ORIGINAL ARTICLE

Making a difference with Vision 2020: The Right to Sight? Lessons from two states of North Western Nigeria

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Abstract

Settings and Aim: The World Health Organization launched in 1999 an initiative to eliminate the global avoidable blindness and prevent the projected doubling of avoidable visual impairment between 1990 and 2020 (Vision 2020: The Right to Sight). The World Health Assembly (WHA) adopted resolutions WHA 59.25, WHA 56.26 urging member states to adopt the Vision 2020 principles. More than 90 nongovernmental development organizations, agencies, and institutions, together with a number of major corporations, are now working together in this global partnership. Two neighboring states in North Western Nigeria provide eye care services using different approaches; one state uses the principles of Vision 2020, the other uses a different strategy. The aim of the study was to assess awareness and utilization of eye care services in two Nigerian states.

Design: A population-based cross-sectional interview of households was conducted in two neighboring states using a structured questionnaire. Data analysis was performed using SPSS version 21 and a $P < 0.05$ was considered as significant.

Findings: Participation rate was 97% in the two states. The population in the Vision 2020-compliant state were significantly more aware about general eye care services (80% vs. 44%, $P < 0.0005$); had less proportion of households unaware of any eye care service (55% vs. 69%, $P < 0.0005$); and have a significantly higher felt the need to utilize eye care services (47% vs. 5.9%, $P < 0.0005$). The service utilization rate was however low in the two states.

Conclusion: The principles of Vision 2020: The Right to Sight is adaptable to different cultures/societies and has demonstrated a potential to increase awareness and a felt need for eye care in poor resource settings.

Key words: Eye care services, Nigeria, service utilization, Vision 2020

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Introduction

The World Health Organization (WHO) launched Vision 2020: The Right to Sight in 1999. This is an initiative to eliminate the global avoidable blindness from cataract, trachoma, onchocerciasis, refractive error, vitamin A deficiency, and other causes of blindness in children by the year 2020.[1] The initiative was also aimed at reducing the global burden of blindness from 75 million to < 25 million people by 2020. The initiative follows the experiences of WHO and a group of nongovernmental development organizations (NGDOs), on cost-effective eye care delivery systems in several countries in the 1980s and 1990s, including India and the Gambia.[2] The goal of Vision 2020 is to enable all persons to receive eye care and have the right to sight - which is one of their fundamental human rights.[2]

The World Health Assembly (WHA) adopted resolutions WHA 59.25, WHA 56.26 urging member states to adopt

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the Vision 2020 principles.[1] These principles are human resource development, infrastructure and technology development, disease control, advocacy, and partnerships and collaboration among stakeholders in eye health. More than 90 NGDOs, agencies, and institutions, together with a number of major corporations, are now working together in this global partnership.[2]

In Nigeria, the National Eye Health Program (formerly, National Program for the Prevention of Blindness) works with all stakeholders (governments and NGDOs) in establishing, strengthening and advancing the Vision 2020 program with shared responsibilities defined at the national, zonal, state, local, and community levels.[3] A national blindness survey conducted between 2005 and 2007, reported an estimated all-age prevalence of blindness of 0.78%; and prevalence of 4.2% in persons 40 years and above.[4] In an effort to provide eye care services to the population, the governments of two neighboring states (Sokoto and Kebbi) in North Western Nigeria are collaborating with international NGDOs in the provision of eye health services.

In Sokoto state that collaborates with one NGDO, vertical eye care services (onchocerciasis-1996, cataract-2000 and trachoma-2003,) were integrated into a program named the Sokoto state eye care program that took off in 2005.* The program strategies are based on the Vision 2020: The Right to Sight principles that include human resource development, infrastructure development with appropriate technology, disease control, community participation and ownership, and financial sustainability. The diseases focused for control include cataract, trachoma, refractive error and low vision, glaucoma, onchocerciasis, and inclusive education. Indigenous personnel implement the program. An evaluation performed at the end of the first 5 years of the program by an independent external team described the Program in the state as sustainable, integrated and providing equitable eye care services with potential for excellent services that is accessible within 60 km.†

In neighboring Kebbi state however, the collaboration was with two NGDOs each focused on different blinding conditions: That is onchocerciasis control program, "free" cataract surgery and trachoma control programs, that took off in 1996, 2002 and 2003, respectively. While indigenous personnel implement the programs on onchocerciasis and trachoma, nonindigenous ophthalmologist provides cataract service. The planning for human resource development, infrastructure development and community participation and ownership were not clearly spelt out. The cataract service is provided in the state capital only with no new eye clinic created, but rather the available nurses were pooled to the state capital leaving some units/peripheral hospitals without ophthalmic nurses (ONs). The cataract service was not integrated into the general health and/or eye care services.

