

Patient's Quality of Life After 3-and 6-Months Cataract Surgery

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Abstract

Cataract surgery is the most common elective procedure and has been shown to increase patients' visual acuity. However, visual acuity alone cannot adequately represent their quality of life. Quality of life can be measured with a standardized questionnaire, such as the National Eye Institute Refractive Error Quality of Life Instrument. Patients with better quality of life pre-operatively will benefit less from cataract surgery. This study aimed to describe patients' quality of life after long-term cataract surgery in the National Eye Center Cicendo Eye Hospital. This cross-sectional descriptive study used primary data collected using a questionnaire from March to May 2022. The subjects were 33 people with cataracts who underwent uncomplicated cataract surgery at Cicendo National Eye Hospital over the past three and six months of the study. Patients who met the inclusion criteria were given the NEI-RQL 42 questionnaire. In visual clarity, patient expectations, near vision, far vision, daily fluctuations, activity limitations, suboptimal correction, and satisfaction with correction variables, an increase in value at three months was observed, yet slightly decreased at 6 months. There was decreased glare complaints, symptoms, and dependence on correction at preoperative, 3 months, and 6 months. An increase in the level of concern and appearance from preoperative, 3 months, and 6 months post-operative was observed. Thus, an improvement in the patient's quality of life is observed three months after surgery, yet decreases slightly in six months after surgery.

Keywords: Cataract surgery, NEI-RQL 42, quality of life

Introduction

Cataracts are the main cause of reversible visual impairment in older populations. Cataract Prevalence rate in Indonesia was 23.0% and increased mainly in rural areas. Indonesia's countrywide prevalence of blindness was 3.0%, with untreated cataracts becoming the most common cause at 71%. Cataracts will affect a person's quality of life both physically, mentally, and socially.¹⁻⁵

Cataract surgery consists of cataract removal and insertion of intraocular lens. There are several available techniques for cataract surgery. Phacoemulsification surgery is considered a cost-effective operation for cataracts that will improve a patient's visual acuity and quality of life. Cataract surgery can be performed

unilaterally or bilaterally. However, surgery that is only performed on one eye will affect binocular abilities, hand coordination, and uncomfortable glasses.^{1,4-8}

Several researchers have questioned the appropriateness and potential overuse of cataract surgery. A study conducted in the UK by Malik et al.,⁹ found that 33% of patients undergoing cataract surgery had a visual acuity of 6/12 or better. However, visual impairment caused by cataracts cannot be fully captured by visual acuity alone. Patient symptoms and satisfaction are crucial for assessing their quality of life. Quality of life can be influenced by demographic factors such as gender, age, education, and occupation. Additionally, the type of surgery performed can lead to varying rates of aberration and astigmatism postoperatively. In the absence of formal assessments, questionnaires can be valuable in evaluating the impact of cataract surgery on patient quality of life. Some studies suggest that patients with minimal visual impairment may benefit less from cataract surgery, highlighting that visual acuity alone is

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not an ideal measure of overall visual function.⁹⁻¹² This study aims to evaluate the quality of life of patients following long-term cataract surgery at the National Eye Center, Cicendo Eye Hospital, during the period from March to May 2022. The data collection was conducted three months after the surgery, considering the high volume of uncomplicated cataract surgeries performed between December 2021 and February 2022.

Methods

This cross-sectional descriptive study utilizes both primary data collected through a questionnaire and secondary data from patient medical records. The study has received ethical approval from the National Eye Center Cicendo Eye Hospital's Ethics Committee (approval number LB.02.01/2.3/1988/2022). The study population included cataract patients who underwent cataract surgery at the National Eye Center Cicendo Eye Hospital between three and six months prior and were reachable during the data collection period from March to May 2022. The surgeries included phacoemulsification and small incision cataract surgery (SICS). Quality of life and visual function were assessed using the NEI-RQL 42 questionnaire, which is widely used for measuring these aspects in patients with visual acuity disorders. The NEI-RQL 42 comprises 42 questions divided into 13 categories, with each category containing one to seven questions. Higher scores on this questionnaire indicate a better quality of life. The questionnaire demonstrates excellent test-retest reliability (intraclass correlation coefficient [ICC], 0.91; 95% limits of agreement, -9.1 to 10.1) and good concurrent validity. The Indonesian version of the questionnaire was adapted using a forward-backward translation method. Scores obtained three- and six-months post-surgery provide insights into the patient's visual acuity quality following the receipt of appropriate corrective lenses.

