

## Original Research Article

# Patient satisfaction after cataract surgery using visual functioning questionnaire

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## ABSTRACT

**Background:** NEI VFQ-25 questionnaire is widely used to determine different health benefits to patient's daily activities, social and mental health. The objective of this study was to determine satisfaction of patients undergoing cataract surgery.

**Methods:** After ethical approval, a cross-sectional study using non-probability convenient sampling technique was done. Post-operative cataract patients between 18-75 years of both gender were included and patients reluctant to participate, <18 years of age or above 75 were excluded. SPSS version 20 was used for data analysis. Scoring of NEI VFQ-25 questionnaire was done. Chi-square test was applied between groups of patients with or without glasses using distant and near visual acuities keeping p-value of  $\leq 0.05$  as significant.

**Results:** Mean age of 100 patients was  $58.56 \pm 9.63$  years, 78 patients were female housewives. Significant improvements in visual acuities was reported with distant or near vision with or without glasses after cataract surgery (p-value <0.01). Patient's difficulties in worrying with eye sight, reading newspapers, reading stuff well up close, reading street signs, having issue in visiting others, going out to movies/plays, feeling of accomplishing less, having limited endurance and need for help from others in order to perform visual tasks were associated independently with reduced visual acuity and visual impairment.

**Conclusions:** Cataract surgery significantly improved patients' visual acuities, daily activities, mental and social health issues. Most patients were satisfied with cataract surgery and had fulfilling improvements to post-operative quality of life.

**Keywords:** Cataract surgery, National eye institute visual function questionnaire -25, Vision related quality of life, Visual acuity

## INTRODUCTION

The leading cause of blindness throughout the world is cataract which is a major public health problem with over 8 million people only in the Indo-Pak region affected by

it.<sup>1</sup> With increasing in aging population, low surgery threshold and reduce probabilities of complications even in advance age group shows excellent recovery after surgery.<sup>2</sup> Policy making for impact of cataract surgery on visual outcomes and quality of life is of prime importance

since prevalence of cataract is ever-rising and having a potential of producing severe visual disability.<sup>3</sup> Researches showed evidence that after cataract surgery, a substantial improvement in visual quality of life.<sup>4,5</sup> However, most studies have been carried out in developed nations where visual impairment before cataract surgery is of lesser severity and also where social norms differ considerably as compared to developing nations.<sup>6</sup> The majority of blind populations due to cataracts reside in low income countries.<sup>7</sup> They significantly alter the quality of life due to visual impairment along with underlying major risk factors, low socio-economic status as well as increases mortality rates.<sup>8</sup>

Surgery of cataracts is a highly cost-effective treatment modality as well as time-saving and operative rates have considerably increased over the years even in the low income population. But, however, still the quality of cataract surgery provided is not fully optimal, having some proportion of cataract patients yet blind or visually impaired even after surgery. Overall cataract surgery had not only shown improvements in quality of life but also improve household socio-economic status.<sup>9</sup> Not only vision is affected in cataract on other hand difficulty in carrying out daily tasks and active social activities participation is also halted. Vision-related quality of life is a measure of visual impairment's impact on a person's daily routine and quality of life.<sup>10</sup> Most studies have kept their focus on daily activity performance while social and mental impact of visual impairment have recently been inducted into a VFQ (Visual Function Questionnaire), having 25 questions related to daily activities, social as well as mental impact of visual impairment after cataract surgery.<sup>11,12</sup>

The objective of this study was to determine the satisfaction among cataract patients after undergoing surgery, using VFQ-25 Questionnaire.

## METHODS

A cross-sectional study using non-probability convenient sampling technique to collect the data from 100 numbers of patients on the bases of first come first and voluntarily participated for the study. The study was done at Isra post graduate institute of Ophthalmology, Al-Ibrahim Eye Hospital, Karachi Pakistan and the data were collected during the period of (Time Frame) after an ethical approval from the institutional ethical review committee.

Data was collected by using valid questionnaire VFQ-25. Study included the post-operative cases cataract with age range above 18 years up to 75 years of both gender. Only follow up patients from outpatient department were included in this study. Patient reluctant to participate, <18 years of age and above 75 were excluded from the study.

Pre-operative cases and patients other than cataract were excluded from the data collection. The VFQ-25

incorporates a wider range of visual impacts that include social, mental and daily routine activities due to visual impairment. It takes around 10 minutes for filling the form. VFQ-25 generates vision-targeted sub-scales for overall activities, i.e. difficulty with near or distant vision activities, restrictions in social activities due to visual problems, dependency on other fellows, mental health issues, driving difficulties, limited peripheral and / or color vision. This aids in investigating future health concerns, quality of life and develop policies to enhance patient's outcomes after cataract surgery.

## Statistical analysis

SPSS version 20 was used for analysis of data. The demographic variables included age, gender and time since cataract surgery. Qualitative data was presented as frequency (in %). Scoring of the NEI VFQ-25 questionnaire was done. Chi-square test was applied between groups of patients with or without glasses using distant and near visual acuities keeping a p-value of  $\leq 0.05$  as significant.

