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Evaluation of Intraocular Pressure Changes Following Cataract Surgery at a Tertiary Eye Hospital in Kano State, Nigeria.

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Abstract

Cataract is one of the leading causes of visual impairment. Cataract surgery is the only recognized and effective treatment for cataract, and it has also been found to affect intraocular pressure. This study aimed to evaluate intraocular pressure (IOP) changes following cataract surgery. This Prospective observational study assessed changes following cataract surgery at Makkah Specialist Eye Hospitals, Kano, Nigeria, from 28th January to 28th March, 2026. Purposive sampling technique was used to select 80 participants scheduled for cataract surgery at Makkah Specialist Eye Hospital, Kano. Preoperative and postoperative (24 hours, 1 week and 1 month) intraocular pressure values were recorded, along with demographic data, type of cataract surgery, and complications if any, after obtaining informed consent. Data was analyzed using descriptive statistics, paired t-test to detect mean IOP difference, as well as chi-square tests of association ($p < 0.05$). Cataract was mainly due to age 66 (82.5%). Nuclear cataract, 41 (51.2%), was the major types of cataracts. 75 (93.8%), of the participants underwent phacoemulsification. There was a statistically significant difference in IOP before (M = 17.63mmHg, SD = 3.223mmHg) and 24 hours after (M =19.46mmHg, SD = 3.762mmHg) cataract surgery; t (79) = -4.329, $p < .001$, as well as before (M = 17.63mmHg, SD = 3.223mmHg) and 1 month after (M =15.33mmHg, SD = 2.836mmHg) cataract surgery; t (79) = 6.943, $p < .001$. Cataract surgery is not only effective for visual rehabilitation but also contributes positively to short-term intraocular pressure reduction at one-month post-operation.

Introduction

Visual impairment constitutes a major global public health concern, with billions affected and a substantial proportion of cases being treatable or preventable. According to the World Health Organization, at least 2.2 billion people have a near or distance vision impairment, with about 1 billion of these cases that could have been prevented or remain unaddressed (WHO Report, 2019). Among these, cataract, accounting for approximately 94 million cases, is the main condition causing distance vision impairment or blindness. In terms of regional differences, the prevalence of distance vision impairment is much higher in low- and

middle-income regions and is estimated to be 4 times that of high-income regions (Maduena-Angulo et al., 2023).

Refractive errors, cataracts and diabetic retinopathy are the leading causes of visual impairment and blindness at a global level, yet, estimates show that only 17% of people with visual impairment due to cataract have received access to an appropriate intervention (WHO Report, 2023). While some cataracts may be congenital, secondary to trauma, or drug-induced, most cataracts are age-related (Moshirfar et al., 2023). Furthermore, cataracts represent the world's foremost cause of curable blindness. The persistence of cataract-related vision loss highlights a major health disparity in developing countries. In Nigeria specifically, it is the leading cause of visual impairment, contributing to over 90% of the disease burden in terms of disability-adjusted life years for blindness. (Onyia et al., 2024).

Cataract surgery is the gold standard and the only effective treatment known for cataract, and is a major contributor to restored vision globally. It is generally considered one of the most successful and common surgical procedures in all of medicine due to its high efficacy, safety, and significant improvement in quality of life. It is an outpatient procedure to remove a clouded lens and replace it with an artificial intraocular lens (IOL). The surgery is typically performed under local anesthesia while the patient is awake and takes about 15 to 30 minutes. Before surgery, the eye is scanned to correctly determine the IOL power (Prajna et al., 2015).

Cataract surgery has a success rate of over 95%. Every year, about 10 - 12 million cataract surgeries are performed globally with phacoemulsification being the most common type. The technique uses high-frequency ultrasound waves to break up the clouded lens into tiny pieces for removal through a small incision (Gurnani and Kaur, 2023).

Cataract surgery, just like any other surgery, can have complications. Infection (endophthalmitis), bleeding, increased intraocular pressure, inflammation and swelling can occur in the first few weeks or months after surgery, termed as early complications. Others such as secondary cataract or posterior capsular opacification (PCO), retinal detachment, cystoid macular edema (CMO), subluxation or dislocation of IOL typically occur after 6 weeks of surgery and are considered late complications (Moshirfar et al., 2023).

Amongst these complications, increased intraocular pressure is one of those that raises a cause for alarm. Studies have shown that elevated IOP immediately after cataract surgery is the most frequent complication postoperatively and can lead to irreversible optic nerve damage and vision loss if not treated. Even eyes with normal preoperative values and uncomplicated phacoemulsification can show very high IOP values postoperatively, which can cause pain, blurred vision and, rarely, compromise visual function (Todorovic et al., 2019).

