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Management of childhood cataract: practice patterns among ophthalmologists in Nigeria

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OBJECTIVE: To describe the practice patterns for the management of paediatric cataracts among ophthalmologists practising in Nigeria.

METHODS: A cross-sectional study of fully trained Nigerian ophthalmologists who perform cataract surgery in children aged 16 years and below. An online questionnaire was distributed via e-mail and social media platforms to respondents. Data on socio-demographic characteristics, type, location and years of practice, status and preferred approach to management of childhood cataracts were obtained and analysed.

RESULTS: A total of 41 ophthalmologists responded that they perform paediatric cataract surgery. Of these, 25 (61.0%) were paediatric ophthalmologists while 7 (17.0%) were general ophthalmologists. Most respondents (92.7%) practise in urban settings and 30 (73.2%) work in tertiary hospitals. Most respondents (90.2%) routinely insert intraocular lenses (IOLs) in children aged 2 years and above while 32 (78.0%) routinely under-correct the IOL power. Thirty-four (82.9%) have an anterior vitrectomy machine, 31 (75.6%) routinely perform posterior capsulotomy and anterior vitrectomy, and 17 (58.5%) routinely perform same-day sequential bilateral cataract surgery. Twenty-six (63.4%) respondents routinely give near correction in aphakic children, while 24 (58.5%) respondents routinely give bifocals in pseudophakic children. Compared to other sub-specialists, paediatric ophthalmologists were 24 times more likely to routinely under-correct IOL power ($p = 0.001$) and 4 times more likely to routinely correct near vision in aphakic children (0.036) as well as prescribe bifocals for pseudophakic children respectively (0.029).

CONCLUSION: The practice of paediatric cataract surgery in Nigeria is mainly in line with expected standards, but there is a need for the development of detailed practice guidelines.

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INTRODUCTION

Eye health is crucial to the overall health and development of a child. Good vision in a child significantly improves their well-being, life expectancy, learning ability and chances of succeeding in adult life. It is important to promptly recognize and address visual impairment in children, especially as many of them are likely to be too young to complain and undetected cases of visual impairment could invariably become a lifetime challenge.

Cataract remains an important cause of avoidable childhood blindness with estimated global prevalence ranging from 0.32 to 22.9/ 10,000 children for childhood cataract and 0.63 to 9.74/ 10,000 children for congenital cataracts [1]. Hence, blindness from cataracts, along with other major causes in childhood, were prioritized for elimination in the Vision 2020: The Right To Sight initiative [2].

Blindness from cataracts is treatable by a proven, cost-effective surgery which remains the mainstay of its management [3]. Surgery must however be done early, followed by a period of visual rehabilitation through various means as each case may require. The final visual outcome could significantly depend on factors such as the time frame for intervention, surgical expertise and the appropriateness of visual rehabilitation instituted post-operatively.

In Nigeria, childhood cataract is one of the most common indications for ocular surgeries in children [4–6]. These surgeries are usually performed by paediatric ophthalmologists or general ophthalmologists, depending on the setting and available resources. A national treatment guideline for the delivery of child eye health services exists in Nigeria, but it is uncertain to what extent these guidelines are being followed by individual surgeons, especially where certain resource-related constraints may make such difficult [7]. Furthermore, the current guideline has no clear procedural standards for surgical management.

For optimal outcomes and minimised complications of cataract surgery in children, several considerations are necessary. These include timing of surgery, technique of surgery, posterior capsule management and post-operative care [8–10].

This study evaluated the current practice patterns of Nigerian ophthalmologists who operate on children with a focus on the management of uncomplicated childhood cataracts. The aim was to document the variability in current practice, understand areas of need and possibly provide evidence for the reorientation of

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personnel who provide care for children with cataracts through an updated national treatment guideline document.

Periodic evaluation surveys would have been ideal for monitoring progress and compliance with national guidelines among ophthalmologists, but in the absence of these, this study provides useful insight to guide future directions.

