Ophthalmic Skills Assessment of Primary Health Care Workers at Primary Health Care Facilities in Rural Communities in Cross River State, Nigeria

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Abstract

Primary eye care is at the frontline in the elimination of the avoidable causes of blindness. Proficiency in the basic ophthalmic skills is a critical factor in the effective delivery of eye care services at the primary level of care. The aim of the study was to assess the ability of the primary health care workers to provide basic ophthalmic services at primary health care facilities. A semi-structured questionnaire was administered to 146 health providers in twelve primary health care facilities in Cross River State. Multi-stage random sampling technique was used in the selection of respondents for this study. The ability of the health providers to carry out visual acuity test and correctly identify cataract and conjunctivitis using pictures of eye conditions and patients complaints was also assessed and scored. Ethical approval was obtained from the ethics committee, Ministry of Health, Cross River State. Data were analysed using SPSS version 20.0.1. Majority of the participants could not perform the visual acuity test 126(86%). Their ability to correctly identify cataract and conjunctivitis were 78(53%) and 45(31%) respectively. Majority of those who showed the ability to perform some of the tests had previous training in primary eye care. The workers attributed the high failure rate/low score to lack of follow-up and inadequate duration of training on eye care, which was just for one day. The ophthalmic skills and knowledge of the primary health care providers were generally poor. This calls for a review of the strategy for the integration of primary eye care services into the existing primary health care system.

Key words: primary, skills, eye care, assessment, ophthalmic

Introduction

Globally, about 285million people are either blind or visually impaired. Of this number, 90% is said to be in developing countries[1]. In Nigeria, a national survey in 2008 revealed that about 4.2 million people are either blind or visually impaired[2]. Also, the prevalence of blindness in Cross River State is 0.8% across all age group[3]. An important similarity amongst these studies was that 80% of all causes of blindness were *preventable*. Prevention of diseases is the hallmark or goal of primary health care (PHC). Primary health care has been identified by the World Health Organization (WHO) as the frontline of defense in tackling health care problems and many countries including Nigeria have adopted this.

Primary eye care (PEC) as an integral part of primary health care (PHC) is a key strategy that was adopted by the national health programs on the recommendation

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of the WHO. It includes promotion of eye health and provision of basic preventive and/or curative treatment for common eye disorders[4]. Primary eye care involves eye health promotion, treatment of simple eye diseases, identification of persons needing specialist eye care followed by prompt referral[5,6].

The content of PEC delivery is country specific, depending on the available resources and facilities. Although the content and human resource for PEC is yet to be prescribed both at the national and state levels in Nigeria, the primary goal of PEC which is the elimination of avoidable blindness requires the development of human resources and infrastructure at all levels[7]. Findings from East Africa showed that the percentage of PHC workers who received training in eye care was 34% in Tanzania, 97% in Kenya and 48% in Malawi.

To effectively deliver primary eye care services, primary health care providers must possess the necessary ophthalmic skills which should include the ability to perform visual acuity (a very important indicator of eye health), identify common ophthalmic conditions such as cataract and conjunctivitis. This study is an assessment of the ophthalmic skills of health providers in the primary health care centers in Cross River State, Nigeria.

Methodology

Cross River State (CRS) is one of the 36 states in Nigeria. The state is located in the south-south geopolitical zone. The state has an estimated population of 3.1million persons (2006 census figure). CRS is made-up of 18 local governments (LGA) areas each with its separate administrative council. Politically, the 18 LGAs in the state are grouped into three senatorial zones namely southern, central and northern zones. Each senatorial zone is made up of six LGAs. There are 567 PHC centres/facilities in CRS with at least one PHC centres in each community/ward in the LGA (CRS Ministry of Health, Department of health statistics, June 2010).

The study was a descriptive cross-sectional study. A total of 146 staff from 12 PHC facilities, 4 PHC facilities from each senatorial zone participated in the study. A multi-stage random sampling method was used in the study to select PHC facilities in communities in CRS. First stage sampling was the selection of one LGA randomly from a list of LGAs in each of the three senatorial zones. In stage two sampling, since there is at least one PHC in a ward, four wards were selected per LGA using the simple random technique. In the third stage selection, one PHC was randomly selected, from each of the selected wards. In all, a total of 12 PHC centers (4 per zone) were sampled.

