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Poor cataract surgical output: Eye care workers perspective in north central Nigeria

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Abstract

Background: Cataract remains a disease of priority being the leading cause of blindness globally. Although surgically curable, cataract surgical output has remained low in Nigeria, Kwara state inclusive. A study was carried out to investigate the perception of eye care workers (ECW) on low surgical output and their adjudged reasons; this has hitherto not being evaluated.

Materials and Methods: A cross-sectional quantitative survey with the aid of pretested structured questionnaire of all ECW and qualitative survey using in-depth interview on selected workers in Kwara State, Nigeria was done.

Results: A total of 142 out of the 157 ECWs (90.5%) working in the 14 surgical eye centers in the state were interviewed with a mean age of 40.37 years, SD ± 8.67. There were 94 (66.2%) females, with a female to male ratio of 2:1. 91 (64.1%) participants were of the opinion that the numbers of cataract surgeries in the state were inadequate. Hospital-based and human resource efficiency-related issues such as long clinic waiting time, multiple paying and procedural sites, poor staff mix, and gaps in available human resource were the major reasons given for low cataract output. Others reasons were high cost and fear of surgery, distance of eye clinics from patients.

Conclusions: Regular operational researches, proper deployment, and efficient use of human and material resources in addition to subsidized cost and appropriate health education to allay fear of surgery are steps that could enhance cataract surgical output.

Key words: Cataract surgeries output, eye care workers, barriers

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Introduction

Cataract accounts for approximately 50% of the world 37 million blind;[1] this is of great concern particularly in developing countries where at least 80% of the blind resides. In Nigeria data from the recently concluded national survey put the prevalence of blindness at 0.78% with cataract accounting for 42.9%.[2] In spite of this high prevalence of cataract blind in Africa and Nigeria, the number of cataract surgeries per million populations per year, cataract surgical rate (CSR) is put at 500 and 300 respectively for these two regions. This shows the region might be a long way from eliminating blindness from cataract. A target of 2000 CSR has been set for Africa to be able to clear the backlog of cataract, after consideration of the available resources and the present need[3,4] a value way behind the present CSR of 4000 in the United Kingdom and 3100 in India. Several studies in the past have looked at barriers to uptake of cataract surgeries from the patient's perspectives. Such barriers ranged from lack of awareness, cost of surgery, long distance to service points, poor surgical outcome[5-8] among others resulting in low demand.[9,10] In all of such studies the perspectives of the eye care provider, a key stake holder in the provision of cataract surgical service, is rarely evaluated. The eye care workers relate to the patients

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and can best assess both formal and informal reasons why a number of cataract blind encountered at homes or communities are not presenting and the presenting patients are not returning to take up surgery. In addition knowing the day-to-day workings of the eye surgical centers places the individual workers in the positions to know the ills of the system responsible for poor output. This study therefore aimed to harness the constraints faced by eye care workers in increasing cataract surgical output as well as assess the general knowledge of adequacy or otherwise of their cataract output. Identifying such constraints at various institutional levels has the potential of refocusing attention to critical issues and ultimately enhances the realization and implementation of Vision 2020 -- The Right to Sight.

Materials and Methods

The study was conducted in July 2008 among eye care workers (ECW) in Kwara state, Nigeria. The eye care worker in the study was taken as an employed individual who directly or indirectly provides promotional, preventive or protective eye care services continuously in the previous 6 months in eye clinic or hospital offering cataract services. The eye care worker cadres as found are as defined below. Cataract surgeons: Either ophthalmologists or diplomats. Ophthalmologists: Registered medical doctors with 4-to 6-year training in medical and surgical ophthalmology while diplomates are registered medical doctors with 18-month training in ophthalmology to provide cataract and glaucoma surgeries in secondary and primary level of care. Ophthalmic nurse: A general nurse with additional 1-year training in ophthalmic nursing trained to screen, diagnose, and treat basic eye conditions, support the ophthalmologist in patient care. Optometrists: 4-year university training in refraction and low vision management after secondary education. Refractionist: Eye care worker with 6-week training in basic refraction, not presently recognized by the government as a cadre in Nigeria. Project managers: Personal trained in management and administration with specific emphasis on eye care service delivery. General nurse: A training in basic nursing and midwifery, works, and receives on the job training in ophthalmic nursing. Primary health care worker: A community health worker with on the job training of treating minor ocular disorders and referral of cases. Primary eye care worker: A community health worker placed at the primary level of care with short training of 1 week on health education, treatment of minor ocular disorders, and referral of cases. Administrative staff: Secretary, typist. Supporting staff: Drivers, security, messengers, cleaners.

