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ORIGINAL ARTICLE

Rehabilitation of the Severely Visually Impaired and the Blind in a Developing Country

Réhabilitation des Malvoyants Sévères et des Aveugles dans un Pays en Développement

Adedayo Omobolanle Adio

ABSTRACT

Blind individuals whether from birth or after being sighted for different periods of their lives constitute about 1% of the Nigerian population. These are individuals who can meaningfully contribute to the growth and development of society if properly guided. However, the traditional way of thinking within the society they find themselves in contributes to their lack of productivity.

From birth to adulthood, they need to be guided and consciously prepared for independence. This is not yet widely obtainable in Nigerian society and other developing societies and generally may result in rejection, neglect, and high mortality rates in those affected with the majority unemployed sometimes for up to 10–15 years.

It is imperative to offer comprehensive rehabilitation services that can assist this group of individuals to assert/reassert control and independence by designing a program tailored to meet their individual needs (not forgetting those who become blind as adults).

A regional center, The Lens Rehabilitation center for the blind and severely visually impaired (TLEC ReHab Nig) located in Port Harcourt, Nigeria has put together a comprehensive program to ensure all round preparedness for independent, productive and fruitful living for persons living with blindness in line with best practices. This is an initial report on the outcome. **WAJM 2023; 40(2): 169–180.**

Keywords: Blind, Inclusive Education, Visual Rehabilitation, TLEC rehab, Nigeria.

RÉSUMÉ

Les aveugles, qu'ils soient nés ou qu'ils aient été voyants pendant différentes périodes de leur vie, constituent environ 1 % de la population nigériane. Ce sont des personnes qui peuvent contribuer de manière significative à la croissance et au développement de la société si elles sont correctement guidées. Cependant, le mode de pensée traditionnel au sein de la société dans laquelle ils se trouvent assure en grande partie leur manque de productivité.

De la naissance à l'âge adulte, ils doivent être traités et préparés consciemment à l'indépendance. Cela n'est pas encore possible dans la société nigériane et dans d'autres sociétés en développement et en général, cela peut entraîner le rejet, la négligence et des taux de mortalité élevés chez les personnes touchées, la majorité d'entre elles restant à la maison jusqu'à 10 ou 15 ans sans rien faire.

Il est impératif d'offrir des services de réadaptation complets qui peuvent aider ce groupe d'individus à s'affirmer/réaffirmer leur contrôle et leur indépendance en concevant un programme adapté à leurs besoins individuels. leurs besoins individuels.

Un centre régional, The Lens Rehabilitation center for the blind and severely visually impaired

(TLEC ReHab Nig), situé à Port Harcourt, au Nigeria, a mis en place un programme complet visant à préparer les personnes atteintes de cécité à une vie indépendante, productive et fructueuse, conformément aux meilleures pratiques. Il s'agit d'un premier rapport sur les résultats obtenus. **WAJM 2023; 40(2): 169–180.**

Mots clés: Aveugle, Éducation inclusive, Réhabilitation visuelle, Réhabilitation TLEC, Nigeria.

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INTRODUCTION

Blindness is a universally distressing condition that has a great impact on the overall quality of life of the affected individual especially as it regards rehabilitation, counselling and reintegration back into society and may result in reduced mental well-being and social functioning. This is especially common in developing countries where priorities are not widely and equitably given to basic health care.[1–5] Thurston et al in their study has shown that 4 core areas of human emotion are adversely affected when blindness occurs.[5] These include mood, self-concept, social connectedness, and loss. Further research on these individuals showed that during their transition from being sighted to blindness, they share common socio-emotional issues relating to diagnosis, coping with deterioration of sight, experiencing loss, changing perceptions of self about society, experiencing others in a changed way and experiencing rehabilitation.[5,6] These adverse effects can effectively lead to depression and withdrawal from society. Rehabilitation, counselling and re-integration back into society is therefore important to break this cycle. Preferably, early detection of potentially blinding conditions especially if it is irreversible is imperative and thorough counselling is advocated as soon as a diagnosis is made to minimize the numbers who will not take their condition seriously and neglect the steps required to avoid/delay blindness.

