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Original Article

A Comparative Study Of General Health And Vision Of Cataract Patients: Pre And Post Operative Assessment

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ABSTRACT

Background: Visual function is important for an optimal orientation in functional and social life and has an effect on physical and emotional well-being. ^[1] Therefore, loss of vision leads to restrictions in all areas of health-related quality of life (QOL). ^[2] In ophthalmology, QOL was first studied in patients with cataract, ^[3] possibly due to the frequency of cataract operations. **Aims & Objectives :** To compare the improvement in general health and vision of cataract patients pre and post operatively using National eye Institute-Visual Function Questionnaire25 (NEI-VFQ25). **Material and Methods :** This is a cross sectional study, in which patients of senile cataract, fulfilling the inclusion and exclusion criteria, coming for visit as out-patients to the Department of Ophthalmology, Govt. Medical College and Rajindra Hospital, Patiala were recruited after obtaining informed consent . Assessment of general health and vision was done by using self reported instrument, (NEI-VFQ25). **Results:** In the present study, there was statistically significant improvement in general health and general vision domains derived from the NEI-VFQ25 (p value < 0.001). Major domains involving General health, General vision showed a significant improvement in preoperative mean values being 33.50 ± 14.31 , 42.40 ± 12.48 , increasing to post operative values as 83.75 ± 13.47 , 88.00 ± 9.84 respectively. **Conclusion:** Cataract surgery resulted in significant improvement in the quality of life of the patients. Due to the benefits that cataract surgery has for vision and general health, it should be ensured that the older population has access to regular eye examination and timely treatment to cataract is paramount.

Keywords: General health, General vision, Cataract surgery, improvement, quality of life.

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INTRODUCTION

Visual function is important for an optimal orientation in functional and social life and has an effect on physical and emotional well-being. ^[1] Therefore, loss of vision leads to restrictions in all areas of health-related quality of life (QOL). ^[2] In ophthalmology, QOL was first studied in patients with cataract, ^[3] possibly due to the frequency of cataract operations. Therefore, questionnaires were developed that were specifically designed for this group of patients. ^[4] However, they may not fully describe the range of disability and functional impairment experienced by patients with other ocular diseases. To remove these limitations, a survey entitled the National Eye Institute Visual Functions was developed which explains the transcript-content of 26 focus-groups with different ocular disease and its usefulness in several studies. ^[5] Cataract is defined as opacity within the clear lens inside the eye that reduces the amount of incoming light and results in deterioration of vision. ^[6] While no one test can comprehensively assess the effects of a cataract, questionnaires for measuring functional vision may be useful. ^[7]

Not many studies have been conducted to assess change in quality of life of patients undergoing cataract surgery using a questionnaire. The Rasch analysis and reengineering of the instruments resulted in a 27-item version of NEI VFQ-39 and an 18-item version of NEI VFQ-25. Both revised versions seemed to be valid measures according to the Rasch analysis. Hence it was concluded that to use a patient questionnaire in clinical or research work, it is better to use a questionnaire that is constructed or revised by Rasch analysis as NEI-VFQ. ^[8] So, this study was planned to compare the improvement in general health and vision of cataract patients pre and post operatively using National eye Institute-Visual Function Questionnaire 25 (NEI-VFQ 25).

MATERIAL AND METHODS

The present study was a cross-sectional study conducted in the Department of Ophthalmology, Government Medical College, Patiala. Patients were selected based on the following criteria:-

Inclusion Criteria

1. Diagnosed cases of unilateral or bilateral senile cataracts.
2. Patients (of either sex) being above 18 years of age.
3. Should have sufficient cognitive function to provide informed consent.
4. Patients willing to participate in the study.

Exclusion criteria

1. Subluxated lens.
2. Lens induced glaucoma.
3. Senile cataract with pseudoexfoliation syndrome.
4. Co-existing ocular pathology.
5. Significant diabetic retinopathy or age related macular degeneration.
6. Previous ocular surgery.
7. History of or presence of uveitis or any other ocular infection or inflammation.
8. Patients with clinically significant renal disease or severe physical disabilities.
9. Patients with glaucoma.
10. Patients who refuse to participate in study.