The study employed a descriptive cross-sectional survey using both quantitative and qualitative tools. Ethical approval for the study was obtained from London School of Hygiene and Tropical Medicine and the University of Ilorin Teaching Hospital. Oral informed consent was obtained from individual participants in the study. The study was preceded with advocacy meetings, obtaining permission from relevant hospitals authorities before collection of data from ECW. The research team comprised one ophthalmologist, two resident doctors and three research assistants. The research team held briefings to familiarize with the study objectives, questionnaires and also highlighting the importance of confidentiality. A pilot study was conducted among the eye care workers (ECW) in a tertiary hospital in Ilorin, following which the questionnaires were adjusted as found necessary.

Quantitative data collection

Pretested questionnaires were administered to consenting eye care workers in all the 14 surgical institutions offering cataract services in the State. The questionnaires were filled without interference except where the respondents asked for clearance or information. The filled questionnaires were immediately checked for completeness and appropriateness and collected information on age, gender, cadre, view on cataract surgery outputs, constraints, and barriers to improved cataract surgeries. Where necessary the questionnaires were returned for corrections. Data were analyzed using SPSS, frequency tables were generated for variables, and chi-square was used to examine the statistical significance of proportions at 95% confidence level.

Qualitative data collection

The in-depth qualitative interview was conducted by the Ophthalmologist with selected 11 ECW on their satisfaction with the available level of cataract surgery and constraints to increasing CSR in Kwara State using semistructured interviews with open-ended questions. The 11 selected eye care workers were from the tertiary hospital with lower cataract surgical output per year of 282 (2007) and Kwara Eye Care Programme (KECP) a State government owned eye care supported by Sight Savers International which has higher output 1850 cataract surgeries per year.[11] Selected individuals include two ophthalmologists and nine ophthalmic nurses from the two institutions that are the major employer of eye care workers, Figure 1. The qualitative research was used to supply in depth information on constraints to improving surgical output that might not have being listed in the quantitative questionnaire, also allowing the respondents to express their views without limitation. The discussion was recorded by digital voice recorder and also documented in a notebook. The following were steps used in analyzing the qualitative data: (1) interviews were transcribed from notebooks and jottings and record tapes, (2) familiarization and immersion to understand key ideas and themes, (3) coding of the transcribed information: The code was derived from cadre, sex, and assigned interview number for instance, ONF05.27 connotes the transcript of ophthalmic nurse, female, number 5, transcribed information on page 27, (4) reimmersion, (5) extraction of main themes using color coding in line with the study objectives of assessing the perception of this category of stake holder on and the reasons for the low surgical output, (6) grouping of themes into main responses, and (7) write up.

Result

A total number of 142 (90.5%) ECWs out of 157 eligible in all the 14 surgical eye centers across Kwara State, Nigeria were surveyed and the different cadres and subdivision of employers are as shown in Table 1. Six persons declined participation and nine could not be reached after at least three attempts due to the absence on annual leave or outside training; they were fairly distributed across the three subdivisions of employers. The mean age of the 142 workers was 40.37 years (SD ± 8.67 years), 94 (66.2%) were females. Majority 91 (64.1%) of the ECWs were of the opinion that the number of cataract surgeries carried out in Kwara state were inadequate. At institutional level 84%, 55%, and 45% of the workers in the tertiary, state, and private respectively agree to inadequate surgical out. This difference was statistically significant [Figure 2]. The opinion on possible constraints to increasing CSR is as shown in [Table 2]. On multivariate regression, cumbersome service processes in the hospitals, long waiting time in clinics before assessing surgery, high cost of surgery, long distance of eye clinics from patients, and patients' fear of surgery were found to be statistically significant ($P < 0.05$) Table 2.

Qualitative Result

A total of 11 ECW, 2 ophthalmologists, 9 ophthalmic nurses had an in-depth interview on their satisfaction with the available level of cataract surgery and barriers to increasing CSR in Kwara State.