According to the Nigeria National Blindness and visual impairment survey(NNBVIS), the prevalence of those who are blind (< 20/400 (<6/120) in the better eye) and severely visually impaired (<20/200 to 20/400(<6/60–6/120); presenting vision) was 4.2% (95% confidence interval [CI]: 3.8%–4.6%) and 1.5% (95% CI: 1.3%–1.7%), respectively.[7] The causes of blindness most of which were either treatable or avoidable ranged from cataract, uncorrected refractive errors, glaucoma to corneal opacities.[7] Blindness was found to be associated with increasing age, being female, poor literacy, and residence in the North.[7]

The most common cause of functional low vision and blindness is glaucoma.[8–10] This was especially more common among those who were uneducated and living in rural areas. This also happens to be one of the causes of irreversible blindness in the world with the effect more glaring in developing countries due to the poor enforcement of existing laws on disability[11,12] and poor funding of education and health.[11]

Another study showed that subjects they examined became blind from childhood in the majority of cases. Most were from causes related to the cornea which could have been prevented.[13,14] However over the years this has been found to be declining in number probably due to better literacy, better access to healthcare, including public health intervention measures like measles immunization and mass distribution of oral vitamin A and more stringent laws on access to potentially harmful ocular medication.[15]

Some other studies though localized in the south west and not as widespread as the national survey, showed that the effect of blindness was more palpable among the younger population particularly school children who have longer years to live with this handicap.[16] A blind child is more likely to live in socio-economic deprivation, to be more frequently hospitalized and to die in childhood than a child not living with blindness.[15,17]

Most causes of blindness are either treatable or preventable. Studies have shown that prevention, early recognition and prompt treatment/control of these diseases by regular screening of children will definitely reduce unnecessary visual handicap in the majority of cases.[16,18]

Early screening before a newborn baby is discharged and at each hospital visit for immunization will assist with early detection especially in Retinopathy of Prematurity.[19–21] However the causes of childhood blindness are slowly changing to genetic and congenital causes which are capable of causing blindness from birth or within a short period after birth.[22,23] This creates an individual with no experience at all of vision and therefore no opportunity to learn by observation, a skill mostly taken for granted by sighted people.

Blindness triggers segregation and societal exclusion which is still entrenched in developing countries and requires serious and persistent efforts to lessen its effect.[24]

However even if blindness has occurred, this should not necessarily signal the end of life or create a situation which would increase the burden to their family or to the society or make them resort to begging.[25] In most cases this is what happens unless they are empowered through rehabilitation. Some of these individuals already have families which they are no longer able to cater for.[25] While some may never be sufficiently empowered enough to have their own families.[26] The world is currently wired especially in developing countries for the sighted and majorly does not take the visually impaired into consideration.

Rehabilitation services should therefore be widely available that will assist transition between sighted to non-sighted or if born non sighted, to transition to capable non-sighted in as smooth a manner as possible without causing undue anguish to both the individual and their family.[27] These rehabilitative services is the right of the individual and should be accessible early and on time regardless of whether the individual can pay or not and should be supervised by an eyecare worker who is skilled in differentiating treatable from irreversible blindness. What happens is that few are aware or unwilling to admit that their ward or themselves require these services and so do not recognize its importance. The numbers who access these services are just a tiny fraction of those who go blind.[28]

It is important to study those who present themselves to be examined for possible rehabilitation, and the features they present with to help us better understand the magnitude of the challenges they are going through and the steps they took to reach that point.

What is currently available in some parts of the country are schools for the blind where the blinds are kept for years on end away from mainstream society learning how to communicate with one another.

This paper seeks to present the pattern of those who present with very

severe vision loss and the outcome of their management in a Nongovernmental organization run rehabilitation center for the blind overseen by an ophthalmologist in order to help promote advocacy in this area.

METHODOLOGY

Data were collected from the records of patients with very poor vision in both eyes referred to The Lens rehabilitation centre for the blind and severely visually impaired (TLEC rehab) in Nigeria between January, 2015 and January, 2021. Blindness was defined according to World Health Organization (WHO) as Best corrected visual acuity (BCVA) of 3/60 or less and visual fields of <10 degrees.[29]

Out of the 185 patients seen within this period, 148 had complete record and these were analyzed. Of these numbers, 50 accepted vision rehabilitation and were further analysed. Demographic data like age, gender and address were obtained from either parent/caregiver and the visually impaired individual. Cause(s) of blindness, steps taken to treat the condition(s), how long the person has been blind, level of education, source of income, parent's occupation, and possible previous experience in a rehabilitation center were obtained. All prospective students were thoroughly examined by the ophthalmologist and author to ensure that they were actually blind and vision could no longer be improved by any surgical, optical or medical means and that low visual aids could not help them to function better. Those who glasses and low visual aids could help were referred to the optical center for glasses at subsidized cost and The Lens rehabilitation center for the Blind's (TLEC rehab) Centre for Sight (Low Vision arm within the premises) for suitable low vision devices.

