

# Quality of Life of Patients who have undergone Cataract Surgery at the National Institute of Rehabilitation

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## Biographical sketch

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## ABSTRACT

Nowadays in Mexico cataracts are a pathology which represent a Public Health Problem. It is an eye disease which is characterized by diminished vision, producing opacity in the crystalline lens and leads to blindness, thus affecting the life quality of those persons who are affected. It is possible to reverse the process through surgery. The objective of the investigation was to: learn whether there was a statistically significant ( $<0.05$ ) difference in the life quality of a sample of subjects who had undergone cataract surgery within the Programa Nacional de Cirugía de Cataratas del Instituto Nacional de Rehabilitación (National Program for Cataract Surgery of the National Institute of Rehabilitation), with respect to a previous evaluation. An exploratory study was carried out, both fieldwork and longitudinal, of 200 subjects who had been diagnosed with cataracts and who underwent surgery in the abovementioned program between January 1 and August 31, 2008. The instrument used was the questionnaire, VFQ-25 (Visual Function Questionnaire-25), version 200, of the National Eye Institute of the United States. The SPSSpc statistical package was utilized, using descriptive statistics and Student's T was calculated, among other tests. Socio-demographic variables considered in the NEI VFQ-25 were added. Results: it was found that the average quality of life of the subjects, previous to surgery was 33.50 points and following surgery 93.37; improving by 39.87 points. Statistically significant differences of 0.000 in the quality of life of subjects who underwent surgery were obtained, in relation to the previous evaluation on the 12 scales of NEI VFQ-25, which indicates that undergoing cataract surgery had positively affected their quality of life.

**Palabras clave:** Quality of life, Surgery, Cataracts, National Program for Cataract Surgery, VFQ-25.



## Introduction

A cataract is an ocular pathology associated with ageing, which has slow, painless progression, to the gradual loss of vision (Clinical Guide, 2005). It is associated with exposure to sunlight, smoking, poor nutrition, eye traumas, systemic diseases and the prolonged use of corticoids (PNCC, 2005). Other signs which may indicate cataracts are: painless alteration in visual acuity, not accompanied by red eyes, uni- or bilateral which is manifested as: blurred vision up close and/or from far away, altered perception of colors, monocular diplopia, transitory myopia, deficient night vision, above all when driving, caused by the effect of bright lights (glare blindness), problems with the glare of lamps or the sun, halos surrounding lights, double vision, with spots or clouds in the crystalline lens of the eye (the pupils are white or milky instead of black) (Clinical Guide, 2005).

In the face of the presence of one or more of the signs described above, people, in the first place, usually go in for an eye test with their optometrist and may change glasses several times without any improvement in their vision, gradually and unbeknownst to them, reducing their quality of life.

According to the World Health Organization (WHO), there are 50 million patients in the world with visual impairments and of this number about half suffer from blindness due to cataracts. This figure is expected to grow by the year 2020 to 50 million people, which makes it a problem of public health, (Work Program of Ophthalmology, 2006). WHO also indicated that over 90% of the visually impaired in the world live in countries with low or medium re-

sources and there cataracts are the main cause of blindness (La prensa, 2008).

"Cataracts are a very prevalent disease found in 50% of people between 65 and 74 years of age and 70% of those over 75" (Bremond, 2002). Taking as a starting point the premise that 75% of the cases of blindness in adults and 50% in children, are avoidable with prevention and correct treatment, WHO along with the International Agency for the Prevention of Blindness (IAPB) has been working on the initiative, Vision 2020 since 1999 (La prensa; 2008). The aim of this program is to diminish the prevalence of this disease. As a result, in May 2003, the World Program for the Prevention of Blindness was created, called Blindness: Vision 2020-The Global Initiative for the Elimination of Avoidable Blindness. Mexico is part of this program whose aim is to eliminate avoidable blindness by the year 2020 (National Program for Cataract Surgery, 2005).

On March 4, 2004 the Consejo Nacional para la Prevención y Tratamiento de las Enfermedades Visuales (National Council for the Prevention and Treatment of Visual Diseases) came into being and in August of 2007 the Programa Nacional de Cirugía de Cataratas (PNCC) was created in the Ophthalmological Service of the National Institute for Rehabilitation.