The interviewees (Selected ECW) perspectives of Adequacy of number of cataract surgery

Adequacy of surgery

Most interviewees in the high-output center admitted an inadequate number of cataract surgery as at the time of this study but believed that it was better than that in the recent past due to availability of low-cost surgery provided by the KECP. On the other hand, the interviewees in low-output center admitted strongly to low cataract output. One interviewee in the low-output center remarked: "*I do not know how much cataract surgery we should be doing but we are not doing much, the number of surgeries is just too low (ONF05.6)*." Another interviewee in the low-output center had a contrary view: "*We place too much emphasis on cataract surgery, remember we are not only providing service here we are training and doing research, I do not think we are doing too bad, how many surgeons try to go into community to perform operation as we do (OSM06.15)*."

The interviewees' perspectives on constraints to increasing CSR

Ranked in order of frequency were *(a) bad service delivery, (b) the cost of surgery, (c) human resource, (d) fear of surgery, and (e) bad outcome*.

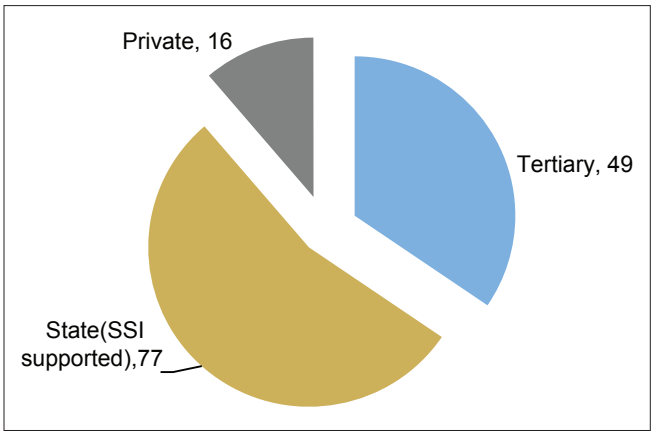

Figure 1: Distribution of eye care workers by health facilities SSI connotes Sight Savers International

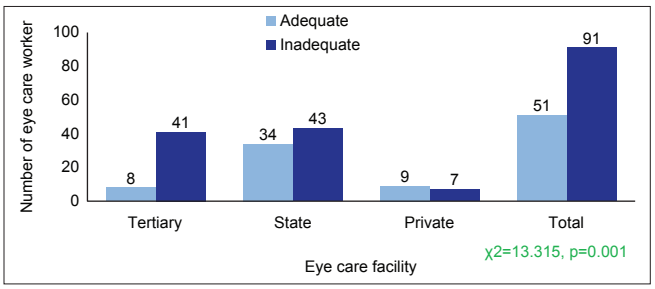

Figure 2: Distribution of eye care workers on adequacy of cataract surgeries

Table 1: Distribution of surveyed eye care workers by cadres

Cadre of eye care worker	Number	%
Cataract surgeons	11	7.7
Trainee ophthalmologists	15	10.7
Optometrist/refractionist	09	6.3
Ophthalmic nurse/general nurses	72	50.7
Eye care managers	2	1.4
Equipment technicians	2	1.4
Others	31	21.8
Total	142	100

Others: Secretaries, drivers

Bad service delivery

Bad service resulting to low efficiency was the major recurrent reason put forward as a cause of low output; more than one of the issues bordering on efficiency came from all interviewees. The bad services were as a result of *(i) long waiting period, (ii) cumbersome procedures, (iii) location and space*.

Long waiting period

Most interviewees observed patients waited for too long to access eye care on each occasion. One interviewee lamented: "*We should not deceive ourselves our patients wait for too long when they come, just sitting down and doing things not related to actual consultation but what can we do it is*

