

# Visual Function Assessment in Patients of Cataract in Rural Population of Kutch

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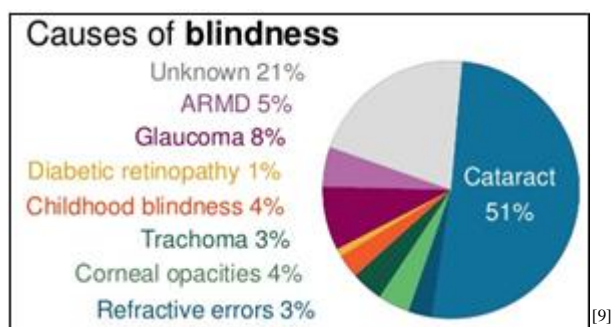
**Abstract:** *Introduction: The measurement of Visual Acuity (VA) is an inadequate measure of visual impairment. Patient's Visual Function (VF) which is a measurement of important visuo-dependant tasks that he/she can do, is a more accurate measure for the need of cataract surgery than VA alone. The purpose of this study is to evaluate the actual functional impairment faced by patients of cataract and their satisfaction with surgical outcome in rural population of Kutch district. Aims and Objectives: We aimed to evaluate the impact of cataract in daily activities in patients of rural areas, compare their VA and VF; pre and post cataract surgery and assess patient satisfaction with surgical outcome. Methodology: A batch of 100 patients diagnosed with having uni/bilateral cataract visiting the OPD at District Hospital Bhuj, was surveyed pre-operatively and 1 month after undergoing surgery. VA was taken by Snellen's Chart and recorded at both times. For VF assessment, pre and post-operative quality of vision was judged using the IND-VFQ 33. The response of the patients was calibrated by giving a score of 1 to 5 and graded (from excellent to poor vision). Expectations and satisfaction of the patients were graded likewise. Results: Conclusion: Huge improvement was observed in VA and VF scales of patients undergoing Cataract surgery. VF scale takes into consideration the patients' perspective of vision reduction and improvement. Socio-demographic data with parameters can be useful for better Geriatric Eye care facilities. The amount of vision loss that forces the population to seek medical attention can be assessed so as to increase awareness regarding cataract, since it is a major cause of preventable blindness. Further ill health effects like falls, as highly observed in senile patients due to untreated cataract, income loss, reduction in mental faculties, and increased burden of their dependence can be detected in unemployed and senile population.*

**Keywords:** Cataract, Visual acuity, Visual function, Visual function score, IND VFQ33, Geriatric eye care, cataract surgery, rural eye care

## 1. Introduction

Cataract, a term used to define 'symptomatic lenticular opacities that obstruct the passage of light and cause a reduction of vision', is a result of degeneration and opacification of already formed lens fibres, formation of aberrant fibres or deposition of other material in their place.<sup>[2]</sup> Lens opacities in the eye are inevitable in later life.<sup>[3]</sup> Recent studies suggest that poor vision has a great impact on patient's lives, showing a correlation between cataract and increased mortality.<sup>[4]</sup> Decreased visual function is also associated with diminished quality of life, daily-life activities and also indirect subsequent physical disability.<sup>[5][6]</sup>

The most recent estimates from WHO reveal that 47.8% of global blindness is due to cataract and in South Asia region including India, 51% of blindness is due to cataract.<sup>[7]</sup> Cataract, being the most common cause of Preventable or Treatable Blindness in India and worldwide has been acknowledged and its treatment agenda at grass-root levels is included in 'Vision 2020: The right to sight initiative'.<sup>[8]</sup>



The measurement of visual acuity (VA) is an inadequate measure of visual impairment. In any society, a patient's visual function (VF) which is a measurement of important

visuo-dependant tasks that he or she can do is a more important measure for the need of cataract surgery than VA alone.<sup>[10]</sup> The purpose of this study is to evaluate the actual functional impairment faced by the patients of cataract, taking into consideration the patients' perspective of vision reduction. The study will also help us to determine the satisfaction with surgical outcome in rural population of Kutch district.

Popular studies have shown that as an implication of development of cataract in older adults, patients are likely to be facing difficulties with daily activities, reduced earning capacity, limited participation and social isolation, anxiety, depression and higher chances of development of other physical disabilities. Correction of cataract will help reverse these situations and improve the quality of life of these patients.<sup>[11]</sup>

This study will help us to evaluate the actual burden of cataract on the quality of life of rural patients in various aspects of livelihood. The categorization of the result will be based on gender, age-group and subjective visual satisfaction pre and post surgically.