## RESULTS

A hundred patients who had undergone cataract surgery were reported to have a mean age of  $58.56 \pm 9.63$  years and a mean time since cataract surgery of  $730 \pm 1035$ . The patients were tested for distant vision as well as for near vision using visual acuity technique, 78 of the patients were housewives, 04 patients were company employed, has their own business or were retired, 02 patients were driver, electrician, a farmer, maid at a hospital or mid wife (Table 1).

**Table 1: Basic demographic of patients that underwent cataract surgery.**

Variable (n=100)	Mean±S.D	Frequency (%)
Age (years)	58.56±9.63	
Time since cataract surgery	730±1035	
Occupation	Housewife	78 (78%)
	Company employed	04 (4%)
	Own business	04 (4%)
	Retired	04 (4%)
	Driver	02 (2%)
	Electrician	02 (2%)
	Farmer	02 (2%)
	Maid at hospital	02 (2%)
	Mid wife	02 (2%)

In patients that were checked for distant vision with glasses, 22 patients had 6/6 vision while 13 patients had 6/6 vision among patients with distant vision without glasses, 45 patients had a distant vision of 6/9 with

glasses while 17 without glasses, 08 patients had a distant vision of 6/12 with glasses while 18 with glasses. A significant difference was reported in the visual acuity of patients having distant vision between with and without glasses (Table 2).

**Table 2: Distant vision of cataract surgery patients with and without glasses.**

Visual acuity (n=100)	Distant vision with glasses	Distant vision without glasses	p-value
1/60	01 (1%)	01 (1%)	<0.01
2/60	06 (6%)	08 (8%)	
6/12	08 (8%)	18 (18%)	
6/18	0 (0%)	09 (09%)	
6/24	02 (2%)	06 (6%)	
6/36	02 (2%)	08 (8%)	
6/6	22 (22%)	13 (13%)	
6/60	03 (3%)	09 (9%)	
6/9	45 (45%)	17 (17%)	
C.F	04 (4)	04 (4%)	
CF	01 (1%)	01 (1%)	
H.M	05 (5%)	05 (5%)	
PL+	01 (1%)	01 (1%)	

For visual acuity of patients with near vision, <N/18 was found in 21 patients with glasses and in 18 without glasses. N/14 vision was reported in 03 patients with glasses with in 47 without glasses, 57 patients had N/6 vision with glasses and 07 had without glasses. N/8 vision was seen in 3 patients with glasses and in 5 patients without glasses.

A significant difference was reported in the visual acuity of patients for near vision with and without glasses (Table 3).

**Table 3: Near vision of cataract surgery patients with and without glasses.**

Visual Acuity (n=100)	Near vision with glasses	Near vision without glasses	p-value
<N-18	21 (21%)	18 (18%)	<0.01
N/10	02 (2%)	04 (4%)	
N/12	04 (4%)	04 (4%)	
N/14	10 (10%)	47 (47%)	
N/18	03 (3%)	15 (15%)	
N/6	57 (57%)	07 (7%)	
N/8	03 (3%)	05 (5%)	

**Table 4: Items of the NEI VFQ-25, subscales and their responses.**

Items	Subscales	Response	Effectuated %	Somewhat %	No effect %
General health	General health	Quality	12 (12%)	74 (74%)	14 (14%)
General vision	General vision	Quality	12 (12%)	68 (68%)	20 (20%)
Worry about eyesight	Mental health	Frequency	40 (40%)	50 (50)	10 (10%)
Pain around eyes	Ocular pain	Quality	20 (20%)	62 (62%)	18 (18%)
Reading normal newsprint	Near vision	Difficulty	50 (50%)	22 (22%)	28 (28%)
Seeing well up close	Near vision	Difficulty	34 (34%)	30 (30%)	36 (36%)
Finding objects on crowded self	Near vision	Difficulty	20 (20%)	34 (34%)	46 (46%)
Street signs	Near vision	Difficulty	38 (38%)	30 (30%)	32 (32%)
Going downstairs at night	Near vision	Difficulty	26 (26%)	36 (36%)	38 (38%)
Seeing objects off to side	Distance vision	Difficulty	16 (16%)	34 (34%)	50 (50%)
Seeing how people react	Distance vision	Difficulty	10 (10%)	24 (24%)	66 (66%)
Matching clothes	Peripheral vision	Difficulty	20 (20%)	28 (28%)	52 (52%)
Visiting others	Social function	Difficulty	50 (50%)	16 (16%)	34 (34%)
Going out to movies/plays	Distance vision	Difficulty	82 (82%)	06 (06%)	12 (12%)
Driving in daylight	Driving	Difficulty	07 (35%)	09 (45%)	04 (20%)
Driving in difficult conditions	Driving	Difficulty	12 (60%)	02 (10%)	06 (30%)
Accomplish less	Role limitations	Frequency	48 (48%)	38 (38%)	14 (14%)
Limited endurance	Role limitations	Frequency	32 (32%)	36 (36%)	32 (32%)
Amount of time in pain	Ocular pain	Frequency	22 (22%)	62 (62%)	16 (16%)
Stay home most of the time	Dependency	Agreement	06 (6%)	44 (44%)	50 (50%)
Frustrated	Mental health	Agreement	20 (20%)	50 (50%)	30 (30%)
No control	Mental health	Agreement	24 (24%)	24 (24%)	52 (52%)
Rely too much on other words	Dependency	Agreement	28 (28%)	12 (12%)	60 (60%)
Need much help from others	Dependency	Agreement	34 (34%)	16 (16%)	50 (50%)
Embarrassment	Mental health	Agreement	08 (8%)	46 (46%)	46 (46%)

