

A Qualitative Enquiry On The Functional And Psychological Outcome Of A Hospital Based Low Vision Rehabilitation In South-South Nigeria: A Cross River State Perspective

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Abstract:

Background: *The impact of low vision on individual's activities of daily living and ability to adjust to low vision have been established over the years. Low vision rehabilitation involves the use of low vision devices and environmental modifications to enable individuals adapt to residual vision in performing task. Good functional outcome of low vision rehabilitation is desired to help address negative outcomes of low vision such as limitation in activities of daily living, physical dysfunctioning, depressive symptoms and health-related quality of live.*

Objectives: *To understand if a tertiary hospital based low vision rehabilitation services addresses the limitations in functional and psychological experiences among samples of patients with low vision.*

Methodology: *A qualitative cross sectional study using interpretive approach was carried out among 12 participants who had benefited from the low vision rehabilitation services of the University of Calabar Teaching Hospital, Calabar, Cross River State, Nigeria. Audio data collected from participants were transcribed, synthesised and organised into themes with illustrative quotes under code for easy inferences.*

Results: *All the participants living with low vision in Cross River State were able to regain some confidence in social interactions following the uptake of low vision rehabilitation services. There was a general report of functional and psychological limitations following vision loss and resultant impact on mobility and activities of daily living. Environmental modifications were noted as lacking in the low vision rehabilitation services with its attendant negative effects.*

Conclusion: *Functional and psychological limitations among people with low vision are negative impacts of low vision that can be addressed with a robust low vision rehabilitation services with an environmental modification component.*

Keywords: *Functional, low vision rehabilitation, Cross River State, Nigeria.*

I. INTRODUCTION

It has been estimated that 285 million people are living with a visual impairment and 246 million of this population have low vision (Pascolini & Mariotti, 2011). This indicates that approximately 85% of people living with a visual impairment may have useful residual vision and could benefit

from low vision rehabilitation as against rehabilitation involving alternative sensory stimulation, such as, braille literacy or the use of audio (Bruce, McKennell, & Walker, 1991; Culham et al., 2002; Markowitz, 2006).

Low vision impacts on an individual's ability to undertake vision dependent tasks associated with daily living (Hodge, Thetford, Knox, & Robinson, 2015; Stelmack, 2001),

including the psychological and emotional state of an individual (Hodge, Barr, Bowen, Leeven, & Knox, 2013; Nyman, Gosney, & Victor, 2010). The ability to adjust to low vision involves developing compensatory strategies that can optimise residual vision and at the same time, coming to terms with the psychology of the loss (Culham et al., 2002; Markowitz, 2006; Massow, 2002). The process of an individual adapting to residual vision is referred to as low vision rehabilitation (Culham et al., 2002; Markowitz, 2006). This may involve utilising optical and non-optical devices including the application of novel handling and viewing strategies, and modifications to the visual environment with the use of new lighting and contrast enhancement techniques (Markowitz, 2006). Hence, access to comprehensive and easily accessible services can facilitate the use of these devices among people with low vision (Culham et al., 2002).

Nigeria is categorised among sub-Saharan regions in Africa, where the prevalence of visual impairment among those with aged 50 years and older is estimated as one of the highest in the world at 90% (Kyari et al., 2009). This underpins findings from a national visual impairment survey which estimated that 4.25 million people in Nigeria of 40 years and older have moderate or severe vision loss that interferes with everyday activities (Kyari et al., 2009). The prevalence of low vision in Nigeria has not been documented but findings of the last national visual impairment survey identified cataract, uncorrected refractive errors, and glaucoma as the leading cause of visual impairment (Rabiu et al., 2012). In Nigeria, various component of low vision rehabilitation are provided by the ophthalmologist and optometrist who have had specialised training in low vision and this is usually conducted in specialised settings such as tertiary eye hospitals and private hospitals.