METHODS

This was a web-based cross-sectional, observational study conducted among ophthalmologists who perform cataract surgery in children aged 16 years or less and practise in Nigeria. Eye care workers below the rank of consultant ophthalmologist, evidenced by a minimum qualification of fellowship in Ophthalmology, were excluded. The study was conducted over a period of three months.

An online questionnaire was distributed through e-mails and social media platforms of all ophthalmologists in general and paediatric ophthalmologists, in particular, using Google survey forms. To ensure a high yield, repeated emails and messages on social media platforms were sent every fortnight until the end of data collection.

Information collected includes socio-demographic characteristics, type of practice, location of practice, years of practice, and preferred practices in the management of childhood cataracts. Data was entered into Microsoft Excel, cleaned and imported to Statistical Package for the Social Sciences (IBM - SPSS) version 26 for analysis. Coding of variables was done and descriptive statistics were used to summarise the data. Pearson Chi square test was used to explore associations between categorical variables. The level of significance was set at $p < 0.05$.

RESULTS

Sociodemographic characteristics of respondents

A cumulative total of about 300 consultant ophthalmologists were invited to participate in the study and 41 ophthalmologists responded that they perform paediatric cataract surgeries. Of these, 25 (61.0%) were in paediatric and strabismus subspecialty, seven (17.0%) were in general ophthalmology, three (7.3%) in oculoplasty & oncology, two (4.9%) in glaucoma and one (2.4%) each in vitreo-retina, public health ophthalmology, anterior segment, and neuro-ophthalmology respectively. The South-West zone of Nigeria had 15 (36.6%) of the surgeons while the North-East had only two (4.9%) ophthalmologists operating paediatric cataracts. (Table 1).

Table 1. Sociodemographic characteristics of respondents.

Characteristics	Frequency (*n*)	Percentages (%)
Gender		
Female	28	68.3
Male	13	31.7
Age category (years)		
30–40	3	7.3
41–50	16	39.0
51–60	16	39.0
>60	6	14.7
Region of practice		
South - South	9	22.0
South - West	15	36.5
South - East	3	7.3
North - Central	9	22.0
North - East	2	4.9
North - West	3	7.3
Location of practice		
Rural	3	7.3
Urban	38	92.7
Type of facility		
Government Tertiary	30	73.2
Government Secondary	1	2.4
Private	6	14.6
Mission	4	9.8
Number of years performing paediatric cataract surgery		
0–5	8	19.5
6–10	14	34.1
>10	18	44.0
Not stated	1	2.4

Preoperative practice

Timing of surgery. Thirty-two (78.0%) reported that they would wait till the age of 2 months before operating on a child who presents with congenital cataracts within the first month of life while nine (22.0%) would operate on such children before 2 months of age.

Biometry and intraocular lens (IOL) power calculations. The most common type of biometry used is contact biometry 39 (95.1%) while two (4.9%) respondents use immersion technology. Intraocular lenses are routinely inserted in children aged 2 years and above by 37 (90.2%) of the respondents while four (9.8%) reported the insertion of IOLs from the age of 6 months. Routine under correction of IOL power is done by 32 (78.0%) while nine (22.0%) stated that they do not routinely under correct IOL power in children. Table 2 presents further details of the preoperative practice of the respondents.

Intraoperative practice

Continuous curvilinear capsulorhexis is routinely performed by 21 (51.2%) of the respondents, 34 (82.9%) have an anterior vitrectomy machine, 31 (75.6%) routinely perform primary posterior capsulotomy with anterior vitrectomy (PPC & AV) and 24 (58.5%) routinely perform same-day sequential bilateral cataract surgery (Table 3).

Among the 17 respondents who do not routinely perform same-day sequential bilateral cataract surgery, the second eye is scheduled for surgery within 14 days by six (35.3%) respondents, within 2 to 4 weeks by eight (47.1%) respondents, within 5 weeks to 7 weeks by two (11.8%) and after 7 weeks by one (5.9%) respondent.