Those who required ophthalmic surgery were offered surgery while those who required continuous care in order not to lose what precious little vision they had left, were offered continued ophthalmic medical care, free while undergoing rehabilitation and subsidized thereafter. Those who required rehabilitation, were offered the following compulsory courses (over 1 to 2 years depending on their age) this was geared towards acquiring skills for independent living: they are offered typing skills, Braille education, daily living skills, orientation and mobility using guide cane and human guide, social interaction skills, use of technology and assistive devices (laptops, ipads and smartphones) with the aid of text to speech software in addition to vocational training and career counselling. After they were trained, depending on their individual desires, those who wanted to go to school were allowed to do so with sighted students in an inclusive format while those who did not were helped to start off businesses or redirect pre-existing skills which become a source of income for them and their families.

All data were entered into an excel sheet and analysed by a statistician with SPSS version 22. P value was taken as <0.05.

RESULTS

The organization started in 2015 and within the period under analysis, 148 of 185 people who presented with severe visual impairment fit the criteria (with complete records) of irreversible visual impairment referred specifically to the rehabilitation center. The age range of the 148 respondents was between 4 to 72 years (Table 1). The mean age was 48±26.20 years with slight male preponderance. The male-female ratio of the 148 was approximately 1:1(male 51.35%, n=76) female 48.65%, n=72). Of these, 50 accepted rehabilitation (33.8% , about 1/3rd of the 148) with male-female ratio of 2:1(male 70%, n=35, female 15%, n=15)

Table 1: Age Range of All Respondents Who Presented with Irreversible Loss of Vision

Variable n	Frequency	Percentage (%)
Age (n=148)		
≤19	32	21.62
20–39	7	4.73
40–59	48	32.43
≥60	61	41.22
Mean (SD)	*48.0 ± 26.20 years*	

These came through various means, walk-in (n=3,6%), referrals from colleagues and friends (12,24%), social and radio/tv/print media referrals (n=31,62%) old patients (n=4,8%).

State of Domicile of all Respondents

They were mostly from Rivers State (87.84%, n=130) but a few came from neighbouring states and nearby geopolitical zones.

Occupation of all Respondents with Irreversible Vision Loss

Less than a third were unemployed (27% n=40). About 10% (n=12,8.1%) were students (Figure 1) Almost a quarter were working in a white-collar job before they went blind (n=36, 24.3%). Another quarter was into business ((n=30,20.3%).

Causes of Blindness

Two-thirds of the 148 patients were mainly blind from glaucoma, optic nerve and retina problems (n=93, 62.8%). (Figure 2) Retinoblastoma was responsible for less than one-tenth (n=9, 6.08%). Corneal causes of blindness were very few (n=2,1.35%). Degenerative myopia was a cause of blindness in 4.05%(n=6). (Figure 2).

Causes of Blindness among those who accepted to get Rehabilitated

Among the 50 who agreed to stay for rehabilitation, causes of blindness was now mainly end stage glaucoma in 2/3 of the respondents (60%) followed by congenital cataract with poor postoperative outcome (10%), couched eyes with severe overwhelming inflammation (2%), congenital nystagmus with

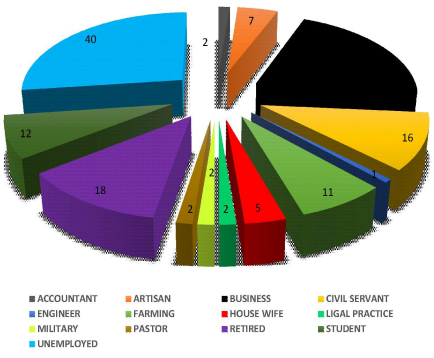

Fig. 1: Occupation of Respondents with Irreversible Visual Loss.