The reduction of participation in day-to-day activities of the study population and withdrawal from their roles in the family and community will be judged. The loss of economic and social benefits towards their households before cataract surgery and their expectations of the tasks that they will be able to do after surgery can be visualized on a gross scale.

Parameters of the obtained results and statistics will be useful for understanding the current situation of Health care facilities for the rural population, identifying the loopholes in current Geriatric Eye care and improvising over them. On a larger scale, it will help us to recognize the need for health care awareness in the people.

Specially, Illiterate and older patients' expectations and satisfaction from surgery will be assessed. The overall burden of the disease in terms of life quality, expectancy, morbidity and mortality can be calculated.

## 2. Review of Literature

- Cataract has been documented to be the most significant cause of bilateral blindness in India, contributing by 50-80% as a major cause of blindness. Global agencies, for the elimination of avoidable blindness have pledged support to operationalizing strategies to reduce the burden of cataract blindness by the "Vision 2020: The right to sight initiative".<sup>[12]</sup>
- Literature abstracts from the early 1900s have stated that Cataract Extraction surgery is the only procedure that can alter the effects of cataract on vision and visual function in living patients. As a therapeutic intervention, cataract removal is generally accompanied by placement of an intraocular lens to facilitate visual rehabilitation.<sup>[13]</sup>
- In a study conducted in a rural hospital of Maharashtra in 2016, over a batch of 150 patients, the mean age of the patients was documented to be 62.46 years.<sup>[14]</sup>
- Participants of cataract surgery studies generally present pre-operatively with a wide range of variations in their initial visual acuity. This grossly depends on their socio-economic level, literacy, occupation, current status of work (whether employed or sedentary) cultural beliefs and awareness.
- In the previously mentioned study, 72% of the participants had pre-operatively presented to the OPD with VA below 20/200 (6/60 m).<sup>[14]</sup>
- While another study conducted in Paithan, Maharashtra had shown that 100% of the study population had presented with VA <20/200.<sup>[15]</sup>
- A study conducted in Nepal had 11.5% patients operated for cataract who were blind at presentation (VA <20/400 in the better eye).<sup>[16]</sup>
- In a study done over 123 patients in Denmark, postoperative VA improved by 20/40 or better for 82%, out of which, 74% patients had expressed satisfaction with the improvement.<sup>[17]</sup>
- In the OCTET study done as a randomized control trial in Oxford, England, as high as 97% of the participants reported improvement in their capacity to function and expressed satisfaction. This improvement was reported one year after the procedure; vision remained worse than expected in 8% patients.<sup>[18]</sup>
- In a prospective study conducted at Tennessee over 293 participants, the Visual acuity improved from 20/100 to 20/40 as a result of surgical intervention. The investigators had used path analysis method to evaluate the influence of factors other than vision on ADL (Activities of Daily Life) scale. They had established a correlation between VA and ADL ( $r = 0.34$ ) including other baseline mental status factors.<sup>[19]</sup>
- The areas of visual function pertinent to falls include visual acuity, contrast sensitivity, depth perception, and visual field, some of which can be affected by cataract surgery. This had been demonstrated by Harwood 2001; Brannan et al 2003, showing a decrease in the rate of falls after cataract surgery.<sup>[20][21]</sup>

- Foss et al in studies conducted in 2006 concluded that since most cataracts are bilateral, second eye surgery is inevitable in improving binocular vision and preventing falls in patients.<sup>[22][23]</sup>
- In a study conducted in Bangladesh, to investigate how Cataract surgery improves the lives of older adults, it was found that patients were facing difficulties with their daily activities, reduced earning capacity, limited participation and social isolation, anxiety and depression. As a positive impact of eye surgery, they were reported to be increasingly included and participating in social activities, were more engaged in productive activities, had increased self-esteem and improved communication and relationships.<sup>[24]</sup>
- Skiadaresi et. al, in a study carried out on 212 patients, found that cataract in one or both eyes caused a similar loss of subjective quality of vision (QOV). They also discovered that cataract surgery resulted in a large and comparable improvements in subject QOV, regardless of ocular comorbidities.<sup>[25]</sup>

