

# Subjective Quality of Vision before and after Cataract Surgery at Holy Family Hospital, Rawalpindi

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**Objective:** To determine mean change in subjective quality of vision in patients undergoing cataract surgery at Holy Family Hospital, Rawalpindi.

**Study Design:** Quasi experimental.

**Place and Duration of Study:** Department of Ophthalmology, Holy Family Hospital, Rawalpindi, over a period of six months, from April, 2015 to October, 2015.

**Materials and Methods:** 60 patients, between the age of 30 to 70 years with bilateral cataract diagnosed by slit lamp examination, undergoing cataract surgery with Phacoemulsification + IOL at Holy Family Hospital, Rawalpindi were included in this study. Patients were interviewed one day before surgery and their responses filled in the questionnaire. They were operated the next day by consultant Ophthalmologist and then followed up for one month for uneventful recovery after cataract surgery. The patients were interviewed again using the same questionnaire. The mean pre-operative and post-operative scores were compared.

**Results:** A total of 60 patients were included in the study. Out of these 25 (41.7%) were males and 35 (58.3%) were females. The mean age was  $56.15 \pm 4.90$  years (mean  $\pm$  S.D). The right eye was operated in 32 (53.3%) patients and the left eye in 28 (46.7%). The average pre-operative score was  $19.60 \pm 2.12$  (mean  $\pm$  S.D). At one month, post-operatively the mean score was  $29.68 \pm 2.66$  (mean  $\pm$  S.D). There was an average difference of  $10.08 \pm 2.16$  (mean  $\pm$  S.D) between the pre and post-operative scores which was statistically significant ( $p = 0.00$ ).

**Conclusion:** Cataract surgery is an extremely effective and economical procedure, which has far greater implications for the lives of patients that cannot be measured on a visual acuity chart. Efforts should be made to educate people about the effectiveness and success of cataract surgery.

**Key Words:** Cataract, Phacoemulsification, Subjective visual recovery.

Cataract is one of the important causes of reversible blindness in the world<sup>1</sup>. Cataract surgery is amongst the most frequently performed surgeries worldwide<sup>2</sup>. Cataract causes impairment in visual function of patients, which has a negative impact on daily activities<sup>3</sup>. It also negatively affects patient's physical and mental health<sup>2</sup>.

Visual improvement is by far the most common indication for cataract surgery. Operation is indicated when the opacity develops to a degree sufficient to cause difficulty in performing essential daily activities<sup>4</sup>. Advances in the methods to perform cataract surgery in the last two decades have improved the visual outcome post operatively<sup>4</sup>.

Phacoemulsification with placement of posterior chamber intraocular lens has become the procedure of choice for cataract extraction<sup>4</sup>. The subjective quality of vision and patient satisfaction is a very important indicator for measuring the outcome of cataract surgery<sup>5</sup>.

Patients ask for treatment not because of the result of any objective measurement but for their subjectively experienced problems<sup>6</sup>. A previous study showed that there is significant improvement in visual function after cataract surgery as measured by the Catquest-9SF questionnaire<sup>7</sup>. The purpose of cataract surgery should not only be to improve the visual acuity of patients but also, and more importantly, to enhance the subjective quality of vision. This study was conducted to determine the change in quality of vision before and after cataract surgery at Holy Family Hospital, Rawalpindi, so that deficiencies could be addressed in future and the patient morbidity is decreased.

## MATERIAL AND METHODS

This quasi-experimental study was conducted from April 2015 to October 2015 at the Department of Ophthalmology, Holy Family Hospital, Rawalpindi. Non-probability consecutive sampling was done to recruit the patients. All patients, both male and female, between the age of 30 to 70 years with bilateral cataract diagnosed by slit lamp examination, undergoing cataract surgery with Phacoemulsification + IOL at Holy Family Hospital, Rawalpindi were included in the study. Patients with post traumatic cataract, those suffering from any other eye disease that causes decrease in visual function e.g. any macular pathology, glaucoma or moderate or severe diabetic or hypertensive retinopathy and patients having any complication during or after surgery e.g. posterior capsular rupture with vitreous loss, IOL placed at any site other than the capsular bag or post-surgical infection were excluded.