The aim of this study was to assess community awareness and utilization of the eye health services by the population in the two states of North Western Nigeria that use different strategies for eye health service provision. The specific objectives were: To assess awareness about general eye care services among households in districts of Sokoto and Kebbi states; to assess awareness on disease-specific eye care services among the households in districts of Sokoto and Kebbi states; to assess the felt need for specific eye care services in districts of Sokoto and Kebbi states; and to assess utilization of disease-specific eye care services among households and their relations in districts of Sokoto and Kebbi states.

Subjects and Methods

This was a population-based cross-sectional study conducted in October and November 2011. The samples were households selected based on multistage cluster randomized sampling with probability proportional to size. The targeted sample was 11,200 households in 10 local government areas (LGAs) of Sokoto state and 7,840 households in seven LGAs of Kebbi state. Twenty clusters of 56 households each were systematically selected in each LGA of the two states. The study was piggybacked to a population-based trachoma prevalence survey.

The Ethical Committees of the State Ministries of Health of Sokoto and Kebbi granted ethical approval for this study. The consent of each household was taken prior to enumeration of the household. Provisions of Helsinki declaration were also observed during the survey.

The survey team comprised of an ON, two community health extension workers (CHEWs), and a field guide. The principal investigator (NM) trained the teams and supervised the data collection. Four teams conducted the survey in each state and had a 2-day separate training on survey protocol and definitions after which a pilot testing was conducted in nearby nonselected community to refine the data collection tool and its test-retest reliability. The questionnaire was translated into Hausa, the predominant language spoken by the population.

A household was defined as a family unit eating from the same kitchen. The CHEW took consent and administered

*Sight Savers International, Kaduna, Nigeria. Sokoto State Eye Care Program (SKTECP) 2005–2009 Project document. July 2005 - unpublished.

†Abiose A, Chado M, Lasisi M, Abubakar H [Review team]. Report of the end of term evaluation of the Sokoto state eye care program (Sightsavers Supported); 2009.Sightsavers, Kaduna Nigeria – unpublished.

the survey questions as in the data collection tool. The ON supported the CHEW whenever necessary in clarifying the questions as translated. The head of each household or any adult member was interviewed on general awareness about eye care services; awareness about disease-specific services provided in the health services; the disease-specific eye care services that any household member or a relation has utilized; and any eye care service that a member of the household would have wanted to utilize (felt need). The responses were then entered into the survey tool. In order to reduce bias from the interviewers and the respondents, the aim of this study was masked to both the data collection staff and the respondents.

Data were entered into predesigned software in SPSS 19 (IBM corp. Released 2010. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corp) by data entry staff and then analyzed by the principal investigator and a public health physician. Confidence intervals were calculated using Episheet calculator. Independent-samples *t*-test was conducted using SPSS 19 software and $P < 0.05$ was considered to be significant. To determine the magnitude of the differences between the two states, that is the difference is not by chance, the strength of association (effect size) was calculated using Eta squared (η^2) with the following formula:

$$\eta^2 = \frac{t^2}{t^2 + (N_1 + N_2 - 2)}$$

using the results generated with the *t*-test.

The η^2 values were interpreted based on Cohen's guidelines thus: ≤0.05 is small effect; 0.06-0.13 is moderate effect; and ≥ 0.14 as large effect.[5]

Results

A total of 10,878 households were interviewed in Sokoto state and 7645 were interviewed in Kebbi state, giving a participation rate of 97% in each state. Table 1 shows the age and sex distribution of the respondents. The majority (75%) of respondents in the two states were between the ages of 25 and 54 years with males constituting 98%. There was no statistically significant difference in the age and sex distribution of the respondents in the two states ($P = 0.45$).