Monitoring intraocular pressure (IOP) after cataract surgery is crucial to prevent complications like optic nerve damage from high pressure spikes, vision loss in glaucoma patients, or a "snuffing" of the nerve. An elevated IOP can cause pain, corneal swelling and other symptoms, and in susceptible individuals, it may lead to more severe complications like optic nerve damage or corneal edema, and may require intervention in some cases to ensure proper incision sealing and long-term eye health (Gim et al., 2025). Cataract surgery in patients with ocular hypertension produced sustained reductions, significantly decreasing the number of ocular hypotensive medications of the patients (Mansberger et al., 2022).

Studying the intraocular pressure (IOP) lowering effect of cataract surgery is important because it can help manage or even replace glaucoma medications for patients with co-existing cataracts and glaucoma. This study therefore aims to evaluate changes in intraocular pressure following cataract surgery, to provide insights that will aid clinicians in predicting and managing postoperative IOP elevations and improving overall patient outcomes.

Methodology

This is a hospital-based study that was carried out in Makkah Specialist Eye Hospital (MSEH) located

along BUK Road, opposite Kofar Gadonkaya, Kano State, North-West Nigeria.

Makkah Specialist Eye Hospital, established in 2004 in Kano state, Nigeria, under the umbrella of a Saudi Arabia-based charity foundation, AlBasar International Foundation, is a specialized ophthalmic centre providing eye care services and surgical interventions in Kano state. It is one of the major tertiary-level specialist eye hospitals serving Kano and the entire Northern Nigeria region, offering comprehensive ophthalmic consultations, refraction and optical services, cataract diagnosis and surgery, glaucoma management, retina services, corneal services, pediatric ophthalmology, oculoplasty, laser procedures, spectacle dispensing, as well as pharmacy services.

Makkah Specialist Eye Hospital is a high-volume center with inpatient surgical services and dedicated operating theatres for cataract and other ophthalmic surgeries.

This study was a prospective observational study designed to assess changes in intraocular pressure following cataract surgery among patients from 28th January to 28th March, 2026 at Makkah Specialist Eye Hospital, Kano, Nigeria. The target population for this study were patients undergoing cataract extraction in Makkah Specialist Eye Hospital.

The inclusion criteria for this study were: All patients booked for cataract extraction in MSEH, with no previous ocular surgery or pre-existing ocular pathology affecting intraocular pressure, no history of previous glaucoma, not on IOP-lowering medication and are willing to participate and provide informed consent. Exclusion Criteria: Patients who do not complete their follow up visits up to 1 week was excluded from this study.

The sample size for this study was 80, estimated using the paired t-test to detect a mean IOP change of 1.0 mmHg with 80% power at a confidence interval of 95% (α = 0.05). Using a pooled standard deviation from Onakpoya et al. (2020) (SD pooled ≈ 3.0 mmHg) and a 10% attrition factor.

$$n = (z1 - \alpha/2 + z1 - \beta)^2 \times \delta^2 / d^2$$

Where:

n = sample size

$z1 - \alpha/2$ = Alpha level of significance declared at 5% which is equivalent to 1.96

$z1 - \beta$ = Desired power (80%), which is equivalent to 0.84

$\boldsymbol{\delta}$ = Standard deviation pooled from Onakpoya et al. (2020)

d = The minimum mean difference aimed to be detected as statistically significant taken as 1.0

$$n = (1.96 + 0.84)^2 \times (3.0)^2 / (1.0)^2$$

$$n = 71.55 \cong 72$$

To compensate for 10% attrition factor:

$$N = n / (1 - a)$$

Where:

N = Sample size after compensation

n = Calculated sample size

a = Anticipated attrition rate taken at 10% = 0.1

$$N = 72 / (1 - 0.1)$$

$$N = 72 / 0.9$$

$$N = 80$$

This study employed a purposive sampling technique to identify patients that were scheduled for cataract surgery at Makkah Specialist Eye Hospital, Kano.

The data was collected physically at Makkah Specialist Eye Hospital by assessing patients' files that are scheduled for cataract surgery to ensure they meet the inclusion criteria. Participants were briefed about the study, informed consent was obtained, and ethical approval was secured before data collection. The participants baseline IOP measurements was taken while information such as the demographics data, entry visual acuity, the type of cataract, the cause of cataract and the type of cataract surgery they were booked for was retrieved from their files. Their phone number was also collected for follow up purposes.