Those patients who fulfilled the above criteria among all the patients visiting as out-patients to the Department of Ophthalmology, Govt. Medical College and Rajindra Hospital, Patiala were enrolled in the study after obtaining a written informed consent from them. Before conducting the interview, the nature of study was explained to the patients. It was completely based on voluntary participation and they were free to withdraw from the study at any point or stage. The total strength of patients of senile cataract visiting the OPD in 3 months period was 98. Considering a non-response rate of 10%, minimum sample size of 88 patients was calculated. However, data was collected from 100 patients. These patients were then admitted one day prior to surgery and subjected to an interview to assess their general health and vision by a questionnaire NEI-VFQ-25 respectively. Further Complete eye examination including Snellen's visual acuity testing, slit lamp examination for anterior segment, fundus examination via direct and indirect ophthalmoscopy was done. The patients were then operated and discharged on post operated day one. Similar interview to assess improvement in general health and vision by a questionnaire NEI-VFQ-25 was conducted after 3 months postoperatively.

Data analysis

In the NEI VFQ-25 questionnaire, all items are scored on a scale of 1- 5 or 1- 6, which have to be recoded to a 0- 100 scale so that the lowest and highest possible scores are set at 0 and 100 points respectively. This method of scoring as per the NEI VFQ-25 version 2000 was implemented to calculate the scores of each item. Once the item scores were recoded, the mean of all items in each sub-scale/ domain was calculated using the formula:

$$\text{Mean} = \frac{\text{Score for each item with a non-missing answer}}{\text{Total number of items with non-missing answers}}$$

The data entry was done in MS Excel 2007 and it was analysed using SPSS version 20.

ETHICAL CONSIDERATION

The study was conducted after obtaining informed & written consent of the patients for participation. An approval from ethical committee of the institute was obtained.

RESULTS

A total of 100 patients participated in the study. Majority of the patients in the present study, 63% were males and 37% were females.

Table 1. Distribution of study subjects according to Gender

Gender	No. of patients	Percentage
Male	63	63
Female	37	37
Total	100	100

Among 100 patients, 51% patients had right eye involvement and 49% patients had left eye involvement.

Table 2. Distribution of study subjects according to involvement of eye

Eye	No. of patients	Percentage
Left	49	49
Right	51	51
Total	100	100

In the present study, the mean score for General health was 33.50 ± 14.31 preoperatively which increased to 83.75 ± 13.47 postoperatively. The minimum and maximum values were 0, 75 respectively which changed to 50 and 100 respectively post operatively. (Table 3) The improvement in the General Health of the patients was found to be statistically significant. ($p < 0.001$)

Table 3. Comparison of General Health of patients pre and post-operatively

	Mean	Standard Deviation	Minimum	Maximum
Pre	33.50	14.31	0	75
Post	83.75	13.47	50.00	100.00
p value	<0.001			

In the present study, the mean score for General vision was 42.50 ± 12.48 preoperatively which increased to 88.00 ± 9.84 postoperatively. The minimum and maximum values were 20, 60 respectively which changed to 80 and 100 respectively post operatively. (Table 4) The improvement in the General vision of the patients was found to be statistically significant. ($p < 0.001$)

Table 4. Comparison of General Vision of patients pre and post-operatively

	Mean	Standard Deviation	Minimum	Maximum
Pre	42.40	12.48	20	60
Post	88.00	9.84	80.00	100.00
p value	<0.001			

DISCUSSION

Eyesight is one of the most fundamental senses that we have. We depend on it to do most of our daily activities. Vision-related quality of life (VRQOL) refers to the effects of vision on everyday activities (e.g. cooking, seeing steps/curbs, driving). Cataracts due to age affect the ability to perform daily visual activities, thereby reducing independence, which can leave a person feeling depressed. Cataract is one of the main causes of a decrease in visual acuity in elderly patients and thereby a decrease in VRQOL.^[9] Cataract has also been consistently documented to be the most common cause of blindness in developing countries.^[10] Due to the possible difficulties associated with self completion of the questionnaire and in achieving high response rates, an interviewer-based method was preferred over self-administered method. To avoid any inter-individual bias in recording the patient responses, the same interviewer recorded every patient's responses on the NEI-VFQ 25 questionnaire given pre and post operatively. Every patient was interviewed face to face which was another step to avoid the problems associated with recording patient responses in telephonic interviews. In a study conducted by *To et al*^[11] (2014) VRQOL subscale scores before surgery for General health (mean =30.97; SD = 14.34) and General vision (mean = 39.43; SD = 11.32). showed statistically significant improvements in mean scores for the all the VRQOL subscales after surgery for participants who had first eye surgery only, as well as participants who had both first and second eye surgery. According to this study cataract surgery significantly improved VRQOL. This was in accordance with our study respectively.

CONCLUSION

Cataract surgery resulted in significant improvement in the quality of life of the patients. Due to the benefits that cataract surgery has for vision and general health, it should be ensured that the older population has access to regular eye examination and timely treatment to cataract is paramount. NEI-VFQ is a very useful and reliable psycho diagnostic inventory and we suggest the use of this instrument in future studies.

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