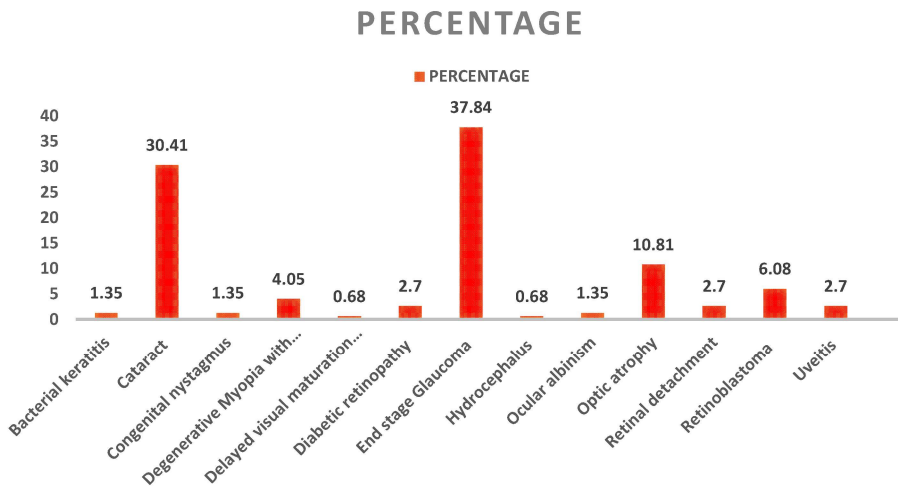

Fig. 2: Causes of Blindness among Patients that presented for Rehabilitation

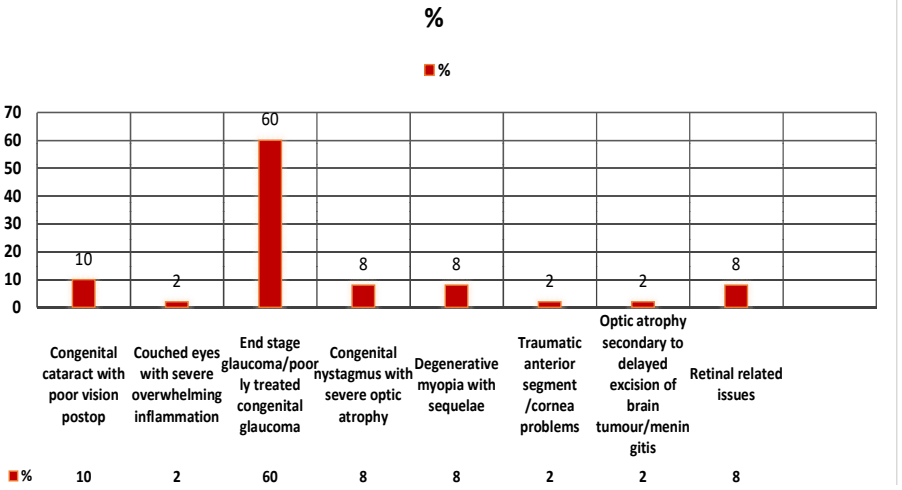

Fig. 3: Causes of Blindness among those who accepted Vision Rehabilitation.

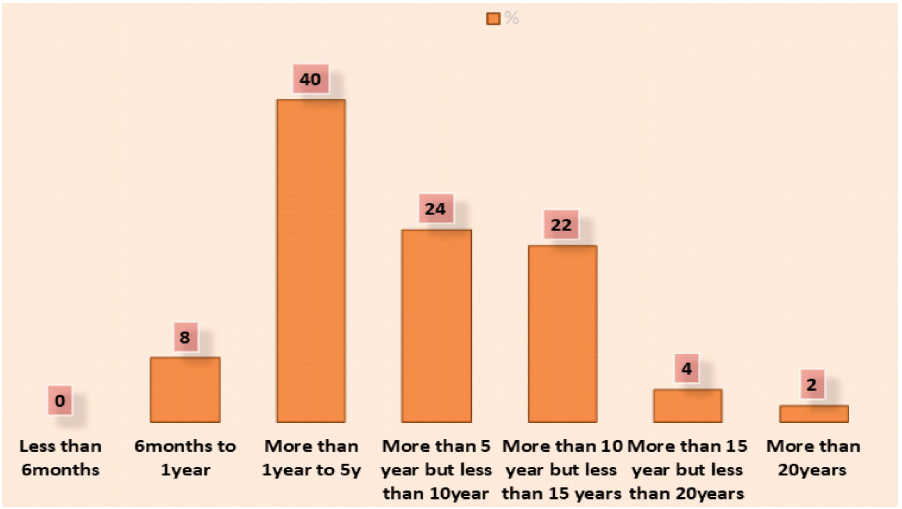

Fig. 4: How long the Respondents who accepted Rehabilitation have been Blind prior to Rehabilitation.

optic atrophy. Others include degenerative myopia with sequelae, traumatic anterior segment injuries with corneal opacity, Optic atrophy secondary to brain tumours (post excision) and retinal detachment etc. (Figure 3).

Treatment steps taken prior to presentation for Vision Rehabilitation

About a quarter had previously undergone rigorous multiple medical and surgical procedures for various eye conditions mainly to control glaucoma that were unsuccessful (22%). One person underwent 3 very expensive surgeries to reattach detached retina which were also not successful but majority never had any intervention at all (56%).

How long respondents have been blind prior to presentation for rehabilitation

Over three quarters of respondents (72%, n=36) had been blind for 10 years or less prior to rehabilitation. One person had been at home for more than 20 years without being engaged in any activities. See Figure 4. Within this period, they travelled from place to place in search of a cure. No one presented with less than 6months of blindness.