Table 2: Eye care workers' opinion on possible barriers to increasing CSR

Barriers	Opinion	Tertiary *n*=49 (%)	State *n*=77 (%)	Private *n*=16 (%)	X^2 (*P*)
Patients' fear of surgery	Yes	22 (44.9)	50 (65.8)	11 (68.8)	6.10 (0.047)
	No	27 (55.1)	26 (34.2)	5 (31.2)	
Eye clinic too far	Yes	17 (34.7)	12 (15.6)	4 (25.0)	6.20 (0.046
	No	32 (65.3)	65 (84.4)	12 (75.8)	
High cost of surgery	Yes	35 (71.4)	40 (51.9)	5 (31.2)	9.20 (0.010)
	No	14 (28.6)	37 (48.1)	11 (68.8)	
Inadequate manpower	Yes	18 (36.7)	29 (37.7)	6 (37.5)	0.10 (0.990)
	No	31 (63.3)	48 (62.3)	10 (62.5)	
Bad visual outcome	Yes	6 (12.2)	17 (22.1)	0 (0.0)	5.60 (0.600)
	No	43 (87.8)	60 (77.9)	16 (100.0)	
Poor service awareness	Yes	18 (36.7)	18 (23.4)	6 (37.5)	3.10 (0.211)
	No	31 (63.3)	6 (37.5)	10 (62.5)	
Long waiting time	Yes	35 (71.4)	55 (71.4)	3 (18.8)	17.40 (0.000)
	No	14 (28.6)	22 (28.6)	13 (81.2)	
Inadequate equipment	Yes	26 (53.1)	47 (61.0)	5 (31.2)	4.90 (0.089)
	No	23 (46.9)	30 (39.0)	11 (68.8)	
Poor attitude of staff	Yes	13 (26.5)	16 (20.8)	1 (6.2)	3.00 (0.224)
	No	36 (73.5)	61 (79.2)	15 (93.8)	
Alternative service	Yes	39 (79.6)	59 (76.6)	14 (87.5)	0.96 (0.620)
	No	10 (20.4)	18 (23.4)	2 (12.5)	
Service processes are cumbersomew	Yes	36 (73.5)	59 (76.6)	2 (12.5)	26.01 (0.000)
	No	13 (26.5)	18 (23.4)	14 (87.5)	

the system ('abi') (ONF08.32)." Probing to points of delay revealed the time taken to collect card and pay money made worse by the fact that all patients to be seen each day must report by 7 am.

Cumbersome procedures

The process involved was difficult; this opinion was more expressed by the interviewees in the low output center. The various service points like ward, theatre, revenue point, and laboratory were placed far from one another particularly in the base hospitals. Patients had to navigate round the hospitals without direction or guidance. It could be daunting for newcomers. One interviewee lamented: '*I only understand the frustration faced when I have a relation coming for service. Hen have you tried doing blood test in this hospital you will come several time you will be going up and down 'bi okun sokoto' (like the redundant part of the rope used in holding trouser in place) and at the end you are only lucky if the result is found (ONF09.28)*." Many staff members prefer and believe patients will also prefer higher charges if it will ease access of service. However, one interviewee gave reason for patients' continued patronage: "*But you know we believe the outcome is better here in the teaching hospital, there are many good surgeons that is why we still manage to bring our relations (ONM01.3)*."

Location and space

Most interviewees bemoaned space constraint in clinic waiting room, consultation, and bed space particularly in the low-output center. There was no privacy during consultations for patients. One interviewee remarked on an important adaptation to the challenge: "*We have only 12 beds and sometimes patients do not get a bed for surgery, now we do some of our cases as day case; this is helping a little (ONF10.28)*."

The cost of surgery

The issue of the cost centered on the fact that the cost of surgery particularly in the private and tertiary centers was too high or that the main issue was that there were alternatives since the cost of surgery in the state was perceived to be the lowest in Nigeria. Cost as a major barrier was a recurrently raised issue; the old people needing surgery were not gainfully employed and were not getting any pension or government subsidy so they relied on children/relations for help. The subsidy within KECP was seen as the major reason for the increasing output over the last few years. Two interviewees from high output center remarked: (1) "*See the people are very poor, even with the small amount they are paying here at KECP, we still see many who are unable to pay (ONF11.33)*." (2) "*The people are poor and so they go for cheaper alternative, each time there is free eye surgery announced you will see so many cataract blind and you struggle to pick some, I think many actually wait for such time (ONF04.26)*." One interviewee from low output center remarked: "*There must be a way to subsidize surgery for all adult above 55 year or even provide surgery free, the insurance scheme should cover such although presently only government workers are participating you see (OSM06.16)*."

Human resource

There was clear dichotomy of response to many themes regarding human resource. The interviewees from low cataract output center however felt there was the need for more nurses while agreeing that other cadres of health care workers such as ophthalmologists were probably adequate. One interviewee from low output center lamented: "*Now we have to run the permanent and the temporary (hospitals sites) together the number (of nursing staff) which was inadequate running only the temporary now manage the two, something has to be done, we are suffering (ONF05.7)*." Another interviewee from low output center commented on poor staff mix: "*The ratio of nurses and resident doctors (trainee ophthalmologists) to consultant is low, how can we effectively work like that (OSM06.13)*." Some interviewees (nurses) in low output center bemoaned inappropriate use of nurses in eye department. One of them submitted: "*We have no enough eye nurse yet the little number trained are working to care for other patients in the wards, some are posted completely out from eye clinic and each time we complaint they say 'sebi' you are first a nurse before doing ophthalmic nursing (ONF…)*." The only time issue of staff was raised by any member in the high output center was in the occasional transfer of nurses which can happen at any time by the state government to centers where there were no eye care services. One interviewee from the high-output center remarked on the helpless situation: "*Sometimes transfer occurs and one of your best nurses is taken to a centre where we do not have cataract service, what do you do, live goes on (OSM07.10)*."