It is estimated that in Mexico there are 600 thousand blind patients per year and of these 60% is due to cataracts. The number of cataract surgeries carried out each year in all public and private institutions is approximately 100 thousand, the deficit being calculated at between 150 and 200 patients who are unable to have the operation each year due to the lack of economic

resources (Subdirección de Oftamología; Programa de Trabajo 2006-2010) (Sub-direction of Ophthalmology; Work Program 2006-2010).

It is worth pointing out that "the costs for attention to cataracts at the world level in private services, oscillates between two and three thousand dollars," (PNCC, 2005), making medical attention for this disease inaccessible for most of the population with meager economic resources. For this reason in October 2005 cataract surgery was introduced as a catastrophic expense for the families of persons suffering from cataracts in terms of Article 77 BIS 29 was added to the General Health Law. It is important to point out that the main characteristic of the National Program for Cataract Surgery of the National Institute of Rehabilitation (INR) is to take care of people with scarce economic resources and without Social Security, at no cost to them (following a socio-economic evaluation by a professional in Social Work).

The participation in the Program of Professional in Social Work began with the organization of the campaign to detect cataracts in marginalized urban population and in the State of Mexico, in homes, groups of the DIF (Integral Development of the Family), INAPAM (Instituto Nacional de las Personas Adultas Mayores) (National Institute for Elderly Adults), Health Centers, groups of farmers and workers, among others. These populations were visited by teams consisting of doctors (ophthalmologists and optometrists) who provided information to groups on the characteristics of the disease, such as causes, consequences, treatment and finally the detection of cataracts; the social worker talked about

the features of the program which includes the cost of pre-surgical medical studies for the assessment of the condition, including lab studies, electrocardiograms, internal medicine valuation surgery, intra-ocular lens and follow-up visits to the point when the patient is discharged by the doctor. Integration of subjects in the PNCC is determined following the socio-economic evaluation.

With respect to the term "quality of life," this refers to various aspects such as social, economic, cultural, anthropological, health and psychological, among others: It is a complex, multidimensional construct and depends on what the investigator wishes to learn and value in relation to how people live, feel and perceive. The word is closely connected to the perception of wellbeing, this being more individualized than generalized, since people tend to act differently to identical situations (Diener and Suh, 1977) (Garduño, 2005).

Quality of life in the sphere of health has been defined as the appraisal a patient has of his life and his/her satisfaction with his/her present state of functioning compared to what he/she perceives as possible or ideal, in which predictive variables are taken into account which evaluate the impact of the disease, its course and treatment (Apiqueán, Fresán and Nicolini, 2000). Quality of life consists of objective as well as subjective perceptions of the satisfaction of human, individual and collective needs in relation to the environment in which they live on; Palomar (1996), refers to various researchers such as Oppong, Ironside and Kennedy (1988); Andrews and Withey (1976); Campbell and colls. (1976); Levy and Anderson (1975) and McNeil, Stones

and Kozoma (1985), who all coincide and establish the indicators for carrying out objective and subjective measurements of the quality of life, in which the objective perception refers to the facts or conditions of social life, without taking into account the perception and evaluation of said conditions, that is it refers to the concept of the standard of living (education, employment, economic conditions of housing, nutrition, etc.); the subjective, are indicators based on the subjective perception and evaluation of persons, in given circumstances, making it necessary to go directly to the description of how a person feels in relation to his/her life (Palomar; 1996).

Some of the indicators of physical health which have been used to measure life quality are: birth and death rates, the number of days of hospitalization, the percentage of beds in use, the percentage of vaccinations, life expectancy, number of years of healthy life, number of years without a disability, etc. (Garduño; 2005).

There are various instruments used to measure the quality of life related to vision, among these we may mention those used in countries such as Cuba (VQOL-15I, Spain (SP-36) and the United States (NEI VFQ-25) version 2000.

The instrument used in the present study was NEI VFQ 25 (25-Item Visual Function Questionnaire, 2000), which consists of 12 scales with 25 items measuring the quality of life related to the aspect of vision, internationally validated by the National Eye Institute of the United States.