Following the surgical procedure, the specific surgical technique utilized was documented, and intraocular pressure (IOP) measurements were recorded at designated postoperative intervals of 24 hours, 1 week, and 1 month. These

measurements were obtained using a puff air tonometer, with the Goldmann Applanation tonometer additionally used at the 1-month mark. Furthermore, visual acuity was assessed at 1 week and 1 month postoperatively, and any intraoperative or postoperative surgical complications were actively noted.

The data from this study was analyzed using Statistical Package for Social Sciences (SPSS) software version 27.0 and Microsoft Excel 2016. Descriptive statistics was used to present the frequency and percentage of the participant's demographics such as age and gender, as well as their preoperative IOP levels. Univariate analysis was done using a paired t test to assess the difference between preoperative and postoperative IOP measurements. Bivariate analyses using Chi-square tests was used to determine associations between post-operative visual acuity outcome and demographic data such as age and gender, as well as between post-operative visual acuity outcome and the type of cataract surgery they underwent. Data was checked for completeness and accuracy with quality control steps embedded in the collection process. Missing data such as entry IOP values for patients with traumatic cataract were managed using mean imputation where appropriate.

Ethical approval for this study was collected from the Health Research Ethics Committee of the Ministry of Health, Kano State (SHREC/2025/6958). Also, ethical considerations concerning the participants was observed.

Results

A total of 80 patients who underwent cataract surgery from 28th, January to 28th February, 2026 in Makkah Specialist Eye Hospital (MSEH) participated in this study. The age of the patients ranged from 9 to 80 years, with a mean age of 55.41 ± 15.348 years (95% CI: 52.20 – 58.68 years). Most of the patients were within the 61 – 70 age group. There were 26 (32.5%) female and 54 (67.5%) male patients, as displayed in Table 1 below.

Table 1: Demographic Characteristics of Participants

Characteristics	Frequency (n =80)	Percentage
Gender		
Female	26	32.5
Male	54	67.5
Age-Group (Years)		
<= 40	9	11.3
41 – 50	17	21.3
51 – 60	17	21.3
61 – 70	31	38.8
>= 71	6	7.5

Table 2 below shows that the majority of patients had a pre-operative visual acuity of less than 3/60 classified, according to WHO classification, as blindness. In terms of laterality, about half of the patients had a right eye opacity, 42 (52.5%). Predominantly, cataract was due to aging, 66 (82.5%). The major types of cataracts recorded were nuclear cataract, 41 (51.2%). Finally, the entry intra ocular pressure of 72 (90.0%) patients fell within the normal range.

The type of cataract surgery underwent by the vast majority, 75 (93.8%), of the patients was phacoemulsification. Among those that underwent PHACO, 72 (96.0%) had a folderable posterior chamber intra ocular lens implant. On the other hand, those that underwent ICCE had a folderable anterior chamber intraocular lens implant. (Table 3).

Among the 80 patients that underwent surgery, 65 (81.3%) had moderate visual impairment 1 week after cataract surgery, and 4 (5.0%) had mild and severe visual impairment each. At 1 month post cataract surgery, 31 (38.8%) had good vision, 30 (37.5%) had mild VI, 18 (22.5%) had moderate VI, and only one (1.3%) patient had severe VI. (Table 4).

Generally, there seemed to be an immediate postoperative increase in IOP, which then seemed to reduce with time after cataract surgery. From among the 80 patients who underwent surgery, 60 (75.0%) had a normal IOP at 24 hours after cataract surgery, while the other 20 (25.0%) had an

increased IOP. At 1 week post cataract surgery, 70 (87.5%) and 10 (12.5%) had an increased IOP. However, at 1-month post-cataract surgery, 79 (98.75%) had a normal IOP, and only 1 (1.25%) patient had an increased IOP, as shown in Table 5 below.