### IND VFQ 33:

- This questionnaire has been formulated, developed and field tested in 3 Eye institutions of India (Delhi, Tamil Nadu and Andhra Pradesh).<sup>[26]</sup>
- Studies have been conducted to assess and validate the use of IND VFQ 33 questionnaire (used in this study). A study done in IND-VFQ33 produces separate summary scores for the three scales rather than an overall total score. This is because it is methodologically unsound to simply sum raw scores in a questionnaire such as the IND-VFQ, which includes items with a varying number of response scale options.<sup>[27]</sup>

### Aims and Objectives

- To evaluate the impact of cataract in the daily-life activities in the patients belonging to rural areas
- To survey and assess pre-operative candidates of cataract surgery for their visual acuity (VA) and visual function (VF)
- Post-operative follow up and assessment of VA and VF in the same patients
- To assess the effect of cataract on quality of life of patient with respect to VA and VF and assess patient satisfaction with surgical outcome in rural patients of Kutch

## 3. Material

Place of study: Patients of unilateral/bilateral Cataract visiting the Ophthalmology OPD at a District Hospital

Number of participants included: 85

Study duration: June – August 2017

Type of study: Cross – sectional type

### Inclusion criteria:

- Patients who have cataract in one or both eyes
- Willing to be interviewed
- No suspected debilitating ocular morbidities
- Corrected Refractive errors

- No refractive media injuries or known causes of long-term blindness

**Exclusion criteria:**

- Patients who do not consent to be interviewed
- Patients with other ocular pathologies

**4. Method**

- A batch of 100 patients diagnosed with having unilateral/bilateral cataract visiting the Ophthalmology OPD were surveyed pre-operatively and 1 month after undergoing cataract surgery after obtaining prior approval of the Institutional Ethical Committee (IEC). (GAIMS/IEC/APPROVAL/34/Res.Proj.STS/2017)
- At the end of study, 85 patients turned up for follow up. Hence, a total of 85 participants have been included in the study. According to hospital procedure, since cataract operation was performed only in one eye at a time in patients presenting with bilateral cataract, the sample of 85 should be considered as the eyes of that number.
- For this purpose, Visual acuity (VA) was taken by Snellen’s Chart (of the eye in concern) and recorded, both at the time of their OPD visit and on 1 month follow up.
- For Visual Function (VF) assessment, a comparison between pre and post-operative improvement in the quality of vision was judged by using the Indian Visual Function (VF) Questionnaire 33 (IND-VFQ 33)<sup>[27]</sup>
- The questionnaire was translated in patient-friendly language and read out to them as they picked appropriate choices based on their experiences. Prior consent of the patient was obtained and the consent form has been attached. The response of the patients was calibrated by giving a score of 1 to 5 for each response and VF was graded (from excellent to poor vision) according to it.
- Expectations of the patients before and after surgery were graded on the basis of their response. If the patient expressed high hopes of vision before the surgery, they were marked as having ‘high’ expectation. Patients who expressed their expected prognosis as ‘will of god’ were marked as having ‘low’ expectations.<sup>[28]</sup>
- Satisfaction was graded on the basis of follow up response of the participants. If the patients expressed satisfaction with their vision improvement, it was marked as ‘high’; if they still had complains of reduced vision, satisfaction was marked as ‘low’.
- Results are analysed statistically and various parameters like deviation from mean vision loss or improvement is assessed. The outcomes are compared based on socio demographic data like gender, age-group and occupation (work status). [The questionnaire has been attached separately]

**5. Observations and Results**

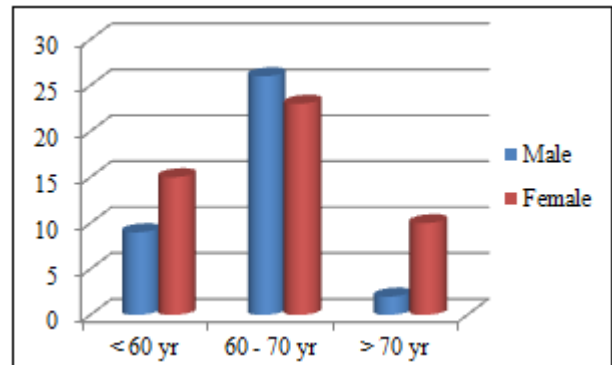
85 participants diagnosed with having unilateral/bilateral cataract visiting the Ophthalmology OPD and undergoing surgical intervention (of the concerned eye or single eye at a time for bilateral) were included in the study. The results are as follows:

- Out of 85 participants, 37 (44%) were males and 48 (56%) were females. The average age of the participants was 60.76.