The scales used by the NEI VFQ-24 are: 1. General Health, 2. General Vision, 3. Ocular Pain, 4. Difficulties in Near Activities, 5. Difficulties in Distance Activities, 6. Diffi-

culties in Social Functioning, 7. Mental Health problems due to vision, 8. Role Difficulties due to vision, 9. Dependency on others due to vision, 10. Difficulties Driving, 11. Limited Color Vision, 12. Limited Peripheral Vision.

Each scale has between one and four different sub-scales which are measured on a 1 to 100 scale, which are averaged in order to calculate the life quality of subjects: the higher the score, the better the quality of life and vice versa, the lower the score, the poorer the quality of life. The instrument was translated into Spanish by Dr. Everardo Barojas Weber (Medical Sub-director of Ophthalmological Service) and Dr. Gabriela Ortega Larrocea (Head of the Division of Ophthalmology). A pilot program was launched by 5 ophthalmologists and a social worker from the INR, who added socio-demographic reactive of the subjects to the instrument.

### **Material and Methodology**

The objective of the study revolved around knowing whether there is a statistically significant difference  $P < 0.05$  in the quality of life of subjects who received surgical treatment in the National Program of Cataract Surgery of the National Institute of Rehabilitation, in relation to their previous evaluation. This is an exploratory, longitudinal field study, implemented at two different moments.

- **First moment:** A non-probability purposive sampling of 200 subjects was selected among 1,300 persons who had undergone surgery with support from the National Program of Cataracts. These patients were given the pretest before surgical treatment, taking advan-





tage of their stay the day they visited the Institute for medical evaluation by the internal medicine doctors. Within the process of pre-surgery valuation, subjects were invited to participate in the study, given a socio-demographic questionnaire and the NEI VFQ-25, 2000 individually, with their promise to answer the follow-up three months after surgery, once they had been discharged from post-surgical care.

- **Second moment:** The post-test was given three months after the subjects underwent surgery and once they had been discharged by the doctor from post-surgical care.

**Hypothesis:** The quality of life of the subjects is improved after receiving surgical treatment, with the support of the National

Program of Cataract Surgery, in relation to their previous evaluation.

**Statistical Hypothesis:** The quality of life of a sampling of patients belonging to the National Program of Cataract Surgery of the National Institute of Rehabilitation, will show a statistically significant difference  $P < 0.05$  with respect to the previous evaluation.

The results of the present research may be seen for practical purposes on the five tables presented at the end of the work in the appendices: Table 1 Mode of Quality of Life, Table 2 Average of Quality of Life, Table 3 Global evaluation of quality of life, Tables 4 and 5 Inferential statistics of VFQ-25.

## Results

118 women and 82 men participated in the study. The minimum age of the subjects was 31 years and the maximum 100. The mode was located in those between 71 and 80 years with a frequency of 62 persons, who according to the etiology of the disease are most susceptible to having cataracts at that age.

91 of the subjects were married, 62 widowed, 34 single, 9 divorced and 4 lived in consensual union. The existence of a percentage (31%) that was widowed along with the problem of cataracts in the patient, led to the elderly becoming a part of their children's families, thus favoring their physical, moral and economic dependence.

The level of schooling ranged from illiterate to college education, the mode being 60 illiterate persons, 86 patients had no activity before surgery, that is, they were at home without being able to even carry out activities of everyday life. Once surgery was performed, 103 not only recovered their independence for carrying out every-day activities, but also once again took part in household activities and almost a third of them, 61, returned to work as underemployed workers, which shows the great impact cataract surgery had on these subjects when they recovered their sight.

The mode of place of residence placed 124 subjects in the Federal District, mostly residing in the southern part of Mexico City in the Tlalpan district. While the National Institute of Rehabilitation is a unit of concentration, in the study there were people from outside the city, 56 from towns in the State of Mexico, 20 residents of the states of Guerrero, Hidalgo, Puebla and Veracruz, all of these states having high levels of

marginalization and poverty. With respect to the type of housing, 89 of the subjects owned their own homes, basically due to the effort they had made throughout their lives to obtain a space which would cover their and their families' needs for security. 160 lived in urban areas, and as a result 195 said they had basic services for development (water, electricity and sewers).