In cases of loss of posterior capsule support, options for intraocular IOL implantation used by the respondents include: anterior chamber IOL by seven (17.1%) respondents, scleral fixated IOL by 11 (26.8%), iris claw IOL by eight (19.5%), "eye left aphakic" by three (7.3%), sulcus fixated IOL or pupil capture of the optic by two (4.9%), insertion of a posterior chamber IOL in the anterior chamber by one (2.4%) and contact lenses by one (2.4%) respondent. Eight respondents (19.5%) did not state what options they used in this scenario.

Categorised by age in months, the distribution of the upper age limits for performing primary posterior capsulotomy with anterior vitrectomy was: 25–60 months (48%), 61–120 months (37%), 0–24 months (11%) and ≥121 months (4%). Whereas the distribution of upper age limits for performing primary posterior capsulotomy without anterior vitrectomy was: 61–120 months (38%), 25–60 months (37%), ≥121 months (13%) and 0–24 months (12%).

Post-operative practice

Only 18 respondents reported on the average length of hospital admission of their patients after surgery. Of these, 11 (61.1%) respondents admitted their patients for 3 days or less while seven (38.9%) respondents reported a range of 4–7 days of admission.

Table 2. Pre-operative Practice Pattern of Respondents.

Pre-operative Practice	Frequency (*n*)	Percentage (%)
Types of keratometer frequently used ($n = 41$)*		
Tabletop mounted	28	68.3
Handheld in theatre (under anaesthesia)	21	51.2
Handheld in clinic	4	9.8
Types of intraocular lens commonly used ($n = 41$)		
PMMA only	19	46.4
Acrylic hydrophobic foldable only	5	12.2
PMMA and acrylic hydrophobic foldable	7	17.1
PMMA and Silicone	3	7.3
PMMA and acrylic hydrophilic foldable	5	12.2
Acrylic hydrophilic foldable only	1	2.4
Not stated	1	2.4
Methods of under-correcting intraocular lens power ($n = 41$)		
By age	15	36.6
By axial length from A-scan	3	7.3
By refraction values	1	2.4
Combination of two or more methods	13	31.7
Not stated	9	22.0
Age when intraocular lens power is no longer under-corrected ($n = 32$)		
3–5 years	3	9.4
6–8 years	17	53.1
9–11 years	7	21.9
12–14 years	3	9.4
15+ years	2	6.2

*Some respondents used more than 1 type of keratometry

Table 3. Intraoperative Practice pattern of respondents.

Intraoperative Practice	Frequency (*n*)	Percentage (%)
Anterior capsulotomy technique routinely performed ($n = 41$)		
Manual Continuous Curvilinear Capsulorhexis	21	51.2
Envelope Capsulotomy	2	4.9
Can Opener	14	34.1
Vitrectorhexis	4	9.8
Availability of anterior vitrectomy machine ($n = 41$)		
Yes	34	82.9
No	7	17.1
Routinely perform PPC* with AV# ($n = 41$)		
Yes	31	75.6
No	3	7.3
Not stated	7	17.1
Perform PPC only ($n = 41$)		
Yes	10	24.4
No	31	75.6
Perform PPC & AV for children ≤2 years of age ($n = 34$)		
All the time (100%)	28	82.4
Half of the time (50%)	2	5.9
Rarely (<25%)	3	8.8
Sometimes (25%)	1	2.9
Perform same-day sequential bilateral cataract surgery in children ($n = 41$)		
Yes	24	58.5
No	17	41.5
Perform same-day sequential bilateral cataract surgery with intraocular lens implantation ($n = 41$)		
Yes	18	43.9
No	22	53.7
Not stated	1	2.4

*PPC Primary posterior capsulotomy, #AV Anterior vitrectomy

Twenty (48.8%) respondents give systemic steroids postoperatively and 21 (51.2%) do not give. The dosage of steroids administered varied from 1 mg/kg by 12 (66.6%) to 10 mg/day by three (16.7%) respondents. Two of the respondents who gave post-operative steroids did not indicate the dosage.