Level of education of Respondents who accepted Vision Rehabilitation

Only 10% of the 50 (n=5) had completed their education(tertiary) before they went blind. The vast majority were at various stages of their basic primary and secondary education when they went blind and stopped schooling altogether. Some were sent to sighted schools to attend school without properly equipping them (Figure 5).

Emotional Status on Admission of Respondents who accepted Vision Rehabilitation

Severe depression measured symptomatically was the commonest adverse emotional state in which they were when they presented for vision rehabilitation (12%) with a couple who had already attempted suicide (4%) Most had however accepted their condition and were ready to move on ((70%, n=35) Figure 6.

Table 2: Future Plans/Ambition of the Respondents on Completion of Vision Rehabilitation

Ambition	Frequency	% of Each Question
Complete education up to University	25	50
Own personal business	7	14
Continue present job after rehabilitation	1	2
Find a job and keep it	13	26
Be unafraid to move around without aid	50	100
Be able to handle personal finances	26	52

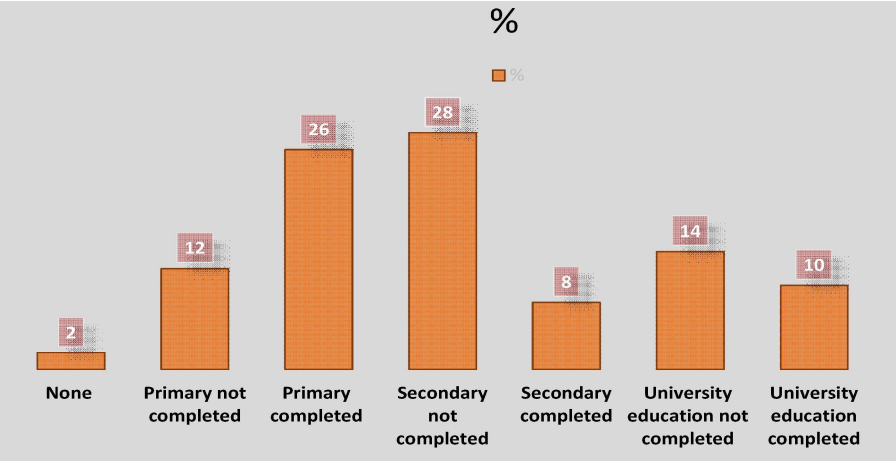

Fig. 5: Level of Education of those who accepted Rehabilitation on presentation.

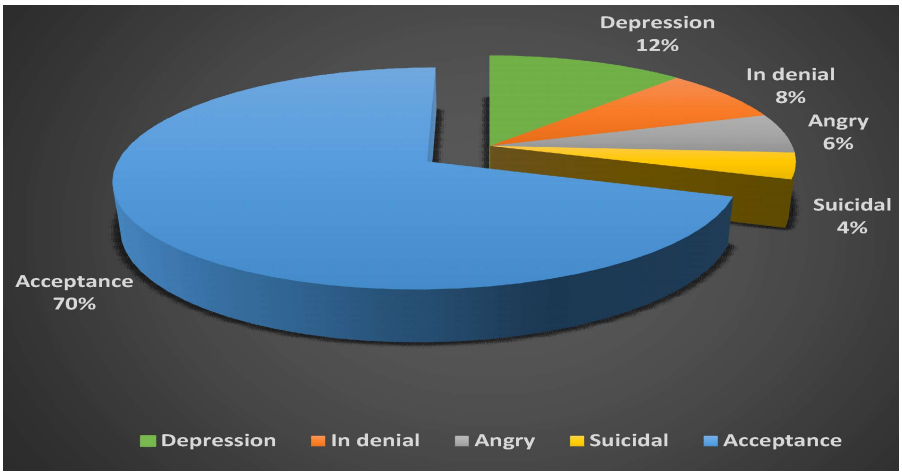

Fig. 6: Emotional Status of those who accepted Rehabilitation on Admission.

Source of Income of the Respondents who accepted Rehabilitation

About a third depended on charity (30%, n=15) while relatives were responsible for the upkeep of majority (54%, n=27). In this cohort, no one was found begging for alms as a source of income.

Most of the trainees required sponsorship by the center due to their indigent state or unwillingness of their relations. In this cohort, 78%(n=39) required part or full sponsorship ranging from boarding to tuition to provision of all assistive devices. Many (56%, n=28) also required some form of help on completion of training ranging from assistance for school fees to looking for affordable partner schools to replacement of damaged or lost assistive devices or provision of generators and financial assistance to set up viable businesses.

Previous rehabilitation experience

Only 2 had previous exposure to rehabilitation elsewhere (4%, n=2) and wanted to improve the areas of deficiency they had.