A pretested semi-structured questionnaire was administered to all health providers at the PHC facilities The questionnaire had two sections. Section A – for the demographic details of the health care provider with six questions. Section B – focused on primary eye care skills assessment including the ability to recognize and manage cataract and conjunctivitis using a scoring system, the ability to perform visual acuity using a scoring system was done. Knowledge of the use of an ophthalmoscope, retinoscope, and tonometer was assessed using a Scoring system (Table 1).

Points were awarded for demonstrating how to perform visual acuity using a Snellen chart, identifying the correct distance for text, measuring each eye separately, recording and interpreting the results. Testing ability to recognize and manage two eye conditions (cataract and conjunctivitis) was done using pictures with a brief history of condition presented by the examiner.

Statistical package for social sciences (SPSS) version 20.0.1 was used for the data analysis. Data were presented in frequency tables. Ethical approval was given by the CRS health research ethics committee before the commencement of the research. Consent from health care providers was obtained verbally.

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Table 1: Score and Grade system for assessment of ophthalmic skills of PHC provider.

Score system for cataract and conjunctivitis identification test	Score(points)
Cannot describe the condition	0
Can describe the condition	2
Can name the condition	6
Can describe treatment	2
Score system for visual acuity Test	**Score(points)**
Identify correct distance	2
Tested one eye at a time	2
Correct recording of result	2
Correct interpretation of result	4
Score system for equipment identification and use test	**Score(points)**
Cannot name equipment	0
Can name equipment	2
Can describe use of equipment	2
Can use equipment	5
Overall Grade system for the PHC providers	
Points/score	**Grade**
0 – 1	Poor
2 – 3	Fair
4 – 6	Good
7 - 10	Very good

Results

A total of one hundred and forty-six health care providers were interviewed using the questionnaire. The result shows that 136 (93.2%) were females, 27 (18.5%) were 20 – 29 years, 53 (36.3%) were 30 – 39 years, 56 (38.4%) were 40 – 49 years and 10 (6.8%) were 50 – 59 years. Most, 85 (58.2%) were community health extension workers (Junior and Senior), 19 (13%) were nurses, 14 (9.6%) were Community Health Officers, and 8 (5.5%) were Medical Laboratory Technicians. There were 3(2.1%) General practitioners, 2 (1.4%) were Pharmacy Technicians others included a social worker (0.7%), ward orderly? 12 (8.2%), volunteer 1 (0.7%) and medical recorder 1 (0.7%). The general practitioners (GP) were not stationed in one health facility. Each GP covered six LGA, moving from one centre to another as the need arose. The Pharmacy Technicians were seen in only two out of the 12 health centres visited. Also, there was no ophthalmic nurse nor any trained eye care worker in all the centres visited. The proportion of workers who have been working in the center for less than one year were 16 (11%), 1- 3 years were 49 (33.5%), 4 – 6 years 41 (28.1%) and 7 years and above were 40 (27.4%). The number of staff who had training on primary eye care were 8 (5.5%), while those who provide basic eye care services were 14 (9.6%) (Table 2).

Of the 146 health workers assessed, 126 (86%) could not perform visual acuity test. Only 2(1.4%) of the participants had knowledge of the use of an ophthalmoscope, while none had a fair knowledge of the use of the retinoscope and tonometer. Seventy eight (54%) of the health workers passed the cataract knowledge score test, while 45 (31%) could identify conjunctivitis. Two out of the three General Practitioners were not available for assessment, due to itinerant nature of their engagement (Table 3).

Table 2: Demographic characteristics and description of primary health care workers/providers.

Characteristics	Frequency (n = 146)	Percentage (%)
Sex		
Male	10	6.8
Female	136	93.2
AGE (in years)		
20 – 29	27	18.5
30 – 39	53	36.3
40 – 49	56	38.4
50 – 59	10	6.8
OCCUPATION/PROFESSION		
General Practitioner	3	2.1
Nurse	19	13.0
Community Health Extension Worker	85	58.2
Community Health Officer	14	9.6
Pharmacy Technician	2	1.4
Medical Laboratory Technician	8	5.5
Social Worker	1	0.7
Ward Orderly	12	8.2
Volunteer	1	0.7
Medical Recorder	1	0.7
NUMBER OF YEARS OF SERVICE		
<1 years	16	11.0
1 – 3 years	49	33.5
4 – 6 years	41	28.1
7 years and above	40	27.4