With respect to the twelve scales of the NEI-VFQ 25 questionnaire:

- 1) General Health.** In the previous study (EPr) as in the later study (EPo) the mode placed 138 people in the category of having a good state of general health and while this result is not totally congruent, since we expected improvement in the EPo, the way in which it was interpreted was that the patients were used to not seeing, and having good health meant not having any other kind of pain or condition.
- 2) General Vision.** In the EPr 75 people said their vision was regular and in the EPo 120 said their vision was good, with improvement observed in 45 persons.
- 3) Ocular pain.** This scale measures two items: 1) Feeling of discomfort, in which the EPr mode had 57 patients and the EPo had 86 with slight discomfort. 2) Discomfort and pain, in EPr 88 answered always and in EPo 116 responded never. In this scale there was an average improvement of 34.31 points (Table 2), from which it can be deduced that cataract surgery contributed favorably to diminishing ocular pain and discomfort.

**4) Difficulty carrying out activities which involve up-close vision.**

This scale counts three items which measure: 1) difficulty in reading, 2) difficulty in carrying out activities close-up and 3) difficulties in finding things in a pile. With respect to difficulty in reading, in the EPr the mode was placed at 89 subjects who had stopped reading because they could not see and in the EPo 50 said they never have difficulty reading. With respect to difficulties carrying out up-close activities, such as using tools, painting, recognizing bills; in the EPr the mode was placed at 85 patients who said they could not carry out these activities because they could not see, in the EPo the mode was placed at 96 persons who indicated they had no difficulty carrying out the same activities. On the difficulty of finding things in a pile, in the EPr the mode appeared at 58 patients who said they had great difficulty and in the EPo 112 said they have no difficulty (Table 1). This showed improvement of an average of 48.5 points after surgery (Table 2) on this scale.

**5) Difficulty carrying out activities which involve distant vision.**

This scale consists of three items which evaluate: 1) the difficulty in reading street signs and the names of stores, 2) difficulty going down stairs at night or with little light and 3) difficulty seeing movies, theater and soccer. In the first item, in the EPr the mode was located at 64 patients who could not do it and in the EPo 91 said they have no difficulty. In relation to the second item, it was found that the EPr mode was 64 persons who said they had a very hard time

going down stairs at night or when the light wasn't good, and in the EPo 103 said they have no difficulty. With respect to the third item, in the EPr 110 could not go to the movies, theater or soccer matches and in the EPo 122 have no difficulties in doing so (Table 1). In this scale an average improvement of 51.6 points (Table 2) was obtained, indicating that subjects managed to recover their distant vision, allowing them to perform physical activities with more confidence inside as well as outside the home, avoiding accidents such as tripping on the stairs and sidewalks, falling when going up and down stairs and the risk of getting lost in the streets because they could not read the street signs. Thus, the quality of life was impacted positively by cataract operations performed on the patients.

**6) Social limitations.**

This scale measures two items, 1) the difficulties the subject has in seeing the expressions of the people he/she is talking to and 2) difficulties patients experience when going to visit relatives, going to the store or for a walk. With respect to the first item, it was found in the EPr that the mode was 73 patients who could not identify the expressions of people they talked to; in the EPo 137 said they had no difficulty doing this. With respect to the second item, the mode was placed at 68 persons who said they could not visit a relative, go to the store or for a walk because of their vision; and in the EPo 156 said they had no difficulties (Table 1). In the evaluation of this scale an average improvement of 49.97 point was found (Table 2). This indicated that the subjects had been isolated from



conversations, indicating that the cataract was an obstacle for socializing with others around them. Undergoing cataract surgery allowed the subject to have more interaction with relatives, reincorporating their social, recreational, cultural, educational and religious activities, and thus contributing improvement to the role the elderly person plays in his social environment, avoiding isolation and the feeling of loneliness.