Awareness on general eye care services

The population in Sokoto state was more aware of the availability of eye care services than those in Kebbi state (80% vs. 44%) and persons in the age group 35-44 years were most aware about the services in the two states (47% in Sokoto and 49% in Kebbi). An independent-samples *t*-test was conducted to compare awareness of eye care services in the two states as shown in Table 2. There was a significant difference between Sokoto (M = 1.79, standard deviation [SD] =0.04) and Kebbi (M = 1.44, SD = 0.49; $P < 0.05$). The magnitude of the difference in the means was moderate ($\eta^2 = 0.12$).

Awareness on disease-specific eye care services

Table 3 shows the disease-specific awareness and felt need for eye care among the households. The service most known to the population is cataract service with Sokoto state population more aware than the population of Kebbi state; in addition, there are fewer populations not aware of any eye care service in Sokoto than in Kebbi state (55% vs. 69%). Comparing the awareness of specific eye service in the two states, an independent-samples *t*-test [Table 2] showed a significant difference between Sokoto (M = 1.93, SD = 1.55) and Kebbi (M = 1.61, SD = 1.41; $P < 0.05$). The magnitude of the difference in the means was however, very small ($\eta^2 = 0.01$).

Felt need to utilize eye care services

The populations in Kebbi state have a lower "felt need" for general eye care services than the population in neighboring Sokoto state (5.9% vs. 47%). In addition, the population in Sokoto state has a higher felt need for an eye examination (47% vs. 30%) than those in Kebbi state as shown in Table 3. Comparing the felt need for eye care in the two states using the independent-samples *t*-test [Table 2] revealed a significant difference, that is Sokoto (M = 5.44, SD = 1.84)

Table 1: Age and sex distribution of the respondents

Age-group (years)	Sokoto *n* (%)			Kebbi *n*(%)		
	Male	Female	Total	Male	Female	Total
15-24	398	11	409 (3.8)	242	7	249 (3.3)
25-34	3018	27	3045 (28)	1994	7	2001 (26.2)
35-44	3123	30	3153 (29)	2196	27	2223 (29.1)
45-54	1922	42	1964 (18.1)	1490	27	1517 (19.8)
55-64	1246	35	1281 (11.8)	972	27	999 (13.1)
65-74	631	26	657 (6)	453	27	480 (6.3)
75-84	299	16	315 (2.9)	153	5	158 (2.1)
85+	50	4	54 (0.5)	17	1	18 (0.2)
Total	10,687 (98.2)	191 (1.8)	10,878 (100)	7517 (98.3)	128 (1.7)	7645 (100)

Table 2: Independent samples *t*-test

Variable	State	Mean	Standard deviation	*t*	Significant (2-tailed)	η^2
General awareness on eye care services	Sokoto	1.7977	0.040	51.513	<0.0005	0.12
	Kebbi	1.4433	0.497			
Service-specific awareness	Sokoto	1.93	1.55	14.171	<0.0005	0.01
	Kebbi	1.61	1.409			
Felt need for eye care services	Sokoto	5.44	1.845	64.486	<0.0005	0.18
	Kebbi	3.28	2.481			
Household utilization of eye care services	Sokoto	1.13	0.609	0.161	0.872	<0.0001
	Kebbi	1.13	0.692			
Relatives utilization of eye care services	Sokoto	1.24	0.866	64.486	0.156	0.18
	Kebbi	1.22	0.762			

and Kebbi ($M = 3.28$, $SD = 2.48$; $P < 0.05$). The magnitude of the difference in the means was large ($\eta^2 = 0.18$).

Utilization of disease-specific eye care services

The non-utilization of services in the two states is comparable (92% vs. 94%) with no significant difference on an independent-sample *t*-test: Sokoto ($M = 1.13$, $SD = 0.61$) and Kebbi ($M = 1.13$, $SD = 0.69$; $P = 0.87$). The magnitude of the difference in the means was very small ($\eta^2 < 0.0001$). The utilization of cataract services was higher (6% vs. 3%) in Vision 2020-compliant Sokoto state than those in Kebbi as shown in Table 4.