Length of Training

Majority were completely ready to continue life after rehabilitation of just 1 year. (86%, n=43). Only 2 stayed less than 6 months: one left the centre without completing the training while the other just wanted to improve on certain essential skills before moving on to university.

Future Plans of Respondents after Training

Following in depth interview of the respondents, most shared that they wanted to complete their education up till tertiary level. (50%, n=25) However, a quarter rather wanted to find a job and keep it by virtue of the vocational skills they were taught in the rehab center (26%, n=13) All unanimously wanted to be able at least to move or travel anywhere without being afraid. Table 2.

DISCUSSION

It is useful to remember that a blind person is a person first and foremost regardless of visual status and has the same dreams and aspirations as a sighted person. It is quite easy to forget this fact in most developing countries where blindness is the cause of stigmatization and second-class citizenship. This often leads to poor societal integration.[30,31] and huge educational delays.[32] In addition, up to 30% of the blind in this study were unemployed. This probably affirms the societal opinion of the blind individual, as unable to carry out any useful work. This underscores an urgent need to take deliberate steps to rehabilitate this group, so that stigma is avoided.[33,34]

Gender Differences

Women account for the majority (65%) of blind people in the world.35

However, in this study, the majority of people who were blind and actually sought rehabilitation services were men, owing to the fact that societies in developing countries favor men over women.[36] Most families or societies would rather see a male succeed than a female.[37]

This means that the female gender is more at risk of remaining uneducated when they go blind or are born blind. Already this is established widely in the literature as we also find in our study.[40] So because of this, we tend to give 50% more scholarships to the female blind in the rehab center to ensure they are encouraged to educate them. This is encouraged elsewhere in other countries too with an emphasis on addressing gender issues as they relate to blindness.[41]

Cause of Blindness

Most causes of blindness are avoidable or controllable. In addition, many causes of visual impairment can be prevented or treated.[42] In this study, taking into consideration only those who were irreversibly blind, glaucoma was mostly responsible. This was in keeping with the Nigerian national blindness survey where it was found that the glaucoma-specific blindness prevalence for those older than 40 years in Nigeria was one of the highest ever reported.[43] This was also found in Nepal.[44]

This tragedy happens over and over again especially in developing countries due to poor screening and health-seeking habits even with a positive family history. This was followed by congenital cataract and their sequelae with some finally going blind in early young adulthood after spending huge sums on trying to retain their vision. Other important causes of blindness in this study include retina-related conditions like degenerative myopia and diabetic retinopathy. However, in contrast to this finding, a study shows that glaucoma was a less important cause of blindness in northern Nigeria and in Uganda than blindness following xerophthalmia and Vitamin A deficiency-related causes and trachoma. It's a well-known fact that in these parts acceptance/distribution of immunization and Vit A distribution is much lower.[25,45,46,47]

In a Cameroonian report, corneal disease and optic nerve complications were higher up when the most common causes of blindness were considered.[48] Relatively very few eye doctors are properly trained and equipped (only 35 in a country like Nigeria) to take care of children's eyes due to poor funding,[49] too little interest and training unavailable locally. Those who are trained are all staying in large cities thus excellent eyecare services are not able to reach those in the rural area. Training ancillary workers like teachers or community extension workers already posted to work in rural areas may be helpful to promote good eye health and identify potentially blinding eye diseases thus helping to prevent/avoid blindness.[50] However, in comparison, in developed countries the more common causes of irreversible blindness are cortical visual impairment, and optic nerve-based disorders.[51] However some of these conditions are now being seen more frequently in developing countries.[23]

Age when Blindness happened

Blindness is generally associated with increasing age as shown in the national survey [7]. Even though the absolute numbers of blind children were less in our study; it has been shown that the effect of blindness is more palpable among the younger population, particularly school children who have long years to live with this handicap.[16,52,53]

The longer length of years lived with blindness in children makes it more tragic, especially if no rehabilitation is carried out to help the child have a better quality of life within those years and on time. Besides, mortality rates increase when blindness happens early in life.[54] Higher mortality rates in some areas are linked with higher incidences of blinding corneal opacities.[55] However, starting rehabilitation at a younger age increased its successful outcome.[56]

Literacy Level

Most of the blind children/ individuals that presented were lagging behind academically.[6,7,57]

Reasons for this are as follows: Most parents especially in the rural areas are ignorant of where to take their wards for education. Ignorance also played a big role in ending up blind also.[58-60]

