Invest Ophthalmol Vis Sci (IOVS) 2010 Nov;51(11):5537-45.

1. *Brilhos*



2. *Halos*



3. *Riscos Estrelados*



4. *Visão Enevoada*



5. *Visão Desfocada*



6. *Visão Distorcida*



7. *Visão Dupla/Múltipla*



## ANNEX 2: NEO-FFI-20

Leia cada afirmação com atenção. Para cada afirmação, nas páginas seguintes, marque com uma cruz apenas a coluna que melhor corresponde à sua opinião, utilizando a seguinte escala de resposta:

1 Discordo Fortemente	2 Discordo	3 Nem concordo nem discordo	4 Concordo	5 Concordo fortemente
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	1	2	3	4	5
1. Raramente estou triste e deprimido(a).	.				
2. Sou uma pessoa alegre e bem disposta.			.		
3. A poesia pouco ou nada me diz.			.		
4. Tendo a pensar o melhor das pessoas.					.
5. Sou eficiente e eficaz no meu trabalho.		.			
6. Sinto-me, muitas vezes, desamparado(a), desejando que alguém resolva os meus problemas por mim.				.	
7. Muitas vezes, sinto-me a rebentar de energia.	.				
8. Às vezes, ao ler poesia e ao olhar para uma obra de arte sinto um arrepio ou uma onda de emoção.				.	
9. A minha primeira reação é confiar nas pessoas.				.	
10. Sou uma pessoa muito competente.			.		
11. Raramente me sinto só ou abatido(a).			.		
12. Sou uma pessoa muito ativa.	.				
13. Acho as discussões filosóficas aborrecidas.		.			
14. Algumas pessoas consideram-me frio(a) e calculista.	.				
15. Esforço-me por ser excelente em tudo aquilo que faço.				.	
16. Houve alturas em que experimentei ressentimento e amargura.			.		
17. Sou dominador(a), cheio(a) de força e combativo(a).		.			
18. Não dou grande importância às coisas da arte e da beleza.	.				
19. Tendo a ser descrente ou a duvidar das boas intenções dos outros.	.				
20. Sou uma pessoa aplicada, conseguindo sempre realizar o meu trabalho.				.	

**Por favor, verifique se respondeu a todas as questões. Muito obrigado pela sua colaboração.**

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