Table 4 demonstrates the patient satisfactory subset of questions in accordance with the items of the NEI VFQ-25. According to the responses, the general health as well as general vision was still affected by cataract in about 12 patients even after undergoing cataract surgery, 40 patients were worried about their eyesight. 20 patients experienced pain around the eyes, 50 patients found it difficult to read normal newsprints, 34 patients had difficulty in seeing well up close, 20 patients found it difficult to find objects on a crowded self, 38 patients experienced issues with reading street signs. In going down stairways, 26 patients were found to have difficulty in walking on them. 16 patients had difficulty in seeing at objects towards their sides, 10 patients found it difficult to see people's reactions, 20 patients suffered difficulty in matching their clothes, 50 patients were reluctant to visit other people due to their vision, 82 patients stopped going out to watch movies/plays due to vision, 07 patients had difficulty in driving in daylight, 12 patients found it difficult to drive in difficult conditions, 48 patients felt they had accomplished less due to vision problems, 32 patients had decreased or limited endurance, 22 patients had more time being spent in pain. 06 patients felt it better to stay at home, 20 patients were frustrated due to cataract, 24 patients found decreased self-control in them. 28 patients experienced more dependency in relying on others and 34 needed much help from others, 8 patients felt that they were embarrassed of themselves (Table 4).

## DISCUSSION

In this study of cataract patients had an older population having significant differences reported in the visual acuity of patients after cataract surgery with and without glasses which were similarly to another study where most patients were above 60 years old.<sup>13</sup> The self-reported questionnaire in which difficulties in worrying with eye sight, reading newspapers, reading stuff well up close, reading street signs, having issue in visiting others, going out to movies/plays, feeling of accomplishing less, having limited endurance and the need for much help from others in order to perform visual tasks were associated independently with reduced visual acuity as well as with visual impairment.

It has been reported that cataract might affect several aspects of vision where visual acuity has been the long-stay measure or technique traditionally used for assessing visual impairments. A study reported that the vision-related quality of life (VRQOL) transformed the different stages of life after cataract surgery.<sup>14</sup> At first, the Visual Function Index (VFI-14) was introduced and used by many countries to measure VRQOL after cataract surgery but this questionnaire was then objected for not being able to address all visual concerns of cataract patients, being mainly focused on activities which required visual acuity and its ceiling effects.<sup>15,16</sup> The National Eye Institute Visual Function Questionnaire (NEI VFQ-25) was designed to address wider range of visual outcomes that included both social as well as mental

outcomes of visual impairment and allowed investigation into specific aspects of VRQOL improvements following cataract surgery.<sup>17</sup>

This study is one of the few studies that have examined association of visual functionality and VRQOL after cataract surgery. The results are in line with researches examining the changes/ improvement in VRQOL in patients after undergoing cataract surgery.<sup>18,19</sup> An advantage of the NEI VFQ-25 questionnaire is that it not only measures visual impairments but also its affects on social functioning, mental health, role difficulties and dependency on others.<sup>20</sup> Since in this study as well, patients after going through cataract surgery report not only a substantial improvement in their visual acuities, but also in their day to day activities, providing improvements in social functioning as well as in mental health activities.

Lack of suitable control / comparison groups of cataract patients without surgery was a limitation of this study. In addition, co-morbidities, social habits such as smoking, eating substances of abuse etc., were not taken into account. The study might also not be immune from observer, selection as well as recall bias. Limited sample size and the fact that the study was conducted in a single centre was also a limitation of the study. Further, multi-centred studies with a larger sample size would be enlightening in achieving better results not only in cataract surgery but also with the use of NEI VFQ-25 questionnaire and achieving improvements in both the medical care of patients as well as in the patient's future life.

## CONCLUSION

The study has provided useful information regarding changes in VRQOL of patients after undergoing cataract surgery. Cataract surgery significantly improved not only patients' visual acuities, but also their difficulty in performing day to day activities. In addition, mental health issues also reported a downward trend with an improvement in social activities. Therefore, most patients were satisfied with their cataract surgery and had fulfilling improvements to their post-operative quality of life. Further studies with increasing sample sizes and multi-centric studies would improve the outcomes of NEI VFQ-25 in patients after cataract surgery.

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