Some insist on pretending that all is well and take their children to sighted schools forcing them to learn using media exclusive for sighted children which do not work when they have to do public exams. Others are sent to blind schools which is not in keeping with modern trends where they stay exclusively with other children exactly like them.[40] This does not help them to blend properly later in life with sighted people due to poor or no interaction while growing up. This worsens their eventual societal integration. The modern trend is now inclusive education which is training the child to learn strategies that can be used by them when relating to a society that does not understand braille.[61] This is the reason why (re) Habilitation is very important (depending on whether they became blind after a useful period of having a vision or they were born blind. After a defined period of learning, they can be equipped with appropriate assistive devices and sent to normal schools to have the same standard of education and also learn to integrate as seamlessly as possible. Unfortunately, rather than equipping and reconditioning these children and adults who go blind to cope with non-visual methods, they are either kept at home or sent to the village to waste away or traditionally sent to schools of the blind to have a likely less than standard education separated from their sighted colleagues.

They need to be challenged mentally the same way that sighted students are to make any meaningful headway in life otherwise they will constantly lag behind educationally, socially and also financially, effectively making them second class. This will not allow for them to achieve their peak potential simply because they are not able to take advantage of modern nonvisual methods of learning which is designed to maximize their learning.

Sighted students are more easily taught everything because it is in an easily accessible format but students who are blind or visually impaired and thus not able to visualize any demonstration, require adaptations to the environment, appropriate materials, and specialized

instructions in order to have access to the same curriculum. This just requires a period of adjustment. If they were born blind then, there is no baseline from which to readjust from, (habilitation)they have to be taught from scratch how to experience and "visualize" what others who are sighted have taken for granted. For example, colors and objects are difficult to explain to someone who has never before experienced vision but can be taught in other specialized ways.

Treatment steps taken

Majority did nothing to treat their condition before presentation at the referral center (TLEC rehab Nig.). This was more common among those who came from the rural areas and was more common among those who went blind from glaucoma which is widely known as the silent thief of vision due to its painless nature. Many said their doctor said that it was too late to save the vision by the time they presented. Half of the respondents had already had surgery or were on medications for glaucoma and cataract which eventually failed. Most of the blind that presented were in abject poverty.[62]

Period of Blindness before coming for Rehabilitation

A majority had been blind for up to 10–15 years (n=23, 46%) and had been at home without any form of engagement. As a result of the inability to use vision, their family or guardians kept them at home. There was one who had been at home for more than 20 years. Incidentally, this was a female. She probably lasted this long because of family support. No one came for rehabilitation who was blind for less than 6 months. This is probably the case because there are different phases of grief that are passed through when blindness occurs and most won't likely come till they finally accept the finality of the situation. Some pass through all these stages quickly while some get stuck with the hope that their condition can still be cured. So instead of seeking rehabilitation, they go around looking for spiritual or medical help from quacks. This wastes so much time and requires a lot of counselling and encouragement. This was also reported by Kyuk *et al* where it was observed that the state of mental health was also responsible for a prolonged period of stay before seeking rehabilitation.[56]

Previous Rehabilitation Exposure

Just 2 have had previous access to some form of rehabilitation. They came to the rehab center because they discovered that there were some important areas that they did not have information on, that they needed to have. This was the conclusion in the study by Nispen *et al* where it was found that rehabilitation was organized differently in nearly every country with different strengths and capabilities depending on what specialists they have available.[63]

This may lead to deficiencies in certain areas which visually impaired individuals want to be addressed by re-enrolling in another rehabilitation center. The majority (48,96%) had however not had any previous exposure to rehabilitation and either was at home not meaningfully engaged or were in sighted schools where they were struggling to pass examinations.

Length of Rehabilitation

The majority were above 10 years of age and so they were offered the 1-year course. Those who were less than 10 years of age when they presented and diagnosed to have irreversible blindness required to be taught for 2 years to be able to fully grasp all they require to know. The same is offered to those who have never gone through any formal schooling. These definitely increase the costs compared with what is required to train the sighted and may lag them behind a little.[64] This is one reason that rehabilitation must start as soon as possible without wasting time at all.

Sponsorship for Rehabilitation

Blindness can trigger or exacerbate poverty.[65]

In this cohort, many needed financial assistance. This was highlighted by Naidoo and other workers.[25,26,30] He stated that Africa which is home to 10% of the population of the world, carries a disproportionate responsibility in terms of blindness and visual impairment with it bearing the burden of 19 per cent of the world's blindness which has been shown to be closely linked to a proportionate greater burden of poverty. This was highlighted in our study where majority were unemployed and unable to fund their training/schooling/business on their own.

Ambition post-Rehabilitation

The economic burden of blindness from ocular disease in particular glaucoma in Nigeria being the most common cause of irreversible blindness seems rather high and has been proven to be so[66] and steps to lessen this negative impact on wellbeing needs to be taken.