Table 2: Pre-operative Visual Acuity and Cataract History

	Frequency (n =80)	Percentage
Pre-Operative VA		
Good Vision (6/5 – 6/12)	-	-
Mild VI (6/18)	-	-
Moderate (<6/18 – 6/60)	33	41.3
Severe VI (<6/60 – 3/60)	9	11.3
Blindness (<3/60)	38	47.5
Laterality		
OD	42	52.5
OS	38	47.5
Cause of Cataract		
Aging	66	82.5
Trauma	13	16.3
Inflammation	1	1.3
Type of Cataract		
Nuclear	41	51.2
Posterior sub-capsular	15	18.8
Cortical	10	12.5
Complicated	5	6.3
Hypermature	4	5.0
Morgagnian	4	5.0
Pupillary Membrane	1	1.3
Entry IOP (mmHg)		
10 – 13	5	6.3
14 – 17	34	42.5
18 – 21	33	41.3
22 – 25	6	7.5
26 – 29	2	2.5

Analysis of the recorded intraocular pressure among the 80 patients showed that the mean intraocular pressure before cataract surgery was 17.63 ± 3.223mmHg, the mean IOP 24 hours after cataract surgery was 19.46 ± 3.762mmHg, the mean IOP 1 week after cataract surgery was 17.26 ± 3.571mmHg, and the mean IOP 1 month after cataract surgery was 15.33 ± 2.836mmHg. A paired-samples t-test was conducted to compare the intraocular pressure before and after cataract surgery at defined post-operative intervals. As shown in Tables 6 below, there was a statistically significant difference in IOP before (M = 17.63mmHg, SD = 3.223mmHg) and 24 hours after (M =19.46mmHg, SD = 3.762mmHg) cataract surgery; $t(79) = -4.329$, $p < .001$, as well as before (M = 17.63mmHg, SD = 3.223mmHg) and 1 month after (M =15.33mmHg, SD = 2.836mmHg) cataract surgery; $t(79) = 6.943$, $p < .001$. However, there was no statistically significant difference in IOP before (M = 17.63mmHg, SD = 3.223mmHg) and 1 week after (M =17.26mmHg, SD = 3.571mmHg) cataract surgery; $t(79) = 1.254$, $p = .213$. (Table 6).

Table 3: Intra-operative Cataract History

	Frequency (n =80)	Percentage
Type of Cataract Surgery		
PHACO	75	93.8
ICCE	5	6.3
Type of Intraocular Lens		
Folderable PCIOL	72	90.0
Small DIA (Scheduled)	2	2.5
None	1	1.3
Folderable ACIOL	5	6.3
Intraoperative Complication		
None	78	97.5
Tremulous lens	2	2.5

A Chi-square test was performed to examine the association between age, gender, types of cataract surgery and visual outcome over time. There was a statistically significant association between age and visual acuity 1 month after cataract surgery X^2 (12, N= 80) = 30.752, $p = .002$. (Table 7) However, there was no statistically significant association between gender and visual acuity 1 month after cataract surgery X^2 (3, N= 80) = 3.806, $p = .283$, nor was there was a statistically significant association between types of cataract surgery and visual acuity 1 month after cataract surgery X^2 (3, N= 80) = 3.579, $p = .311$. The observation of the descriptive statistics implied that both genders, as well as PHACO and ICCE, as a type of cataract surgery. (Table 7).

Table 4: Post-Operative Outcome

Visual Acuity	Pre-Op		1 week Post-Op		1 Month Post-Op	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Good Vision (6/5 – 6/12)	-	-	2	2.5	31	38.8
Mild VI (6/18)	-	-	4	5.0	30	37.5
Moderate (<6/18 – 6/60)	33	41.3	65	81.3	18	22.5
Severe VI (<6/60 – 3/60)	9	11.3	4	5.0	1	1.3
Blindness (<3/60)	38	47.5	5	6.3	-	-
Total	80	100	80	100	80	100

Table 5: Post-Operative IOP Outcome

IOP (mmHg)	Pre-Op		24H Post-Op		1W Post-Op		1M Post-Op	
	n	%	n	%	n	%	n	%
10 – 21	72	90.0	60	75.0	70	87.5	79	98.7
Above 21	8	10.0	20	25.0	10	12.5	1	1.3
Total	80	100	80	100	80	100	80	100

Table 6: Differences in IOP Pre and Post Cataract Surgery

	Paired Differences				
	Mean	Std. Deviation	t	df	p
IOP Before CS – IOP 24 Hours Post-Op CS	-.412	.852	-4.329	79	< .001
IOP Before CS – IOP 1 Week Post-Op CS	.125	.891	1.254	79	.213
IOP Before CS – IOP 1 Month Post-Op CS	.600	.773	6.943	79	< .001

Table 7: Test of Association

Characteristics	*1M Visual Acuity Outcome						
	Good Vision	Mild VI	Mod. VI	Severe VI	#X^2	df	p
Age Groups (Years)					30.752	12	.002#
<= 40	2	4	2	1			
41 – 50	5	7	5	-			
51 – 60	10	3	4	-			
61 – 70	14	15	2	-			
>= 71	-	1	5	-			
Gender							
Female	13	10	3	-	3.806	3	.283#
Male	18	20	15	1			
Type of Cataract Surgery							
PHACO	31	27	17	1	3.579	3	.311#
ICCE	-	3	2	-			