Optical rehabilitation. Concerning optical rehabilitation of aphakic children, 13 (31.7%) respondents give spectacles within 7 days of surgery, eight (19.5%) within 7–14 days and 20 (48.8%) after 14 days. Twenty-six (63.4%) respondents routinely give near correction in children with aphakia and 15 (36.6%) do not give near correction. In children with pseudophakia, 24 (58.5%) respondents routinely give bifocals for near correction and 17 (41.5%) do not give near correction. Table 4 presents further details on the post-operative optical rehabilitation practice amongst the respondents.

Long term follow-up practice

Intraocular pressure (IOP) is always measured as part of routine follow up by 23 (56.1%) respondents, about half the time by 12 (29.3%) and occasionally by six (14.6%) respondents.

Central cornea thickness is measured more than 50% of the time in children operated for cataracts by four (9.8%) of the respondents, occasionally by eight (19.5%), rarely by 28 (68.3%) and always by one (2.4%).

Follow up refraction for aphakic/ pseudophakic children is performed every 3 months by 11 (26.8%) respondents, every 6 months by 24 (58.5%) and every 12 months by six (14.6%) respondents.

Inferential analysis

On cross-tabulation to compare practice patterns between paediatric ophthalmologists and other subspecialties, significant associations were observed in the following areas of practice: routine under correction of IOL powers, routine correction for near vision among aphakic children and prescription of bifocals for pseudophakic children (Table 5). There were no significant differences between sub-specialities in other areas of practice.

DISCUSSION

Manpower for childhood cataract surgery in Nigeria

Manpower for childhood cataract surgery in Nigeria theoretically just meets the World Health Organisation (WHO) recommendation of one paediatric ophthalmologist per 10 million population. With 41 ophthalmologists, 25 of whom were trained paediatric ophthalmologists, indicating they perform paediatric cataract surgery, manpower for specialist paediatric eye care in Nigeria is just about adequate. Notwithstanding, there is uneven distribution of manpower across the country with North-Eastern Nigeria

Table 4. Post-operative practice amongst the respondents.

Optical Rehabilitation	Frequency (*n*)	Percentage (%)
Method of spectacle power estimation for aphakic children ($n = 41$)		
Perform refraction after surgery before prescribing	29	70.7
Prescribe +10 dioptres routinely without refraction	10	24.4
Use age to calculate requirement	1	2.4
Not stated	1	2.4
Use of contact lens for aphakia ($n = 41$)		
Yes	10	24.4
No	31	75.6
Proportion of aphakic children rehabilitated with contact lens ($n = 10$)		
<25%	8	80
25–50%	2	20
Methods of incorporating near correction in Aphakic children ($n = 26$)		
Bifocals	15	57.7
As single vision (addition of 2-3 dioptres to distance correction)	11	42.3

having the least number of ophthalmologists performing paediatric cataract surgery. In addition, only three ophthalmologists have their practice located in a rural area which means a large population of those living in rural areas must travel long distances to access paediatric eye care.

Data from the Nigeria National Blindness Survey [11] showed that North-Eastern Nigeria has the highest prevalence of blindness in Nigeria, this makes the deficit in manpower in that region an important issue that requires urgent attention. In addition, with a large population of Nigerians residing in rural areas, there is a need to address the uneven distribution of manpower through government policies that make living and working in rural areas desirable for specialist doctors.

Another vital observation in this survey is the age distribution of the specialists providing paediatric cataract care, as more than half (53%) are aged 51 years and above. With the retirement age set at 60 years in Nigeria, there is an urgent need for more effort in manpower training to ensure the replacement of those who may retire soon or take up non-clinical roles.