Table 1 and Fig. 1 show the demographic correlation of age groups.

**Table 1**

Age	Male	Female	Total
<60yr	9 (24%)	15 (31%)	24 (28%)
60-70yr	26 (70%)	23 (48%)	49 (58%)
>70yr	2 (5%)	10 (21%)	12 (14%)
Total	37 (44%)	48 (56%)	85 (100%)

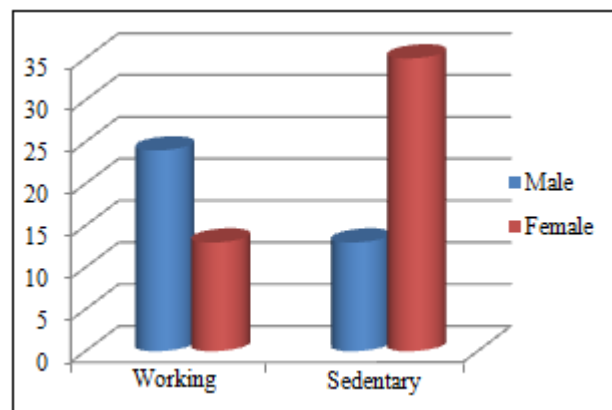


**Figure 1**

- 44% of the participants were employed or working in various arenas like farming, vendors, masons, industries. Since employment details of all participants could not be obtained, the participants have been grossly divided into ‘Working’ and ‘Sedentary’. 65% male and 35% female participants were found to be employed or working and 56% of the participants lived a sedentary life.
- Their details are as follows. (Table 2; Figure 2)

**Table 2**

Work status	Male	Female	Total
Working	24 (65%)	13 (35%)	37 (44%)
Sedentary	13 (27%)	35 (73%)	48 (56%)
Total	37 (44%)	48 (56%)	85 (100%)



**Figure 2**

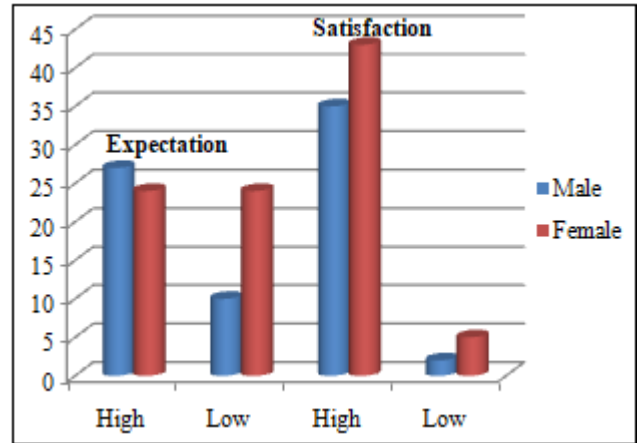
The expectations and satisfaction responses were obtained as mentioned in ‘Methods’ and the details are as follows. (Table 3, 4; Fig 3)

**Table 2**

Expectations	Male	Female	Total
High	27 (53%)	24 (47%)	51 (60%)
Low	10 (29%)	24 (71%)	34 (40%)
Total	37 (44%)	48 (56%)	85 (100%)

**Table 4**

Satisfaction	Male	Female	Total
High	35 (45%)	43 (55%)	78 (92%)
Low	2 (29%)	5 (71%)	7 (8%)
Total	37 (44%)	48 (56%)	85 (100%)



**Figure 3**

- The following table shows comparison between the average responses of the participants to each question of the IND VFQ 33, and their improvement post operatively. They have been expressed as General Function, Psychosocial Function and Visual Function gain. (Table 5, 6, 7)