Fear of surgery

All the interviewees stated that fear of cataract surgery kept many patients from surgery due to wrong information they had received or just the mere thought of performing surgery on a perceived delicate organ as eye as experience from the responses of patients to offered surgery during counseling.

Bad outcome

Most interviewees felt that the outcome of cataract surgery was good and many of their patients left feeling happy after surgery. Some noted that the bad outcome still occurs and the few ones with bad outcome stop others coming. One interviewee noted: "*It appears bad outcome get more publicity and some of them have other problem leading to the poor outcome like glaucoma but as far as they know after surgery they are not seeing better (ONF03.21)*."

Discussion

In general, higher percentage of the eye care workers (64.1%) agrees to low surgical output in the state. This opinion is highly so in the low-output center particularly the tertiary hospital. This finding is paramount as it can be taken as awareness of the problem, a vital baseline requirement for any attempt at increasing the numbers. Although from the qualitative survey, it was gathered that numbers are increasing compared to the past years as a result of concerted effort to improve surgical output, a lot more needs be done. Preventing blindness from this curable most common cause of blindness is a priority of Vision 2020 -- The Right to Sight.[12] This study primarily hopes to provide reasons for the present output and make appropriate recommendations. Several studies on barriers to cataract surgical uptake in the past mainly documented constraints from patients' perspectives.[5-10] Such identified barriers include lack of awareness, bad output, cost, and distance. Additionally Finger RP noted that lack of personal fund and dependence on decision making are additional factor creating barrier to surgery[13] These findings report mainly the views held by many potential cataract surgery clients who have not presented to any surgical center. In this study, the eye care providers revealed major challenges: a number of potential clients having crossed the barriers of lack of awareness, far distances of service point will contend with on arrival at the various surgical centers. The findings from the quantitative tool show that 54.4% and 53.8% of the workers were of the opinion that service processes are cumbersome with various procedural and paying sites often placed far apart and there is undue long waiting time respectively. This position is however mainly from the tertiary centers and the state hospitals; the private sector believed that the services are user friendly and with minimal waiting time. This difference in opinion was statistically significant and this corroborates anecdotal evidence of why patients may prefer to patronize private setup even though costs of services were higher. Cumbersome service processes in the hospitals, long waiting time in clinics are not routinely highlighted in previous studies on barriers to cataract surgery as many of such studies evaluated barriers from community patients who have not presented to the clinics. The clients who have experienced these inconveniences will however take back this report to their community with the potentials of debarring other would be clients as well as prevent return for uptake of surgery after initial consultations, particularly as patients often present couple of times before surgery is offered. In Nigeria, critical look must be made into patient waiting time for consultation. It is not unusual for patients to wait 4--8 hours or more to get a review, not many gainfully employed persons will be willing to sacrifice such time routinely?

Staggered appointment could help reduce the long waiting time as well as critical analysis of points of delay with the aim of redressing the causal factors. Either staff training or retraining, additional staffing, equipment and material improvement as the case may be could be effective. At institutional level, operational management and regular review of service delivery must be instituted. Staff opinion on how to improve service delivery must be annexed and addressed regularly. This will help address the issues relating to cumbersome service delivery as well as long waiting time. Studies using ghost clients where the eye care workers could

assume the position of our clients and go through the routine as any client would had be shown to be beneficiary.