Surgical practice patterns

Timing of surgery. Balancing the prevention of amblyopia with the risk of complications from early intervention in childhood cataracts is a key consideration for the timing of surgery in young children [12]. The majority (78%) of those surveyed indicated they would wait till age two months before operating bilateral congenital cataracts. This practice is becoming popular among paediatric ophthalmologists as demonstrated in our survey and should be promoted among those who are operating earlier than 2 months. This might delay the onset of secondary glaucoma after cataract surgery as waiting a bit gives the eye an opportunity to develop further before surgery although it does not completely remove the risk of glaucoma [12, 13].

Intraocular lenses (IOL)

IOL power calculation. In calculating the power of the intraocular lenses, contact biometry is the most common form of biometry used in Nigeria with various types of keratometers available across the country. This is commendable as it demonstrates children are getting calculated IOL power at surgery. Although immersion technique for axial length measurement is preferred [14, 15], contact biometry is not contraindicated. On the other hand, not everyone is appropriately under-correcting the IOL power calculated. Under-correcting the IOL power is the standard practice [14], considering the myopic shift that occurs in childhood most especially as studies have suggested that cataract surgery may modify ocular biometrics [16, 17]. The majority (78%), mostly paediatric ophthalmologists, indicated that they under-correct IOL power in children while 22%, who are mostly non-paediatric ophthalmologists, do not under-correct IOL power. This calls for the development of detailed country-based practice guidelines and continuous medical education for general ophthalmologists and other sub-specialists providing surgical services to children with cataracts.

Age at IOL implantation. The routine insertion of intraocular lenses in children in Nigeria is predominantly from the age of two years with a small fraction of respondents (9.8%) inserting in children as early as age 6 months. The infant aphakia treatment study (IATS) showed that IOL implantation with good long term visual outcome is possible in selected cases of unilateral aphakia in children less than 7 months old [18, 19]. However this is with the appropriate sized paediatric IOL which is not readily available in Nigeria and some other low-middle income countries [8]. Thus, it is safe practice to wait till the age of 2 years in bilateral cases when the eyeball is adequate in size to implant an adult- sized IOL which is what is more readily available in Nigeria [20].

Type of IOL material. The use of acrylic foldable lenses in children is not yet widespread among ophthalmologists in Nigeria as about half use only polymethyl methacrylate (PMMA) lenses. Acrylic lenses are reported to reduce posterior capsule opacification (PCO) and fibrinous uveitis [21], two major complications of cataract surgery in children. Although PMMA IOLs are relatively older with a long safety history in practice, acrylic lenses have been generally safe since their introduction and are worth considering for optical rehabilitation post-cataract surgery in children [22]. Not only have they been observed to reduce the incidence of PCO and post-operative uveitis, but they require a significantly smaller wound size [22] and also increase the chances of in-the-bag placement of IOLs [14].

Positioning of IOL in the absence of posterior capsular support. The reported options for IOL implantation in the absence of posterior capsule support were mainly scleral fixated (33%) and iris claw (24%) IOLs. Although a small fraction indicated that they implant IOLs in the anterior chamber, it is worth stating that anterior chamber intraocular lens implantation is very undesirable in children [23] and should be absolutely avoided. Collaboration and skill transfer for scleral fixated IOL and iris claw IOLs are necessary to ensure children in this category receive optimal optical rehabilitation.

Management of anterior and posterior capsule

Manual continuous curvilinear capsulorhexis (CCC) is the norm for 51% of the respondents and a third (34%) routinely perform can-opener technique. Although can-opener is not contraindicated in children, it can lead to capsule edge instability [24] and most times makes in-the-bag implantation of IOL difficult to achieve. There is a need to convert the surgeons who still routinely perform can-opener technique in paediatric cataracts to manual CCC or vitrectorhexis which provide better capsule stability [24].