The inclusion criteria for this study were adult patients aged 18 years and older who had undergone cataract surgery in both eyes. Exclusion criteria included patients who could not be contacted during the study period, those unable to complete the questionnaire, individuals with surgical complications, patients with incomplete medical records, those with a history of eye surgeries other than cataract surgery, patients who had cataract surgery combined with other surgical procedures, and

individuals with other ocular disorders that could affect visual acuity.

Patients who meet the criteria will be contacted, come to the hospital, sign the informed consent, and be asked to fill out the NEI-RQL 42 questionnaire. Patients with symptoms are asked to return to the National Eye Center, Cicendo Eye Hospital. The selection of patients was carried out using the total sampling method.

The data taken consisted of the patient's demographic characteristics, gender, age, last education, and occupation. The level of patient education is classified based on the international standard education classification into Elementary School, Junior High School, Senior High School, and Higher Education. The patient's clinical characteristics consisted of the type of surgery, the intra-ocular lens used, the visual acuity before surgery, three months after surgery for the 3-month group, and 6 months after surgery for the 6-month group. Visual Acuity was measured using the Snellen chart and was categorized into no visual impairment if better seeing eye visual acuity was better than 6/12, mild visual impairment if worse than 6/12, moderate visual impairment if worse than 6/18, severe visual impairment if worse than 6/60, and blindness if worse than 3/60. Questionnaire data was taken based on the results of patient filling for conditions before surgery, three and six months after surgery. The data obtained will be processed and grouped using Microsoft Excel 2019. The results are presented in the table.^{13,14}

Results

The total population in this study consists mainly of women (63.6%), with an average age of 58.18 years. The study population mostly only finished elementary school (54.6%) and worked as housewives (60.6%). Table 1 shows the demographic characteristics of the study.

In this study, patients mostly underwent phacoemulsification surgery in 55 eyes (83.3%) using 3-piece hydrophobic foldable acrylic lenses (33.3%) and 1-piece hydrophilic foldable acrylic lenses (33.3%). At preoperative, 44 eyes (66.7%) were blind, and postoperatively, 54 eyes had no visual acuity disorder (81.8%).

Table 3 shows the percentage of questionnaire scores in patients before and after surgery for three and six months. In the level of visual clarity, patient expectations, near vision, far vision, diurnal fluctuations, activity limitations, suboptimal correction, and satisfaction with

Table 1 Demographic Characteristics of the Study

Variable	Total (n=33)
Age	58.18
Gender	
Male	12 (36.4%)
Female	21 (63.6%)
Education	
Elementary School	18 (54.6%)
Junior High School	2 (6.1%)
Senior High School	10 (30.3%)
Higher Education	3 (9.1%)
Occupation	
Housewives	20 (60.6%)
Retired	7 (21.2%)
Office Worker	5 (15.2%)
Driver	1 (3.0%)

correction, there was an increase in the 3-month after surgery but slightly decreased in the 6-month after surgery. There was a decrease in the variables of glare complaints, symptoms, and dependence on correction from preoperative, 3 months, and 6 months after surgery. There was an increase in the level of concern and appearance variables from preoperative, 3 months control, and 6 months post-operative.

Discussion

In this study, patient quality of life improved after cataract surgery compared to preoperative levels; however, there was a notable decline in scores from three to six months postoperatively. This decrease may be attributed to several factors, including posterior lens opacities, reduced corneal endothelial cell density, and post-surgical macular edema. These issues can impact patient expectations, as individuals who experienced clearer vision three months postoperatively might notice a decline in visual

Table 2 Clinical Characteristics of the Study

Variable	Total (n=66)
Operation	
Phacoemulsification	55 (83.3%)
SICS	11 (16.7%)
IOL	
3-piece hydrophobic foldable acrylic lenses	22 (33.3%)
1- piece hydrophilic foldable acrylic lenses	22 (33.3%)
1-piece hydrophobic acrylic lenses	14 (21.2%)
1-piece polymethyl methacrylate lenses	8 (12.1%)
Visual Impairment Pre-Operative	
No Visual Impairment	0 (0%)
Mild Visual Impairment	0 (0%)
Moderate Visual Impairment	14 (21.2%)
Severe Visual Impairment	8 (12.1%)
Blindness	44 (66.7%)
Visual Impairment Post-Operative	
No Visual Impairment	54 (81.8%)
Mild Visual Impairment	6 (9.1%)
Moderate Visual Impairment	6 (9.1%)
Severe Visual Impairment	0 (0%)
Blindness	0 (0%)