Another constraint to improving surgical output was the high cost of surgery; only the private sector workers felt that the cost of surgery was affordable. These direct and indirect costs of cataract surgical services as pointed out by ECW are known barriers to increasing CSR in resource limited communities across the globes[6-9] and therefore cannot be overemphasized. In the center with high output one major difference is the cost of surgery, about a third of what is paid in the tertiary center and a fifth of that of the private sector. Day case surgery to circumvent space problems may be preferred by many cataract patients as it could reduce direct and indirect cost[14,15] The cataract blind patient is often an aged, poor, dependant and from the have-nots in the community; such individuals would require "assistance" to restore vision. The tiered or cross-subsidization form of patient fees has been practiced extensively in India[16] and other Asian countries. This ensures revenue generation for the program, as well as service to the poor in the community, without compromising quality. However, there are doubts whether this will work in a typical African setting for cataract services but should be tried. Advocacy to the government to increase health care financing, to philanthropists to support subsidized care for the poor and good management and leadership for the program are some strategies to ensure a functional and affordable cataract surgical service. Majority (81.2%) of workers in the three service groups, tertiary, state, and private sectors gave the opinion that the cataract patients had alternative service points and so they are not presenting in adequate numbers. What these alternatives are need to be evaluated as all cataract service points in the state were included. A study in Ghana looks at the alternative patronized by cataract patients and found couching high on the list, the survey of blindness and visual impairment also reported a high rate of couching[17,18] in Nigeria. Other possibilities are visiting other cities or states for surgery or living with cataract blindness. Fear of surgery was also a significant finding as 59.8% of the staff cited fear as a major reason why output is low. Getting patients to know about cataract surgery through use of counselor, audiovisual aids, and using patients who have had successful cataract surgery would help allay fear of cataract surgery an important barrier identified by ECWs. Often, patients are not given adequate information and wrongly assumed to have some information about the planned procedure; this adds to the fear the patient have.[19] The eye care workers do not believe that poor staff attitude to work, poor service awareness, and bad visual outcome 1.4% are constrains to increasing surgical output in the state. Although a community-based study from the recently concluded national survey revealed poor surgical outcome, this is a reflection of all cataract surgeries done and depict what the community perceive as our output. These data need be made widely circulated and individual institutions should also be involved in regular monitoring and long-term follow-up review. The hospital review of outcome in Ilorin and Ibadan[20,21] revealed good outcome; in these studies the maximum follow-up was a year. Longer time follow-up and community survey regularly on visual outcome will be more illuminating. Every patient undergoing cataract surgery is expecting sight restoration following surgery. Unfortunately, bad outcomes do occur even in the best of settings. However negative impact of bad outcomes is likely to outweigh the positive effects of good outcomes; it is essential that precautions be taken to reduce bad outcomes to a negligible level. Every aspect of the patient selection for surgery, minimal surgical complications, proper biometry, and refraction after surgery as well as timely attention to sequel of surgery should be addressed to reduce numbers of poor outcome. Instituting a routine personal surgeon and institutional monitoring of cataract surgical outcomes in our hospitals will help to objectively assess and improve our quality of care[22-24] Close to half of the respondents (48.8%) believe that inadequate equipment is also responsible for the low output. Since then the state had witnessed significant improvement in equipment supply, it is hoped that this will translate to improve numbers. The qualitative in-depth interview with ECWs corroborated issues of cost, cumbersome service delivery, and fear of surgery as important barriers as well as gave profound insight into the day-to-day issues regarding human resource-related issue. The numbers were deemed adequate as in the quantitative survey, but staff mix, gaps in the cadres, distribution and staff motivation, inappropriate work schedule, and staff postings were challenges limiting surgical output as recently published.[11] Health administrators of hospitals, especially in those that are multidisciplinary, as in this study, should deploy ophthalmic trained staff to where their services will be put to optimal use, thereby ensuring good task-to-skill matching. Training toward a job function would improve efficiency and optimize returns. The patients are also likely to detect and appreciate skilful personnel. Deploying an ophthalmic nurse to nonophthalmic unit is counterproductive and represents an inefficient utilization of available human resources.

In the course of this research it is noted that individual workers have these information but there is a need for collective review systematic data collection and analysis in order to attend and institute the appropriate corrective measure. This study was not without its limitations; for instance, qualitative study findings may not be statistically generalizable since the sample was not randomly drawn for the ECW and the number of interviewees was small. Aside this, some of the investigators and respondents were costaff of one of the institutions in this study; this might have introduced some response biases. However, efforts were made to minimize these by constantly reminding the respondents that the result was to help improve service provision and that confidentiality would be maintained.

Conclusion

The barriers to increasing CSR from ECWs perspective were patient, institution, and ECW related; timely attention to these constraints could improve our cataract surgical output not only in Kwara state but other institutions with similar settings.

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