Routine PPC and AV is recommended for children as a key component of paediatric cataract surgery to prevent visual axis opacification [25, 26]. From our survey, PPC and AV for children aged two years and below are routinely performed by two-thirds of the respondents. This may not only be due to a lack of expertise but may also be due to a lack of equipment such as an

Table 5. Association between Subspecialty and practice pattern for childhood cataract surgery.

Variable	Subspecialty	Yes (%)	No (%)	Total	Odds Ratio	Pearson Chi-square	(*p*-value)
Routine under-correction of intraocular lens power	Paediatric Ophthalmology & Strabismus	24 (96.0)	1 (4.0)	25	24.00 (95% CI: 2.58 – 222.64)	$X^2 = 12.05$	0.001
	Others	8 (50.0)	8 (50.)	16			
Routine prescription for near vision in aphakic spectacles	Paediatric Ophthalmology & Strabismus	19 (76.0)	6 (24.0)	25	4.07 (95% CI: 1.05 – 15.67)	$X^2 = 4.37$	0.036
	Others	7 (43.8)	9 (56.2)	16			
Routine prescription of bifocals in pseudophakic children	Paediatric Ophthalmology & Strabismus	18(72.0)	7(28.0)	25	4.28 (95% CI: 1.12 – 16.31)	$X^2 = 4.78$	0.029
	Others	6 (37.5)	10 (62.5)	16			

anterior vitrectomy machine which was not available for use by seven respondents. The need for appropriate equipment to ensure the standard of care for children with cataracts is achieved cannot be overemphasised and urgent efforts are required to ensure that all centres are equipped with at least one anterior vitrectomy machine. We did not explore how respondents manage PCO in children who develop it post-operatively, However, a common mode of management in Nigeria is YAG laser capsulotomy in children old enough to cooperate, otherwise, a surgical capsulectomy under general anaesthesia is performed [27, 28].

Second eye surgery

Same-day sequential bilateral cataract surgery in children is practised by more than half (58%) of paediatric cataract surgeons in Nigeria. Studies from Nigeria [29] and elsewhere [30] have found this practice to be cheaper and safe with minimal risk of endophthalmitis [31]. In resource-poor countries where insurance coverage is low, same-day sequential bilateral cataract surgery is worth considering to reduce the direct and indirect costs of childhood cataract surgery as well as prevent amblyopia due to delay in second eye surgery.

Among those who do not perform same-day sequential bilateral cataract surgery, about one-third scheduled the second eye surgery within two weeks of the first eye surgery while almost half scheduled it within two to four weeks. The age of the child is worth considering when scheduling surgeries to prevent amblyopia from prolonged visual deprivation. Although this survey did not seek to evaluate the uptake of second eye surgery in children, it is important for individual units to conduct audits on this and consider same-day sequential bilateral surgery if the uptake is found to be poor.

Use of postoperative steroids

The use of systemic steroids for the control of postoperative inflammation was evenly divided among respondents with about half giving systemic steroids while half of the respondents do not use systemic steroids. This is interesting and calls for multicentre observational research to compare the incidence of postoperative inflammation among those who use systemic steroids and those who do not. This will provide valuable information on the role of systemic steroids in the prevention of post- operative inflammation in our paediatric population.

Post-operative optical rehabilitation

Contact lenses are a desirable optical rehabilitation option in aphakic eyes, especially unilateral aphakia, due to minimal optical aberration, better binocularity, and reduced number of surgeries compared to early implantation of IOL [18]. However, only 10 respondents (24.4%) routinely prescribe contact lenses in aphakic children in this study. This could be due to challenges with the availability and cost of contact lenses in Nigeria. The majority (71%) of our respondents prescribe aphakic spectacles after refraction for bilateral aphakia while a minority (24%) give +10 dioptre spectacles without refraction. Going forward, there should be a departure from the arbitrary blanket prescription of +10 dioptre spectacle lenses for aphakic children, as the practice has shown that most of these children have spherical errors which are usually much higher than +10 dioptres. Suboptimal optical rehabilitation after cataract surgery puts these children at risk of amblyopia [14].