After taking informed consent, demographic data and contact number was taken to ensure follow up. Patients were interviewed one day before surgery and their responses filled in the questionnaire. They were operated the next day and then followed-up for one month for uneventful recovery after cataract surgery. Consultant ophthalmologist performed operation. After one month of surgery the patients were interviewed again using the same questionnaire. The mean pre-operative and post-operative scores were compared.

All the data was entered and analyzed in Statistical Package for the Social Sciences (SPSS). For the categorical variables like gender, frequencies along with percentages were calculated. For the continuous variables like age and pre and post-operative scores, means and standard deviations were calculated. To determine any statistical difference between the pre op and post op mean scores, paired t-test was applied at 5% level of significance. Effect modifiers like age, gender etc. were controlled by stratification. Post stratification paired sample t- test was applied.

## RESULTS

A total of 60 patients were included in the study. 25 (41.7%) were males and 35 (58.3%) were females (Fig. 1). The mean age was  $56.15 \pm 4.90$  years (mean  $\pm$  S.D). (Table-1). The right eye was operated in 32 (53.3%) patients and the left eye was operated in 28 (46.7 %) patients.

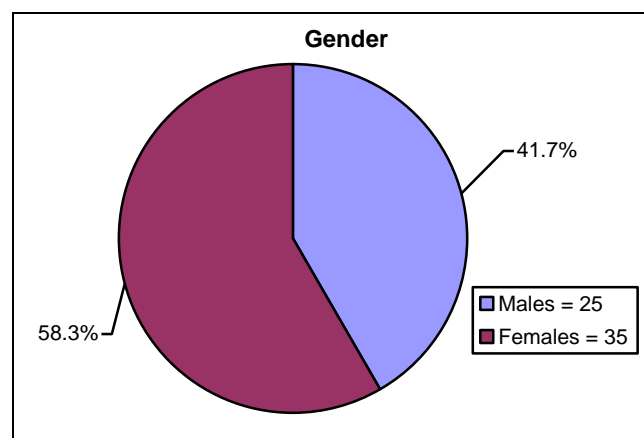


Fig. 1: Gender Distribution of Study Patients (n = 60).

Table 1: Age of Patients (n = 60).

Minimum Age (Years)	Maximum Age (Years)	Mean Age (Years)	S.D.
45	65	56.15	4.90

The minimum pre-operative score was 14 and maximum score was 23. The average score was  $19.60 \pm 2.12$  (mean  $\pm$  S.D). At one-month post operatively the minimum score was 27 and maximum score was 33. The mean post-operative score was  $29.68 \pm 2.66$  (mean  $\pm$  S.D). The difference between post op and pre op

**Table 2:** Scores of Patients (n = 60).

	Pre op Score	Post op Score	Difference in Score (Post op - Pre op)	p-value
Minimum	14	27	5	0.00
Maximum	23	33	15	
Mean	19.60	29.68	10.08	
S.D.	2.12	2.66	2.16	

**Table 3:** Score of Patients According to Gender (n = 60).

Gender (n)	Pre op score		Post op score		P value
	Mean	S.D.	Mean	S.D.	
Males (25)	19.56	2.00	30.04	2.70	0.00
Females (35)	19.63	2.22	29.43	2.64	0.00

**Table 4:** Score of Patients According to Age (n = 60).

Age (n)	Pre op score		Post op score		P value
	Mean	S.D.	Mean	S.D.	
45 - 55 (23)	20.30	2.24	30.43	2.76	0.00
56 - 65 (37)	19.16	1.93	29.22	2.52	0.00

score was calculated and the minimum difference was 5 and maximum difference was 15. There was an average difference of score of  $10.08 \pm 2.16$  (mean  $\pm$  S.D). This difference between the post op and pre op score was statistically significant ( $p = 0.00$ ) (Table 2). The patients' age and gender did not have any significant effect on the results. After stratification according to age and gender, paired sample t-test was applied and there was significant difference between pre op and post op scores of patients ( $p = 0.00$ ) (Table 3 & 4). This shows that cataract surgery resulted in a significant improvement of subjective quality of vision in cataract patients.