**Table 5: General Function**

No	Questions	Mean±SD	
		Pre op	Post op
1	Because of your vision how much problem do you have in climbing stairs?	2.92±0.94	1.24±0.43
2	Because of your vision how much problem do you have in making out the bumps and holes in the road when walking?	2.69±0.91	1.06±0.24
3	Because of your vision how much problem do you have in seeing if there are animals or vehicles when walking?	2.51±0.96	1±0
4	Because of your vision how much problem do you have in finding your way in new places?	2.4±0.88	1±0
5	Because of your vision how much problem do you have in going to social functions such as weddings?	2.28±0.79	1.02±0.15
6	Because of your vision how much problem do you have in going out at night?	3.22±1.13	1.34±0.48
7	Because of your vision how much problem do you have in finding your way indoors?	2.47±0.83	1.02±0.15
8	Because of your vision how much problem do you have in seeing the steps of the bus when climbing in or out?	2.42±0.93	1±0
9	Because of your vision how much problem do you have in recognizing people from a distance?	3.21±1.16	1.28±0.45
10	Because of your vision how much problem do you have in recognizing the face of a person standing near you?	2.82±1.03	1.11±0.31
11	Because of your vision how much problem do you have in locking or unlocking the door?	2.39±0.83	1.01±0.11
12	Because of your vision how much problem do you have in doing your usual work either in the house or outside?	2.86±1.01	1.18±0.38
13	Because of your vision how much problem do you have in doing your work up to your usual standard?	2.82±1.04	1.07±0.26
14	Because of your vision how much problem do you have in searching for things at home?	2.53±0.79	1.02±0.15
15	Because of your vision how much problem do you have in seeing outside in bright sunlight?	2.95±0.96	1.12±0.32
16	Because of your vision how much problem do you have in seeing when coming into the house after being in the sunlight?	2.73±0.96	1.04±0.19
17	Because of your vision how much problem do you have in seeing differences in colours?	2.09±0.68	1±0
18	Because of your vision how much problem do you have in making out differences in coins or notes?	2.28±0.93	1±0
19	Because of your vision how much problem do you have in going to the toilet?	2.27±0.82	1±0
20	Because of your vision how much problem do you have in seeing objects that may have fallen in the food?	2.32±0.76	1±0
21	Because of your vision how much problem do you have in seeing the level in the container when pouring?	2.32±0.73	1±0

**Table 6: Psychosocial Function**

No.	Questions	Mean±SD	
		Pre op	Post op
22	Because of your eye problem are you afraid to go out at night?	2.93±0.84	1±0
23	Because of your eye problem do you enjoy social functions less?	2.51±0.85	1±0
24	Because of your eye problem are you ashamed that you can't see?	2.16±0.63	1±0
25	Because of your eye problem do you feel you have become a burden on others?	2.38±0.87	1±0
26	Because of your eye problem do you feel frightened that you may lose your remaining vision?	2.56±0.75	1.02±0.15

**Table 7: Visual Function**

No.	Questions	Mean±SD	
		Pre op	Post op
27	Do you have reduced vision?	3.31±0.74	1.38±0.49
28	Do you have blurred vision?	3.06±0.69	1.48±0.5
29	Are you dazzled in bright light?	2.64±0.69	1.08±0.28
30	Is your vision blurred in sunlight?	2.59±0.69	1.12±0.32
31	Is your vision reduced at night?	2.69±0.82	1.22±0.42
32	Do you close your eyes because of light from vehicles?	2.39±0.67	1.02±0.15
33	Does light seem like stars?	2.22±0.64	1±0

- A paired T test was done on pre-operative and post-operative responses to check separately for GF, PS and VF gains. Data was found to be significant (p=0.0001). (Table 8)

**Table 8**

	Pre op	95% CI	Post op	95% CI2	t	P
GF	54.529±19.076	92.681-16.378	22.506±3.692	29.89-15.12	29.969	0.0001
PS	12.541±3.947	20.435-4.647	5.035±0.16	5.355-4.715	11.927	0.0001
VF	18.89±4.95	28.796-8.992	8.318±2.17	12.658-3.978	18.018	0.0001

- Percentage of Visual function gains was calculated for 3 different sections of the questionnaire. It has been tabulated below. (Table 9)

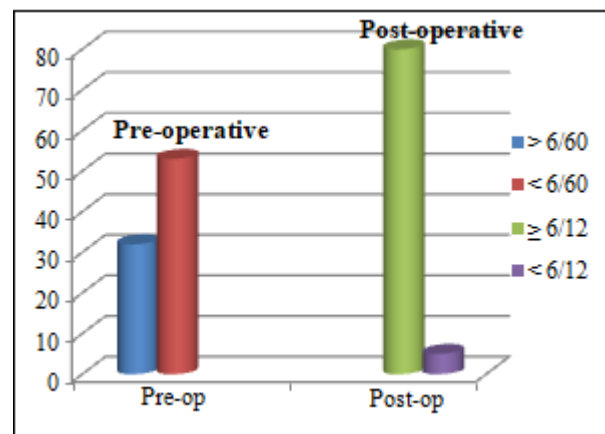
**Table 9**

Improvement	GF	PS	VF
>60%	29 (34%)	20 (24%)	22 (26%)
50-60%	39 (46%)	46 (54%)	47 (55%)
<50%	17 (20%)	19 (22%)	16 (19%)
Total	85	85	85