**7) Mental health.** This scale is made up of four items: 1) Being worried about their sight, 2) Sadness, 3) Controlling things, and 4) Worrying about putting themselves or others in danger. With respect to the first item the mode of the EPr was 167 persons who answered "always," the same as in the EPo, where 77 also said "always." With respect to the second item, the EPr obtained 106 "always feel sad" and the EPo 166 "never." In the third item in the EPr 88 could never control the things they did and in the EPo 148 could always control the things they do. In the fourth item the EPr mode indicated that 134 people said they were always worried about putting themselves or others in danger; in the EPo 156 said they never worried about this (Table 1). In general this scale obtained an average improvement of 52.66 points (Table 2); which indicated that for the subjects, undergoing surgery had allowed them to lead a fulfilling life, with fewer worries, eliminating the feelings of sadness and anxiety and allowing them to carry out activities with more determination and enthusiasm, because before surgery they worried about going blind and after surgery they valued their

vision more and were careful to care for and conserve it.

**8) Difficulties in their roles.** This scale is made up of two items: 1) carrying out fewer everyday activities and 2) limitations for carrying out activities at work. In the EPr the mode was placed at "always" in 103 and 124, respectively (table 1). On this scale, there was average improvement of 52.94 points (Table 2); indicating that cataract surgery allowed subjects to return to their social roles, in which women returned to their household activities or to their own homes, helping out in the kitchen with confidence, diminishing their fear of accidents from burns, using knives, washing dishes without fear of breaking them and cutting themselves, sweeping, knitting, embroidering, etc; the men who had begun helping in household activities because of loss of vision, after surgery were able to return to their trades, fixing furniture, they could use tools such as hammers, pliers, screwdrivers, saws, etc without hurting themselves.

**9) Dependence on Others.** In this scale there are three items: 1) staying in their own homes, 2) dependence on others, and 3) necessity of help from others. In the EPr the mode of the three items was "always" in 106, 98 and 94 persons, respectively. In the EPo the mode was "never" in 141, 150 and 154, respectively (Table 1). In this scale there was an average improvement of 54.71 points (Table 2). This situation indicates that the loss of sight caused the subjects to depend totally on others for activities, including everyday activities, a situation

which improved in the EPo, with recovery by the subjects who managed to achieve physical independence, including autonomy for carrying out everyday activities, as well as being able to leave the house, go to the store, to the market, to church, and in some cases even achieving economic independence, being able to once again be economically active.

**10) Difficulties driving.** This scale consists of three items: 1) difficulty driving during the day, 2) difficulty driving at night and 3) difficulty driving in adverse conditions. It is important to point out that 155 of the subjects had never driven a car, mainly due to the fact that the National Program for Cataract Surgery is aimed at people with low incomes: these people do own cars. Of the 45 subjects who knew how to drive, in the EPr it was found that 38 people had stopped driving and in the EPo 28 were still not driving (Table 1). In general in this scale, no improvement was seen and an average of -0.29 was given (Table 2).

**11) Limited color vision.** In the EPr it was found that the mode was 81 persons with minimum difficulties in choosing and changing their clothes, and in the EPo 156 indicated they had no difficulty distinguishing colors (Table 1). In this scale that was an average improvement of 36.89 points (Table 2). This shows that the presence of cataracts caused people to confuse dark colors such as dark blue and black, which at times led them to use shoes of different colors, one one color and the other another (see image). Thus cataract surgery allowed people to recover their indepen-

dence in choosing the color and kind of clothes they wished to wear without having to wait for a relative to make the decision for them.

**12) Limited peripheral vision.** In the EPr the mode was 60 persons who said they had difficulties seeing objects when they walked and in the EPo 140 said they no longer had any difficulty (Table 1). On this scale there was an average improvement of 57 points (Table 2). This indicated that the subjects had great difficulty seeing objects around them when they walked, and this made it almost impossible for them to walk around, even in their own homes, since doing so put them in danger of tripping on trash cans, brooms, walls, chairs and other objects, causing bruises, falls and cuts. This situation was drastically modified in the EPo.

### Final thoughts

- 1) In the National Program of Cataract Surgery (PNCC) of the National Institute of Rehabilitation, people from different states of Mexico were treated, among them the most economically marginalized states in the country (Guerreo, Hidalgo, Oaxaca, Puebla and Veracruz), and from the Federal District specifically people from Tlalpan. The majority of the subjects were women who lived in their own homes with basic services (water, sewage and electricity).
- 2) Most of those people treated through the PNCC had elementary studies or less, and their main occupation was the home: as a result they were economically dependent, thus confirming that the National Program for Cataract Sur-

gery of the National Institute of Rehabilitation accomplished the objective for which it was created: diminishing the incidence of blindness caused by cataracts in people with low incomes.