The proportion of no utilization of any eye care service among relations/friends of the households is comparable in the two states (89% in Sokoto and 86% in Kebbi). A difference exists between the two states in utilization of cataract service with Kebbi state having higher utilization (12% vs. 7%) among relatives as shown in Table 4; but utilization of trachoma (0.6% vs. 0.05%) and optical (1.4% vs. 0.35%) services is higher in Sokoto than in Kebbi state. However, an independent-samples *t*-test [Table 2] showed no statistical difference between the two states: Sokoto ($M = 1.24$, $SD = 0.87$) and Kebbi ($M = 1.22$, $SD = 0.76$; $P = 0.15$). The magnitude of the difference in the means was large ($\eta^2 = 0.18$).

Table 3: Awareness and felt need for specific eye care services

Service	Awareness of service *n* (%)		Felt need for service *n* (%)	
	Sokoto	Kebbi	Sokoto	Kebbi
None	5407 (55.49)	5261 (68.96)	643 (5.9)	3613 (47.51)
Cataract	3012 (30.91)	1872 (24.54)	5079 (46.8)	2289 (30.1)
Optical	189 (1.94)	42 (0.55)	1195 (11)	718 (9.44)
Eye examination	1009 (10.36)	51 (0.67)	691 (6.4)	317 (4.17)
Trachoma	117 (1.2)	11 (0.14)	123 (1.1)	19 (0.25)
Onchocerciasis	7 (0.07)	1 (0.01)	45 (0.4)	3 (0.04)
2 or more services	3 (0.03)	391 (5.13)	3077 (28.4)	645 (8.48)

Table 4: Utilization of specific eye care services by members of the households and their relations

Service	Utilization of eye care services *n* (%)			
	By households		By relations	
	Sokoto	Kebbi	Sokoto	Kebbi
None	9012 (92.42)	7191 (94.52)	9622 (88.69)	6538 (85.78)
Cataract	569 (5.84)	260 (3.42)	794 (7.32)	926 (12.15)
Optical	49 (0.5)	42 (0.55)	154 (1.42)	27 (0.35)
Eye examination	87 (0.89)	90 (1.18)	201 (1.85)	93 (1.22)
Trachoma	28 (0.29)	5 (0.07)	68 (0.63)	4 (0.05)
Onchocerciasis	2 (0.02)	5 (0.07)	7 (0.06)	4 (0.05)
2 or more services	4 (0.04)	15 (0.2)	3 (0.03)	30 (0.39)

Discussion

The proportion of respondents for each age group and sex is comparable in the two states; thus, the results of this study should be representative of the general awareness and utilization of eye care services in the two states.

There is little doubt that the Vision 2020 initiative has raised awareness concerning blindness and the cost-effectiveness of available interventions. It has mobilized both government and private funding for eye care and it has generated a global public-private partnership working with a clearly defined focus and strategy.[2]

The findings in this study show that the population in the Vision 2020-compliant state has a significantly higher level of general awareness on eye care services (80% vs. 44%) and a higher felt need for eye care (47% vs. 5.9%). The Vision 2020 approach employed a programmed planning and implementation of eye health education using radio jingles periodically, establishment of new eye clinics in district hospitals, periodic outreach for cataract services; unlike in the neighboring state where the cataract service was provided only in the state capital and no radio jingles were sponsored. The "free" cataract service in Kebbi state started in 2002 and a total of 20,000 cataract surgeries were performed by 2011. In Sokoto state, however, the "subsidized" cataract services started in 2006 and a total of 9,188 surgeries were performed by 2011. Despite the different takeoff periods and the numbers performed, the Vision 2020-compliant approach had significantly created

more awareness among the population. The η^2 analysis of effect size shows that the Vision 2020 strategy had a moderate effect on this observed difference in general awareness. The high awareness in Sokoto is comparable to that reported in Fiji (86%)[6] probably because of the similar approach in the implementation of eye care services with an equitable distribution. Effective public awareness has been reported to demand careful planning and management by government, NGOs and good service delivery; and effective use of campaigns and the media have been described as the most important.[7] This approach was not utilized in the Vision 2020-noncompliant state and may explain the low awareness among the population. Community outreach programs have been reported to be a requirement for creating awareness of both eye conditions and the availability of a service provider to treat them.[8] In addition, Banzi in Kilimanjaro has reported that use of religious places of worship and posters can increase awareness as it has been reported to be a common site where people receive information.[9] A study in India also reported that acceptance of cataract surgery was higher in districts with regular outreach.[10] These may explain the higher level of awareness in Sokoto that uses radio jingles, regular outreach surgery, and posters. Both states however need to take the eye care campaigns to religious places of worship to further increase awareness and build trust that may increase utilization of eye care services.