Near correction is an important aspect of care for children after cataract surgery, both in aphakic and pseudophakic children [32]. Good near vision is required to stimulate visual development, especially in young children and should not be overlooked after cataract surgery especially because accommodation is lost. Our survey shows that only 63% of paediatric cataract surgeons give near correction to children who are aphakic and 59% give bifocals in pseudophakic children. Our results suggest that respondents

who do not prescribe near correction are less likely to be paediatric ophthalmologists. Continuous medical education is important in this regard to ensure standards are met and that children receive optimal near vision rehabilitation after cataract surgery. This is a recommendation to the paediatric ophthalmology subspecialty group in Nigeria to scale up as appropriate.

Long-term follow-up care

Routine measurement of IOP during post-operative visits is still not a standard of care for about half of the respondents, as only 56% routinely measured IOP. In addition, most of the respondents do not measure central corneal thickness (CCT) postoperatively. There is evidence in the literature that lens-induced glaucoma is a complication of paediatric cataract surgery [12, 13, 33] as well as evidence regarding central cornea thickness changes post cataract surgery [34, 35]. To appropriately monitor and diagnose children with lens-induced glaucoma there is a need to incorporate post-operative IOP and CCT measurements in the tool kit of ophthalmologists providing post-operative care after paediatric cataract surgery in Nigeria. This will ensure prompt detection of those who may require further care and a properly adjusted IOP will prevent needless commencement of anti-glaucoma therapy in children with thick CCT due to corneal changes after cataract surgery.

CONCLUSION

The practice of paediatric cataract surgery in Nigeria is arguably of global standards in most respects, however, there are few areas for which training is required, as observed in our survey. Training of more paediatric ophthalmologists as well as even distribution of manpower is recommended for the sustainability of paediatric cataract services in Nigeria.

With regards to equipment, there is an urgent need to equip all centres providing cataract surgery for children with at least one anterior vitrectomy machine. This is a minimum requirement for proper posterior capsule and visual axis management in this population. In addition, making acrylic intraocular lenses affordable and readily available in the country is desirable.

Skillset scale up for excellent anterior capsule management, appropriate IOL power calculation, appropriate spectacle correction of aphakics and pseudophakics and long-term follow-up is required. This can be achieved through frequent continuous medical education activities and short-term local training programs which are currently available in Nigeria. We encourage specialists to embrace these training programs and government as well as non-governmental organisations to provide sponsorship in order to improve the standard of care offered to children. In addition, there is a need to develop a more detailed country-based, globally comparable set of practice guidelines which should be used by all who offer paediatric cataract services within Nigeria.

Limitations

This study is descriptive and did not seek to identify the reasons for the practice patterns observed. Such information may have highlighted the challenges encountered by centres and individuals providing these services as well as the training needs of individual surgeons.

SUMMARY

What was known before?

- Previously, there was no country-wide data on practice patterns in the management of childhood cataract among Ophthalmologists in Nigeria.

This study adds to knowledge in the following areas

- Number, distribution, and characteristics of ophthalmologists operating childhood cataracts in Nigeria.
- Specific preoperative, intraoperative, and post-operative practices in childhood cataract management in Nigeria.

DATA AVAILABILITY

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

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AUTHOR CONTRIBUTIONS

MOU designed the study, collected data and drafted the manuscript. OAA analysed the data and critically reviewed the manuscript. BAO and AMB designed the study and critically reviewed the manuscript. All authors approved the final version of the manuscript.

COMPETING INTERESTS

The authors declare no competing interests.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was carried out in adherence to the tenets of the Declaration of Helsinki. Ethical approval for the study was sought and obtained from the University of Ibadan/ University College Hospital Ethical Review Board. Informed consent was obtained from all respondents and information obtained from the respondents was treated with strict confidentiality.

ADDITIONAL INFORMATION

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