Table 3 Questionnaire Score 3 Months and 6 Months Post-Operative

Variable	Preoperative	3-Months After Surgery	6-Months After Surgery
	n=33	n=33	n=33
Visual Clarity	51.8	82.8	77.4
Patient Expectations	29.5	84.1	66.7
Near Vision	52.0	88.4	81.5
Far Vision	71.5	91.0	87.3
Diurnal Fluctuations	55.8	90.5	84.7
Activity Limitations	73.5	93.4	93.0
Glare	81.1	65.9	64.8
Symptoms	91.0	75.4	74.5
Dependence on Correction	72.3	32.7	32.3
Concern	55.3	81.4	82.4
Suboptimal Correction	53.0	74.6	69.3
Appearance	55.8	84.3	84.6
Satisfaction with Correction	39.4	78.2	75.2

function over time. Additionally, the most frequently reported complaint was dry eyes, which is a common symptom following cataract surgery and tends to resolve or improve within six months.¹⁴⁻¹⁷

It was found that the number of females was more than that of males; this is by previous studies, which said that the incidence of cataracts was higher in older females. A five-year survey of Britta et al.,² showed that long-term visual acuity after cataract surgery was worse in females than in males. Male also often require earlier surgery due to their need for better eyesight at work. In addition, research from Makabe et al.³ showed higher male scores on several specific variables such as driving which were thought to be related to higher driving experience. Previous studies have shown that females more often have visual complaints than males. This can be seen in the glare and symptom variables, which have quite low scores after surgery.¹⁴⁻¹⁸

Patient education level is related to patient quality of life, especially in reading ability. Patients with low levels of education often rarely read, so an increase in near reading ability does not increase patient quality of life. In addition, patients with a high level of education usually undergo surgery with milder visual acuity impairment than patients with a lower level of education. Limitations of patients in doing an activity affect patients' quality of life after surgery. Patients who work as housewives or retirees often do not feel any limitations in their

daily activities, in contrast to patients who work as employees or drivers. This also affects the level of visual acuity before surgery in men who work, which is usually higher than those who do not. In this study, there was a higher value on the activity limitation variable, and it was maintained at six months postoperative control.^{5,14,16,18,19}

Phacoemulsification is the choice of surgery in patients with immature cataracts, and SICS is more common in patients with mature cataracts. The phacoemulsification operation resulted in better uncorrected visual acuity than SICS, but the corrected visual acuity was not significantly different. This is due to the relatively high rate of astigmatism in patients with SICS, causing a high degree of glass dependence in these patients. One of the modifications of modern intraocular lenses is the aspheric shape of the design. This form of asphericity will reduce the level of aberrations and improve patients' visual acuity and quality of life. Lenses made of hydrophobic acrylic material and are three-part in shape have lower posterior capsule opacities and a more stable quality of life enhancement.¹⁹⁻²¹

The degree of visual impairment before and after surgery determines the level of the patient's quality of life. The quality of life will be higher in patients with a large difference between visual acuity before and after surgery. In addition, patients with poorer visual acuity will feel more significant improvement after surgery.^{14,17,18}

The limitation of this study is that all questionnaires were filled out after cataract

surgery, which may introduce recall bias in the study population. Future research is needed to analyze factors affecting patients' quality of life after cataract surgery.

In conclusion, the majority of patients in this study were housewives, with an average age of 58 years and a basic level of education. Phacoemulsification surgery, employing 1- and 3-piece foldable hydrophilic and hydrophobic acrylic aspheric intraocular lenses, was the most commonly performed procedure. Prior to surgery, most patients experienced moderate visual impairment or blindness. Postoperatively, the majority of patients demonstrated no visual impairment. Quality of life assessments indicated an improvement three months after surgery compared to preoperative levels; however, a slight decline was observed six months postoperatively.

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