The most common known eye care services in our study were cataract surgical services (31% in Sokoto vs. 24% in Kebbi) and optical services (1.9% in Sokoto vs. 0.5% in Kebbi). This difference was significant ($P < 0.0005$), although the η^2 analysis of effect size showed that the approach had a small effect on this difference. Whereas only 5.7% of the households did not express the desire to use the eye service in the Sokoto state, 47% of the households felt they do not require eye care services in Kebbi. This may be attributed to the Vision 2020-compliance in Sokoto such that despite a gap of 4 years (2002 vs. 2006) in takeoff and regular services between the two states, the Sokoto program has created a higher potential for service utilization among the population. This is further supported by the η^2 analysis that shows the effect size of the approach to be large.

The utilization rate of eye care services in the two states among households (8% in Sokoto vs. 6% in Kebbi) and their relations (11% in Sokoto vs. 14% in Kebbi) is low with no significant difference between them ($P = 0.872$). This is lower than the utilization rate reported in Fiji 66%,[6] America 57.3%,[11] India 39%,[12] Timor-Leste 33.6%[13] and in Kenya 16.7%.[14] Our finding is consistent with a recent report of low (10%) utilization in low income countries.[15] The un-addressed barriers to service uptake and duration of the services may be a contributor to this low utilization in the two states. There was no significant difference between the two states and the η^2 analysis showed that effect size of the approach in each state had a very small effect on this difference. This indicates an urgent need to address more barriers. The baseline survey at the takeoff of the eye care program in Sokoto state reported barriers that included "cost", "no need for treatment (felt need)", "not knowing where to get treatment", "can see with other eye", "too old", and "waiting for a free eye camp".[16] Although the program is addressing some barriers that include "not knowing where to get treatment" and also has created a "felt need for eye care"; "cost" is still an existing barrier that need to further be addressed through further subsidy and poverty reduction by all stakeholders. Recent statistics have described the population in North Western Nigeria to have the lowest socioeconomic indices in Nigeria with 70% absolute poverty.[17] In Kebbi state, the barriers to cataract service in a 2006 survey were "need not felt", "cannot afford", "waiting for surgery" "one eye, adequate vision", and "lack of escort".[18] The "no felt need" barrier was the leading cause for non-utilization of eye care 5 years previously and is still a barrier in this study. The failure to utilize the Vision 2020 approach in the state is a likely contributor to the persistence of this barrier 5 years after. A review by Ackland with 10 years to Vision 2020 deadline, noted that many people are still turning to traditional treatments rather than seek out the eye units that Vision 2020 has so busily promoted. He recommends that quality and access need to receive greater attention than previously given.[19] Financial, geographic, and cultural barriers to care-seeking discourage the use of services, and demand creation has been reported to be most effective alongside supply-side efforts to strengthen health systems and improve quality of service provision in facilities.[20]

The challenge is for the Sokoto state program to continuously adapt the Vision 2020 principles and advocate to stakeholders to address the barriers preventing the needy population from accessing the needed services; while for Kebbi state is to refocus the eye care services to conform to the national and globally accepted Vision 2020 principles in order to provide the population an integrated and comprehensive eye care service that is sustainable and equitable in distribution. The global challenge in eye care now is to build on what has been achieved and to focus resources on the poorest communities in the world. The goal of Vision 2020 is to enable all persons to receive eye care and have the Right to Sight - which is one of their fundamental human rights.[2]

This study is limited by the fact that the perceptions of the head of the household or representative may vary with members of the household; it was however, expected that the head of the household is aware of eye care needs of the members of his household.

Conclusion

The study findings shows that the principles of Vision 2020: The Right to Sight is adaptable to different cultures/societies

and have potential to increase access and a feeling of need for eye care in poor resource settings as demonstrated in Sokoto state; and non-compliance to the principles was associated with low awareness and a low felt need for eye care even if provided "free".

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