- 3) Once the study was completed, the Work and Statistical Hypotheses were corroborated.

**Work hypothesis:** The quality of life of the patients, measured before cataract surgery, improved following the surgical treatment, with the support of the National Program of Cataract Surgery.

**Statistical Hypothesis** The quality of life of the sampling of patients belonging to the National Program of Cataract Surgery of the National Institute of Rehabilitation, showed a statistically significant difference  $P < 0.05$  with respect to the previous evaluation. The difference was  $P = 0.000$

In all twelve scales, statistically significant differences of  $P = 0.000$ , in the quality of life following cataract surgery were found with respect to the previous evaluation (Tables 4 and 5). This implies that the conditions of the patients was modified notoriously upon recovering their sight after undergoing cataract surgery. The scale of dependence was the one with the most change, with a 54.71 point improvement. This shows that cataract surgery allows people to lead a more fulfilling life; upon recovering their sight, they enjoy conditions of independence, allowing them to once again carry out everyday activities with more precision and confidence. That is to say cataract surgery allowed them to become themselves once more, by being able to carry out everyday activities, and

in some cases being able to return to paid jobs which allowed them once again to add to the family income. They are less worried, eliminating the feelings of sadness caused by not being able to see the faces and gestures of loved ones and others with whom they relate, added to the isolation to which they had been confined. This is surgery which brings them back to life, reintegrating them into the family and society.

- 4) With cataract surgery the subjects improve their quality of life because:

- The difficulties related to close-up vision are fewer; it allows them to apply knowledge they had stopped practicing and carry out activities with more precision, such as reading documents with small print, threading a needle without pricking their finger, embroidering, chopping vegetables, choosing seeds, among others.
- Distant vision improves, allowing the subjects to carry out physical activities with more confidence within as well as outside their homes. This is a safety measure for the prevention of accidents since upon recovering their sight subjects avoid cutting and burning themselves, getting lost outside the home, tripping on sidewalks and even automobile accidents.
- The perception of colors improves, allowing them to choose and combine the clothes they wear.
- Subjects find it easier to interact with relatives, see their faces and gestures when talking to them; they are reintegrated into family dynamics.
- Subjects' mental health improves. Feelings of concern, sadness and

anxiety due to fear of hurting themselves or someone else because of deficient sight disappear.

- Subjects may recover their social roles. Women may once again perform household duties and men return to their trade, being better able to handle tools such as hammers, pliers, screwdrivers and saws without hurting themselves.
- Cataract surgery allows people to regain their physical independence, to leave the home and once again take up social, recreational, cultural, educational and religious activities, avoiding isolation and feelings of loneliness; they can go out, to church, visit relatives, etc.
- People recover their autonomy to carry out their own everyday activities and join the economically active sector of society once more.

5) For these reasons the National Program for Cataract Surgery represents the social opportunity for obtaining attention for a public health issue and the possibility for those with few economic resources and no social security (mainly elderly adults), to recover their sight and with it their autonomy, freedom, physical independence and in some cases economic independence, favorably reflected in the family, in its dynamics as well as its organization.

6) With the present research, the professional Social Worker makes a place for him/herself among the other professionals at the National Institute of Rehabilitation, this being the first systematized project in which a social worker takes

part in professional work, making discoveries which other specialists find irrelevant. In the case of ophthalmology, as in other medical specialties, what the medical specialist is interested in is that with his/her intervention the use of an extremity or organ is saved, putting aside the other (social) factors which influence the quality of life of the patient.

### Suggestions

Once the virtues of cataract surgery have been seen, having found a statistically significant difference  $P=0.000$ , between life before and life following surgery, we suggest that:

- No Mexican citizen with insufficient economic resources remain blind due to cataracts because of the lack of economic resources.
- What is contemplated in the objectives of the National Council of Visual Diseases is carried out and that each state have its own ophthalmological center for attention to patients with cataracts.
- The National Program for Cataract Surgery be broadened to services of IMSS, ISSSTE, ISEMYM in order to take advantage of the medical resources and infrastructure they have and reach everyone with cataracts, without exception.
- Strengthen institutional and social networks which allow for the proper channeling of patients to the National Program for Cataract Surgery.
- Carry out better dissemination of the National Program for Cataract Surgery in marginalized urban areas of greater Mexico City.