= Fishers exact test

* = 1 Month

Discussion

The pattern of IOP changes following cataract surgery demonstrates a biphasic response; an immediate rise in IOP at 24 hours (19.46 ± 3.762mmHg) compared to baseline measurements (17.63 ± 3.223mmHg) followed by a significant reduction to levels below the baseline after one

month (15.33 ± 2.836mmHg). This transient elevation, followed by gradual long-term reductions, is a recognized clinical trend in the African population. In a study of the indigenous population conducted in Southwest Nigeria, Onakpoya et al. similarly observed that while manual techniques like conventional ECCE led to an initial rise in IOP 24 hours post-operatively, it eventually stabilized and was gradually reduced over time (Onakpoya et al., 2020). Similar findings were also published in Tanzania, where researchers noted that while early spikes occur, the ultimate reduction in IOP after phacoemulsification can be as high as 41%, which is significantly larger than reductions typically reported in non-African populations such as in European cohorts (Dhalla et al., 2017). This suggests that African eyes, which often present with thicker lenses and narrower angles, may experience a more pronounced "pressure-lowering" benefit from the anatomical expansion of the anterior chamber after lens removal (Kim et al., 2024).

The immediate 24-hour spike, which affected 25% of patients in this study, is often attributed to the use of ophthalmic visco-surgical devices and viscoelastic substance which can temporarily obstruct aqueous outflow by obstruction of the trabecular meshwork if not completely aspirated and surgical trauma, which induces a release of inflammatory cells and pigment, which may further compromise aqueous outflow in the immediate hours following the cataract surgery (Dibyasakti & Suhardjo, 2016; Gim et al., 2025). The data from this study showed that while 20 patients experienced spikes above 21 mmHg at 24 hours (19.46 ± 3.762mmHg), these values generally began to normalize by the first week (17.26 ± 3.571mmHg). The sustained reduction of approximately 2.3mmHg observed at Makkah Specialist Eye Hospital at one month (15.33 ± 2.836mmHg) confirms that both ICCE and Phacoemulsification provide a significant reduction in IOP, which is consistent with the findings of Melancia et al., (2015) on cataract surgery and intraocular pressure. The mechanism for this long-term lowering of IOP is widely attributed to anatomical changes in the anterior segment resulting from the removal of the bulky cataractous lens, which increases the depth of the anterior chamber and widens the iridocorneal angle, thereby reducing resistance to aqueous humor outflow (Coh et al., 2016; Melancia et al., 2015). This effect is particularly beneficial in populations where cataracts are mostly advanced, as seen in the 82.5% of age-related cataracts in this study.

In terms of the visual outcomes, this study demonstrated an excellent recovery of visual function, with 76.3% of patients achieving a visual acuity of 6/18 or better, classified, according to WHO classification, as good vision or mild visual impairment, compared to the 47.5% that presented with blindness. This success rate mirrors other regional studies carried out in Ogun state and Kaduna State, Nigeria, reported that 85.6% and 56.6% of patients respectively achieved an uncorrected VA of at least 6/18 by the 3rd month and 2months. (Bogunjoko et al., 2023; Bulus et al., 2022) A systematic review and meta-analysis of relevant studies from January 1990 to February 2025 in Nigeria, noted evidence of improved visual outcomes post cataract surgery over time, corroborates the findings from this study (Habib et al., 2026). The visual outcomes in this study also align with broader trends in Sub-Saharan Africa, showed that despite high rates of "poor" outcomes (defined in the study as a 14.56% pooled prevalence) in Sub-Saharan Africa, a substantial proportion of patients show significant improvement, with factors such as pre-existing ocular comorbidities and surgical complications being the main barriers to achieving a perfect 6/6 vision in all cases (Asmare et al., 2024).