- The following table and chart gives an account of Visual Acuity taken pre and post operatively. Participants presenting with VA better than 6/60 were noted to be 37.64%, while 62.35% had presented with vision poorer than 6/60.
- Improvement greater than or equal to 6/12 in VA after surgery was observed in 94.11% of the study population while 5.88%, VA improvement was lesser than 6/12.

**Table 10**

VA (Pre-op)		VA (Post-op)	
Better than 6/60	32 (37.64%)	Better than or equal to 6/12	80 (94.11%)
Worse than 6/60	53 (62.35%)	Worse than 6/12	5 (5.88%)



**Figure 4**

As a final comparison, the scores of VA and (GF, PS and VF) were correlated with each other to find out if the values are related to each other. The following table shows it. (Table 11)

**Table 11**

	Pre-operative				Post-operative			
	VA	GF	PS	VF	VA	GF	PS	VF
VA	1	0.207	0.320	0.347	1	0.488	0.542	0.488
GF		1	0.755	0.677		1	0.616	0.595
PS			1	0.791			1	0.679
VF				1				1

## 6. Discussion

- In the current study, an attempt was made to analyse the Visual Function of patients of cataract pre-operatively and post-operatively during their 1 month follow-up using a set of questions that covered various aspects of

livelihood and daily activities of rural population. Visual acuity had also been noted for the same patients and compared when they came for follow up. The study is based on the fact that the hospital practiced cataract extraction in One eye only, at a time. Hence, irrespective of the presence of unilateral/bilateral cataract in the patients, the eye with worse vision was operated first, followed by the better eye in later months.

- Based on the obtained patient profile, 62% of the participants had presented to the OPD with vision worse than 6/60 VA, ranging from Counting Fingers (CF) to only Perception of Light (PL+). 38% of the participants had reported with VA better than or equal to 6/60.
- As high as 62% of the participants presenting with such low vision might point to the fact that participants were still able to carry out their daily chores independently and continued their income gains despite of the diminished vision. As an additional factor, the participants who were simultaneously suffering from other non-ocular morbidities, considered vision diminution to be less debilitating than the former.
- 44% (37) out of the participants were males and 56% (48) were females. The average age of the sample was found to be 60.76.
- *Bandhu, et al.: Cataract and quality of life*, in their study carried out in Maharashtra Rural hospital, showed that the mean age of the patients was 62.46 years which is grossly comparable to this study.<sup>[28]</sup> Another study conducted in Paithan, Maharashtra reported the mean age at presentation as  $63.13 \pm 9.82$  years.<sup>[29]</sup>
- In the current study, 28% Patients in age groups lesser than 60 had also presented with cataract, which highlights the potential chances of early development of cataract.
- 56% participants lived a sedentary life, while 44% were found to be working. A few patients were asked as a part of history taking, as to what they expected to do after correction of their vision. Subjectively, most of the working population expressed their need to improve their work capacity for income gain. Majority of the sedentary participants insisted on being able to do their household chores properly and reduce their dependence over others.
- About 60% of the patients had high expectations from the surgery objectively, while the rest 40% did not respond to having expectations (depending on their educational, socio economic status, life and health, other non-ocular morbidities, etc.). On associating patient expectations for their vision improvement with their Visual status as on presentation, we can extrapolate and get a general idea of the education and awareness of the population about health care.
- Apparent satisfaction was expressed by the majority of participants – 92% who came with no complains of visual problems on their one month follow up. A few 8% who still complained of little to no improvement in vision might suggest the chances of having developed complications of surgery, Post-op capsular opacification in the previously operated other eye (not the eye recently operated), chances of infection, other visual errors that might have developed overtime, etc.
- The key factor of this study was to evaluate each question in the IND VFQ 33 and compare the pre and

post-operative scores and extrapolate the visual function gain. As mentioned in Tables 5, 6, 7, after comparing the Mean  $\pm$  SD of the scores, there was significant reduction in the post-operative scores for all functions (GF, PS and VF). The data was found to be significant and numerical reduction in the scores can be taken as good amount of improvement in the vision of the participants.