- Increase the number of campaigns for the detection of cataracts so that more people can recover their sight and improve their quality of life.

With respect to Social Work in the National Institute for Rehabilitation we suggest:

- Increasing the infrastructure in ophthalmological services, for which it would be necessary to increase the number of Social Workers, in order to have time and the option of carrying out socio-medical research.
- Promoting socio-medical research, in order to build and validate the instruments which allow for measuring the various aspects which have an impact on the visual health of Mexicans.



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# Appendices

**Table 1** Mode of quality of life

VFQ-25 Questionnaire		Before		After	
Scale	Sub-scale	Indicator	Mode	Indicator	Mode
General Health	State of Health	Good	138	Good	138
General vision	Vision	Satisfactory	75	Good	120
Ocular Pain	Uncomfortable feeling	Slight	57	Slight	80
	Bothersome, painful	Always	88	Never	115
Close up activities	Difficulty reading	I have stopped reading	89	None	50
	Difficulty with close up vision	I cannot do it	85	None	96
	Difficulty finding things in a pile	A lot	58	No difficulty	112
Far away activities	Reading Street Signs	I cannot do it	64	No difficulty	91
	Going down stairs at night	I cannot do it	50	No difficulty	103
	Watch movies, theater, soccer	I cannot do it	110	No difficulty	122
Social Limitations	Difficulty seeing facial expressions	I have not had to	73	No difficulty	137
	Visit relatives, go to the store or for a walk	I cannot do it	68	No difficulty	156
Mental Health	My vision worries me	Always	167	Always	77
	Sadness	Always	106	Never	166
	Have control over things	Never	88	Always	148
	Worry about putting others at risk	Always	137	Never	156
Difficulty in carrying out my everyday activities	I carry out fewer everyday activities	Always	103	Never	100
	Limited activities at work	Always	115	Never	124
Dependence	Stayed at home	Always	106	Never	141
	Dependent on others	Always	98	Never	150
	Need a lot of help from others	Always	94	Never	154
Driving	Difficulty driving during the day	I do not drive	39	I do not drive	28
	Difficulty driving at night	I do not drive	39	I do not drive	28
	Difficulty driving under adverse conditions	I do not drive	39	I do not drive	28
Color vision	Choosing and combining clothes	Minimum	81	No difficulty	156
Peripheral Vision	Difficulty seeing objects when I walk	A lot	60	No difficulty	140

**Table 2** Average quality of life

VFQ-25 questionnaire, version 2000		Points	
Scale	Sub-scale	Before	After
General Health	State of Health	45.00	50.75
General vision	Vision	42.80	77.10
Ocular Pain	Uncomfortable feeling	44.75	79.05
	Bothersome, painful		
Close up activities	Difficulty reading	28.70	77.20
	Difficulty with close up vision		
Far away activities	Difficulty finding things in a pile	32.85	84.45
	Reading Street Signs		
	Going down stairs at night		
Social Limitations	Watching movies, theater, soccer	39.98	89.95
	Difficulty seeing facial expressions		
Mental Health	Visiting relatives, go to the store or for a walk	21.22	73.88
	My vision worries me		
	Sadness		
Difficulty in carrying out my everyday activities	Have control over things	23.43	76.37
	Worry about putting others at risk		
Dependence	I carry out fewer everyday activities	30.25	84.96
	Limited activities at work		
	Stayed at home		
Driving	Dependent on others	6.22	5.93
	Need a lot of help from others		
	Difficulty driving during the day		
Color vision	Difficulty driving at night	55.53	92.42
Peripheral Vision	Difficulty driving under adverse conditions	31.25	88.38
<b>Average</b>		<b>33.50</b>	<b>73.37</b>

Quality of life in patients operated in the NCCP, 2008.

The average quality of life of the subjects evaluated using the VFQ-25 on a scale of 1 to 100 points, before cataract surgery was 33.50 and following surgery was 73.37; showing an improvement in the quality of life of the same subjects following surgery of 39.87 points.