The problems faced by blind adolescents when leaving special schools to enter employment differ considerably from those encountered by people who lost their sight during adulthood. This can lead to apathy.[67] Allowing them to be educated inclusively will reduce this gap considerably. About half of the rehabilitated trainees wanted to be prepared for a life of academics up to university level. All also wanted to be completely independent and able to move around safely, and gracefully. Only one person wanted to go back to what he was doing before.

Emotional Status on Admission

An appreciable number (26%, n=13) were in denial prior to admission into the center. Two (4%) were suicidal at the point of admission. With careful, empathetic counselling and positive feedback/ interaction from trainees who have passed through or have been at the center for longer periods, they gradually come out of it and take strong steps to achieve independence and self-reliance once again. This was similarly highlighted in other studies where experiences of reduced participation and engagement with society were found to be associated with reduced psychological health and well-being.[5,68,69]

The Visual Rehabilitation Proper

Visual rehabilitation should be tailored for each individual after ensuring that sighted means of education are not possible through proper examination techniques by well-trained eye care workers. All centers must ensure all children sent to them are carefully

examined to rule out low vision or treatable blindness.[61,70,71] These studies show that, unlike our center where an ophthalmologist is on ground, it is quite possible to occasionally find children who could have seen better in some centers if medical, optical or surgical treatment had been instituted.

Teaching should be specifically designed to assist the visually impaired through whatever medium has been proven to work. It's not a one size fits all. Methods used for born blind may have to be different as shown by Abboud *et al*[72] since they have no prior visual experience.

Relevant assistive devices should be made available that will help the blind individual more easily learn and perform daily living tasks that would have otherwise been difficult since vision is lacking. This raised the standard of rehabilitation in our center similar to other studies that have also shown that the quality of the rehabilitation made available also matters in addition to parental involvement in the process.[73–75]

Vocational services must be made available to ensure they are able to take care of themselves in the future along with encouraging them to take up paid employment early in life.[76] Many sighted people have also had to learn extra vocational skills in order to help put food on the table.[77,78]

So visually impaired people who are more vulnerable should also be taught these with each skill tailored to suit each person.[79]

Rehabilitation and mobility instructors should be available to provide hands-on practice in successfully facing daily challenges including communication,[80] managing household chores, traveling in the community[81] and managing personal finances using encourage internet banking.

Services are offered to both children and adults similar to what obtains in other centers and this gives them the ability to reconnect with family, friends and the world around them by teaching literacy and Braille education, independent living skills, orientation and mobility training and by providing assistive technology, manual typewriting, computer, smart-phone training and support services.[82] Additional essential services available include sponsored community enlightenment programs aimed at re-orientation, support sessions with family members and loved ones by warm dedicated staff to help them understand the challenges faced and opportunities available for their ward.[83]

Relevant assistive devices made available that will help the blind individual more easily perform daily living tasks that would have otherwise been difficult since vision is lacking.[84–87]

Though evidence of improvement was not conclusively found in some Cochrane meta-analyses.[88–91]

Studies have also shown that the quality of the rehabilitation made available also matters in addition to parental involvement in the process and can make a lot of difference in how far educationally they can go.[92,93]

Aside of this, vocational services must be made available to ensure they are able to take care of themselves in the future along with encouraging them to take up paid employment early in life.[26,94]

Once rehabilitation is carried out properly, they can then be encouraged to go (back) to mainstream school and get proper education among their peers.[95]

Ensuring each visually impaired person has access to these ensures independent, productive and fruitful living for persons living blindness in line with modern expectations[96] while also taking steps to prevent blindness especially among the vulnerable especially those who present (late and the female gender.[97]

It is also important to ensure that all visually impaired receive regular or periodic ocular examination and ophthalmic care to ensure they don't lose what little vision they still have[71,98] and this is one of the very important services we offer TLEC rehab students, in line with best practices.

CONCLUSION

Visual rehabilitation is something every visually impaired individual needs to have access to and should be well-funded by relevant authorities. Total reorientation and adaptation to the situation are important through embracing inclusive education. Inclusive education will help a seamless transition to capable and trained blind from a near helpless state which has previously made employers tend not to want to employ them.[99] All parents should be made to allow their wards to have access to rehabilitation tailored to allow them excel in life. Instead of looking down on or neglecting them, the community should find a way to integrate these individuals into society rather than treat them like invalids or as societal dregs. Their education should be funded properly and it must be ensured they are not left at the mercy of their relations who gets to decide whether they should get an education or not or whether they should get treated or not. Once rehabilitated properly and equipped with relevant assistive devices, visually impaired people can do a lot and can equally contribute to society as much as the next sighted person if given a chance.

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