- Percentages of Improvement in General, Psychosocial and Visual Functions have been tabulated as in Table 9. This improvement was recorded as subjective and depended on the response of participants.
- VA improvement was greater than or equal to 6/12 on Snellen's chart for 94.11% of the participants, while a relatively lesser 5.88% showed improvement poorer than 6/12. This result is comparable to other similar studies where the improvement in VA ranged from 75 – 99%.
- The Oxford Cataract Treatment and Evaluation Team (OCTET) study conducted in Oxford, England, showed a relatively similar result in VA improvement which was 94% as well, where 97% of the participants expressed improvement in their capacity to function (VF).<sup>[30]</sup>
- *Bandhu, et al.: Cataract and quality of life*, in their study obtained improvement in VA > 6/18 in 99.7% of their sample population.<sup>[28]</sup>
- A final comparison between scores of VA (by comparing Snellen's measurements to their LogMAR values – ETDRS chart)<sup>[31][32][33]</sup> with subjectively obtained improvement in GF, PS and VF scores, VA was compared to VF. A Positive correlation was found between the values, hence the value of VA was found to be correlating with GF, PS and VF.
- This would help us to achieve the key expectations from using the questionnaire along with numerical assessment of vision. The actual loss of living standards and problems faced due to inability to carry out visuo-dependant tasks can be assessed.

## 7. Conclusion

Huge significant improvement was observed in patients undergoing Cataract surgery in terms of VA as well as Visual Function scale. The use of Snellen's chart for VA measurement has been prevalent in clinical practice. VF scale has not made its way through routine visual assessment, since it can be more time consuming and difficult to manage with every patient. However, it inevitably takes into consideration the patients' perspective of vision reduction and improvement.

Socio-demographic data after correlation with various parameters can be useful for Geriatric Eye care, better health care facilities and research. Relevant population associated information can be derived. The amount of vision loss that forces the particular population to seek medical attention can be assessed so as to increase awareness regarding Cataract, since it acts as a major cause of preventable blindness, and take steps towards the success of Vision 2020.

Knowing the Visual Function of the patients can help prevent further ill health effects that develop as a result of vision loss due to cataract. Rate of falls, as highly observed in senile patients due to untreated cataract, loss of income,

reduction in mental faculties, and increased burden of their dependence can be detected and modified. Several studies have shown that there are increased incidences of falls and injury in old patients having simultaneous lenticular opacities.

Moreover, assessment based on gender and age and work status can help determine the level of health care that reaches the unemployed women and senile population.

As a result of highly appreciative outcomes of Cataract extraction surgery, it should be made available to every population with the locally available technology. This study implies that it is absolutely necessary to achieve good visual function for improvement of quality of life.

## 8. Summary

Eight five participants with unilateral/bilateral cataract attending the Ophthalmology OPD in a District Hospital were studied pre-operative and post-operatively to evaluate the impact of cataract on their quality of life. Visual Acuity and Visual Function (of the eye in concern or the eye with poorer vision in cases of bilateral cataract) were assessed using appropriate tools over a period of three months.

- 1) 44% of the participants were males and 56% were females. Higher proportions of the participants (58%) were aged between 60 – 70 years.
- 2) The average age of the study group was 60.76.
- 3) 62.35% of the participants had presented pre-operatively with VA poorer than 6/60, while 37.64% had VA better than 6/60 initially.
- 4) 56% of the study participants were sedentary which consisted of more females than males, while out of the 44% that were still working, 65% of which were males.
- 5) 60% of the participants had expressed high expectations from the surgery, while 40% hadn't. Out of these, 92% of the participants were satisfied with their improvement in vision after having been operated on, while 8% were less satisfied.
- 6) Maximum subjective improvement in General Function (GF), Psychosocial Function (PS) and Visual Function (VF) was between 50-60%. Improvements more than 60% had also been recorded.
- 7) Visual acuity was  $\geq 6/12$  in 94.11% of the participants, while in the rest 5.88% VA improvement was below 6/12.
- 8) A good positive correlation was found between the values of VA, GF, PS, VF; hence these entities were found comparable.

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