**DISCUSSION**

Cataract surgery in the developed world has undergone a revolution over the last 20 years. An operation, which used to require a stay in hospital and long visual rehabilitation, is now a quick day-case procedure with immediate benefits. There is now the potential to provide cataract surgery at an earlier stage of cataract maturation and save patients from a period of severe visual impairment<sup>8</sup>.

Lens opacities in the eye are inevitable in later life.

The word "cataract" is originally translated from Greek "down rush" or Latin "waterfall"<sup>9</sup>. A cataract is a symptomatic lens opacity that obstructs the passage of light and causes a reduction of vision. Poor vision has a great impact on patient's lives. Decreased visual function, regardless of cause, is associated with diminished quality of life and general functional living activities.

Although visual acuity is used as an objective measure when considering cataract surgery, it is standard practice to select patients on their symptoms of visual function and quality of life rather than purely on their visual acuity<sup>10,11</sup>. Patients have widely differing visual demands and it is vital to take these into account when considering surgery.

This study consisted of 60 cataract patients. All had visual symptoms and subjectively decreased quality of vision. They had difficulties in performing routine activities of daily life. When they were operated and after removal of cataract, the intraocular lens was implanted, they all had improvement in their visual quality and were able to carry out their everyday activities without difficulty.

The overall benefits of cataract surgery on visual

function have been demonstrated by many studies. Previous studies showed that visual function and patient's quality of life were significantly improved by cataract surgery<sup>12</sup>. A study from the UK showed that even in patients with unilateral cataract, who had previously undergone uncomplicated contralateral cataract extraction with posterior chamber lens implantation, there was a significant improvement in the quality of vision after second eye cataract extraction with intraocular lens implant<sup>13,14</sup>.

A study from India showed that the long-term visual outcome of cataract surgery largely depends on the intra and post-operative complications like vitreous loss, post-operative corneal decompensation, retinal detachment etc. and other associated ocular diseases like optic atrophy, glaucoma, age related macular degeneration etc. Another significant factor of surgical outcome is the experience of the operating surgeon<sup>15</sup>. Keeping this in mind, the complicated cases and those with pre-existing ocular pathologies other than cataract were excluded from this study and only those patients were interviewed who had uneventful cataract surgery and post op recovery. Consultant ophthalmologists performed the surgeries.

Cataract surgery can benefit older age groups in improving their quality of life as shown by a study from the USA<sup>16</sup>. Majority of patients in my study belonged to middle and old age, and by offering them a quick and effective remedy for their cataracts, their visual quality was significantly improved. Another study showed that even in early cataracts the patients can have significant subjective visual symptoms like glare and decreased contrast sensitivity and these can be effectively overcome by offering them early cataract surgery with implantation of posterior chamber intraocular lens<sup>17</sup>. Another study from Australia showed that patients' satisfaction and perceived improvement in their symptoms largely depends on their expectations<sup>18</sup>. Cataract surgery is one of those procedures where patients can have immediate results and their visual symptoms and quality of life can be significantly improved<sup>19, 20</sup>.

## CONCLUSION

Cataract surgery is an extremely effective and economical procedure, which has far greater implications for the lives of patients that cannot be measured on a visual acuity chart. The continuing false assumption by many patients and physicians that a cataract should not be extracted until "ripe" is

depriving many people of an enhanced quality of life. Efforts should be made to educate people about the effectiveness and success of cataract surgery and that cataract surgery not only provides functional benefit in terms of improved vision but also significantly improves the subjective quality of life of patients.

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