PROVIDE EYE CARE SERVICES		
Yes	14	9.6
No	132	90.4
HAD TRAINING IN EYE CARE		
Yes	8	5.5
No	138	94.5

Table 3 : Basic Ophthalmic Skill Assessment of Primary Health Care workers

Variable	Skill assessment	Frequency N = 146	Percentage (%)
Visual Acuity test	Poor	126	86.3
	Fair	11	7.5
	Good	4	2.7
	Very Good	3	2.1
	Not indicated*	2	1.4
Ophthalmoscopy	Poor	142	97.2
	Fair	2	1.4
	Not indicated*	2	1.4
Refraction	Poor	144	98.6
	Not indicated*	2	1.4
Tonometry	Poor	144	98.6
	Not indicated*	2	1.4
Cataract	Poor	66	45.2
	Good	78	53.4
	Not indicated*	2	1.4
Conjunctivitis	Poor	99	67.8
	Good	45	30.8
	Not indicated*	2	1.4

***Two participants were absent**

Discussion

A total of one hundred and forty six primary health care services providers participated in the study. Majority of the workers in the PHC were community health extension workers. This finding was similar to the study by Eze and Maduka-Okafor[8] in south-eastern Nigeria, where they reported that majority of the health care work force in PHC facilities were community health extension workers. It is important to note that there was no optometrist, ophthalmic nurse or any other especially trained eye care professional in any of the sampled health facilities. Females dominated the PHC work force, representing at least 80% of the work force. This perhaps reflects the gender sentiment associated with nursing and nursing related professions.

The number of workers who reported receiving training on eye care was low (9.6%). This is in contrast to the finding of Kalua et al[9] who reported much higher numbers of trained health workers in the East African countries of Tanzania (34%), Kenya (97%) and Malawi (48). This low level of training may also explain why there was a correspondingly low number of staff who reported providing basic eye care services at the PHC facilities. This finding also implies that an "overstepping" of competence which was a source of concern in the East African countries was not reflected here as the number who reported providing eye care were lower than those who had received training. Onakpoya et al[10] in a study in south-western Nigeria found that none of the PHC workers had received any in-service training on primary eye care.

In this study, the ability of the health care providers to carry out visual acuity was found to be very low. This is of critical importance as visual acuity is a critical indicator of health status of an eye and ought to be part of the routine procedure for every patient visiting the PHC facilities. Low scores were also recorded in Tanzania, Kenya, and Malawi[9]. Only two health providers had knowledge of the use of an ophthalmoscope, while none had any knowledge of the use of tonometer and retinoscope. Cataract is a major cause of blindness in Nigeria, yet about half of the workers at the primary health could not identify it. Also less than half of the workers could identify conjunctivitis which is the most common cause of red-eye.

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Those who had training on PEC but failed the test complained about the short length of training (one day), as inadequate and lack of follow up on those trained. This clearly indicates the need for review and update of primary health workers curriculum. The one day in-service training of primary health care workers on PEC in Cross River State, Nigeria, is low when compared with that of some other countries. In Pakistan, for instance, the primary eye care training is a course of an initial one week and then 2-3 days refresher courses every 6 – 12 months. While in Malawi, training ophthalmic medical assistant involves a one year course offered to medical assistants, clinical officers, and nurses at the Lilongwe school for health sciences[9].

The findings from the study show a weakness in the provision of primary eye care services at the primary health care facilities in Cross River State. This weakness in primary eye care services provision, which is also witnessed in East African countries, is perhaps one of the reasons why the burden of avoidable blindness keeps increasing in Sub-Saharan African. The ineffectiveness in providing primary eye care services can also explain the inappropriate presentation of primary eye care cases in many tertiary eye care facilities in Nigeria[11]. Training of frontline health workers (Nurses, Junior Community Health Extension workers, Senior Community Health Extension workers, Midwives) at the primary health care facilities on basic eye care is in line with the Federal government of Nigeria Task shifting and Task sharing policy. This would improve accessibility, quality, and availability of primary eye care services to the underserved communities.

Conclusion

The elimination of avoidable blindness requires the development of both human resources and infrastructure. However, in a country that is not technologically advanced, coupled with the challenges of scarce resources, it may be wiser to focus more on human resource development as it will allow for the maximum use of already available technology. This is necessary if we must meet up with the global eye care action plan of reduction of visual impairment by 25% in 2019.

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