While a statistically significant association was found between age and visual acuity at one month ($X2$ (12, N = 80) = 30.752, p = .002), this finding requires careful interpretation due to the unique demographic and clinical profile of the participants of this study. The majority of participants were older adults presenting with age-related cataracts (82.5%), and the high success rate in the age groups older than 40 suggests that removing the opaque lens effectively restored vision in eyes that were otherwise healthy. Conversely, the much elderly

group (≥ 71 years) showed significantly lower visual improvement, with 5 out of 6 patients (83.3%) achieving only moderate visual impairment at one month. This finding is corroborated by research carried out in India, which notes that poor visual outcomes are often higher in patients aged 70 and above, due to pre-existing ocular comorbidities like age-related macular degeneration or glaucoma which limit the "visual potential" even after a successful surgery (Matta et al., 2016). Furthermore, while younger patients are often expected to have better outcomes, the small sample size in this study (n=9 for ≤ 40 years) and the different etiology of their cataracts must be considered. In this study, younger patients predominantly presented with traumatic cataracts, which are frequently associated with other sight-limiting complications such as corneal scarring or posterior segment trauma, and can lead to guarded visual prognoses regardless of the surgical success (Sofi et al., 2016). This explains why the only case of severe visual impairment at one month occurred in the youngest age group.

Interestingly, there was no statistically significant association between gender and visual acuity outcome at 1 month ($X2$ (3, N= 80) = 3.806, p = .283), indicating that gender is not a determinant of visual outcome in this study, a finding consistent with other West African studies, noted that patient demographics like sex typically do not influence the success of the procedure when standardized surgical protocols are followed (Khanna et al., 2020). This reinforces the equal outcomes of cataract surgical services at Makkah Specialist Eye Hospital across different demographic groups.

Regarding the surgical techniques, this study found no statistically significant difference in visual acuity outcomes at 1 month ($X2$ (3, N= 80) = 3.579, p = .311) between Intracapsular Cataract Extraction and Phacoemulsification. While Phacoemulsification is the modern standard, these results align with findings by Iyamu & Okechukwu (2024), who compared visual acuity outcomes of phacoemulsification and small incision cataract surgery in Lagos State, Nigeria. Similarly, Riaz et al., (2006) also noted that when cataract surgery is performed with a proper intraocular lens implant (such as the ACIOLs used in our ICCE cases), there are no clinically relevant differences in final visual distributions between manual and high-tech techniques.

The summary of our findings showed an immediate postoperative rise and a subsequent sustained reduction after cataract surgery. The mean preoperative IOP was 17.63 ± 3.223 mmHg, which significantly increased to 19.46 ± 3.762 mmHg at 24 hours postoperatively ($p < .001$), followed by a reduction to baseline values, 17.26 ± 3.571 mmHg at 1 week ($p = 0.213$), and a significant decrease to 15.33 ± 2.836 mmHg at 1 month postoperatively ($p < .001$). Visual acuity outcomes also showed marked improvement over time. While 47.5% of patients presented with blindness preoperatively, 76.3% achieved good vision or mild visual impairment one month after surgery. Age showed a statistically significant association with visual outcome ($p = 0.002$), while gender ($p = 0.283$) and type of cataract surgery ($p = 0.311$) showed no significant association.

This study concludes that cataract surgery improves visual outcomes and has both short-term transient IOP elevation and long-term sustained IOP reduction despite early postoperative spikes, emphasizing the importance of close IOP monitoring during the immediate postoperative period.

Conclusion

This study evaluated intraocular pressure changes following cataract surgery among patients attending Makkah Specialist Eye Hospital, Kano. The findings demonstrated that cataract surgery produces a significant biphasic effect on intraocular pressure, with an immediate postoperative increase occurring within the first 24 hours, followed by a gradual and sustained reduction below preoperative levels by one month after surgery. The significant rise in IOP observed at 24 hours postoperatively confirms that early postoperative IOP spikes remain an important clinical concern, particularly because persistent elevation may predispose patients to optic nerve damage and other complications if not properly monitored. However, the significant reduction in

IOP observed at one month supports the long-term pressure-lowering benefit of cataract surgery, especially in patients with age-related cataracts and normal preoperative ocular health.

Additionally, visual outcomes improved significantly after surgery, with the majority of patients achieving functional vision one month postoperatively. Age was found to significantly influence visual outcomes, while gender and type of cataract surgery showed no significant relationship with postoperative visual acuity.

Overall, this study confirms that cataract surgery is not only effective for visual rehabilitation but also contributes positively to long-term intraocular pressure reduction. These findings provide valuable local evidence for improving postoperative monitoring protocols and strengthening cataract care management in Kano and similar clinical settings. Clinicians should educate patients on the importance of attending follow-up visits after cataract surgery, particularly during the early postoperative period, to prevent avoidable complications.

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Author contributor

EO contributed as supervisor and prepared the manuscript. BAM contributed as the main investigator and original manuscript. NJO contributed as the Reviewer and correction of the manuscript.

Conflict of Interest

There is no conflict of interest.

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