**Table 3** Global Evaluation of Quality of Life

Before Cataract Surgery	Following Cataract Surgery	Improvement
33.50	73.37	39.87

Quality of life for patients operated on in the PNCC, 2008.

In all the statistical tests the level of statistical satisfaction demanded was 95%.

Inferential statistics VFQ - 25  $P = < 0.05$

**Table 4** Inferential Statistics of VFQ-25

Scale	Subscale	Paired Differences					t	df	Sig (2-tails)
		Median	Std. Deviation	Std. error mean	Interval of confidence				
					Lowest	Highest			
General Health	State of Health	-5.750	20.470	1.447	-8.604	-2.896	-3.972	199	.000
General vision	Vision	-34.300	20.088	1.420	-37.101	-31.499	-24.148	199	.000
Ocular Pain	Uncomfortable feeling	-22.125	32.113	2.271	-26.603	-17.647	-9.743	199	.000
	Bothersome, painful	-46.500	43.773	3.95	-52.604	-40.396	-15.023	199	.000
Close up activities	Difficulty reading	-50.347	33.576	2.796	-55.876	-44.816	-17.993	143	.000
	Difficulty with close up activities	-49.861	34.908	2.602	-54.995	-44.727	-19.164	179	.000
	Difficulty finding things in a pile	-43.782	35.358	2.545	-48.802	-38.762	-17.202	192	.000
Far away activities	Reading Street Signs	-47.656	34.885	2.758	-53.103	-42.209	-17.280	159	.000
	Going down stairs at night	-42.714	33.161	2.507	-57.662	-37.767	-17.040	174	.000
	Watching movies, theater, soccer	-60.380	37.940	2.901	-66.107	-54.853	-20.611	170	.000
Social Limitations	Difficulty seeing facial expressions	-51.633	37.527	2.660	-56.879	-46.387	-19.409	198	.000
	Visiting relatives, going to the store or for a walk	-46.990	37.444	2.709	-52.334	-41.645	-17.343	190	.000
Mental Health	My vision worries me	-33.250	39.638	2.803	-38.777	-27.723	-11.883	199	.000
	Sadness	-60.250	42.768	3.024	-66.213	-54.287	-19.923	199	.000
	Have control over things	-50.625	48.042	3.397	-57.324	-43.926	-14.903	199	.000
	Worry about putting others at risk	-86.500	42.120	2.978	-72.373	-80.827	-22.328	199	.000

Quality of life in patients undergoing surgery in the NCCP, 2008.

**Table 5** Inferential Statistics of VFQ-25

Scale	Subscale	Paired Differences					t	df	Sig (2-tails)
		Median	Std. Deviation	Std. error mean	Interval of confidence				
					Lowest	Highest			
Difficulty in carrying out my everyday activities	I carry out fewer everyday activities	-47.000	44.662	3.158	-53.228	-40.772	-14.882	199	.000
	Limited activities at work	-58.875	39.540	2.796	-54.388	-53.362	-21.058	199	.000
Dependence	Stayed at home	-50.500	43.911	3.105	-56.623	-44.377	-16.264	199	.000
	Dependent on others	-56.500	41.580	2.940	-52.298	-50.702	19.217	199	.000
	Need a lot of help from others	-57.125	40.208	2.843	-62.732	-51.518	-20.92	199	.000
Driving	Difficulty driving during the day	.250	.991	.070	.112	.388	3.567	199	.000
	Difficulty driving at night	.305	1.338	.095	.118	.492	3.223	199	.000
	Difficulty driving under adverse conditions	.325	1.403	.099	.129	.521	3.275	199	.000
Color vision	Choosing and combining clothes	-36.294	35.660	2.541	-41.305	-31.284	-14.285	196	.000
Peripheral Vision	Difficulty seeing objects when I walk	-43.846	33.684	2.412	-48.604	-39.089	-18.177	194	.000

Quality of life in patients undergoing surgery in the NCCP, 2008.

In tables 4 and 5 it can be seen that in all of the scales used to measure the quality of life of the subjects, there was a statistical significance of  $P < 0.05$ .

In all scales a highly significant difference in life quality was found following cataract surgery with respect to the previous evaluation.