A. FUNCTIONAL AND PSYCHOLOGICAL IMPLICATIONS OF LOW VISION

It is evident that vision is central to the functioning of the individual, and Living with good vision has been shown to be an integral part of many key life experiences, such as education, employment, and social interactions (Boerner & Cimarolli, 2005; Stelmack, 2001). Several studies have shown that the impact of living with low vision can result in diminishment in physical function, psychological state and on general quality of life (Bruce et al., 1991; Hinds et al., 2003; Hodge et al., 2013; Stelmack, 2001). Additionally, low vision can result in difficulty in performing everyday activities (i.e. reading, dressing, eating, writing, and mobility), loss of personal independence, depression, traveling from place to place, difficulty in maintaining employment, placement in long term care, and increased mortality risk (Culham et al., 2002; Kempen, Balleman, Ranchor, van Rens, & Zijlstra, 2012). It has also been shown that interventions which improve visual function, such as the application of low vision aids and environmental modification can improve an individual functional ability (Margrain, 1999; Watson et al., 1997). Therefore, it is expected that people living with low vision including those in Nigeria, may experience functional and psychological limitations, and that low vision services

including the prescription of low vision devices aim to address these limitations (West et al., 2002).

B. LOW VISION REHABILITATION

It is believed that low vision services enable people living with low vision to use adaptive devices and techniques to independently perform daily activities (Markowitz, 2006; Lamoureux et al., 2007). There is evidence suggesting that low vision is associated with negative outcomes such as limitations in activities of daily living, physical dysfunctioning, depressive symptoms, and lower health-related quality of life (Burmedi, Becker, Heyl, Wahl, & Himmelsbach, 2002a; Evans, Fletcher, & Wormald, 2007; Kempen et al., 2012). Research has shown that these negative outcomes can be addressed by low vision rehabilitation (Markowitz, 2006; Lamoureux et al., 2007). Low vision rehabilitation services encompass optical and non-optical services (Culham et al., 2002; Markowitz, 2006). Optical rehabilitation involves the application of low vision aids that enable people living with low vision to make maximum use of their residual vision (Markowitz, 2006; Margrain, 1999; Watson et al., 1997), whereas non-optical rehabilitation involves environmental modification strategies, adaptive devices and techniques to independently perform daily activities (Culham et al., 2002; Massof, 1995; Owsley et al., 2009). Studies have shown that people with low vision can be supported to achieve some degree of improvement in vision dependent tasks through a combination of clinical assessment, counseling, and the prescription of low vision aids, in conjunction with appropriate follow up and training (Lamoureux et al., 2007; Margrain, 1999; Nyman et al., 2010; Watson et al., 1997). These interventions to improve function constitute the different components of low vision services.

In this study, we seek to understand if the hospital based low vision rehabilitation services of University of Calabar Teaching Hospital (UCTH), Cross River State, Nigeria addresses the functional and psychological limitations experience among sample of patients with low vision that have utilised the service. It is not strictly possible to generalise from the sample to every individual living with low vision in Nigeria, but we hope that findings from this study can suggest ways in which low vision services might better address the functional needs of people living with low vision.

II. METHODOLOGY

The study was done and coordinated from UCTH, Calabar, Cross River State, Nigeria between May and June, 2017. Cross River State is located in the south-south region of Nigeria with an estimated population of approximately 3 million people. The Low Vision and Rehabilitation Services of the Department of Ophthalmology of UCTH is located in Calabar which is the capital of Cross River state. This tertiary eye hospital is seemingly the only eye tertiary hospital serving people of the state and its environs. Its low vision and rehabilitation services, the only in the state, was set-up in 2008 (nine-years ago) with the aim to enhance service delivery in the eye care system through assisting individuals diagnosed

with low vision to make maximum use of their residual vision. This services have provided 'optical rehabilitation' to this group of people via low vision counselling and prescription of low vision devices. in contrast to conventional practice in low vision rehabilitation, this hospital-based low-vision services offer clinical and functional assessment but not the full scope of rehabilitative services.

As we sought to understand the live experiences of people living with low vision, the study adopted a qualitative methodology and an interpretative approach. The interpretative approach focuses on the meaning participants attributed to their personal experiences. As Smith, Jarman and Osborn (1999) noted, the interpretive approach aims to, "explore in detail how participants are making sense of their personal and social world". The aim was therefore not necessarily to create interpretations that might be generalizable to other populations but rather to gain new perspectives and deeper insights into the topic under investigation (Lopez & Willis, 2004). Because of our experiences of working with people with low vision, we sort to address concerns relating to bias of the central phenomenon being studied and the process of bracketing was adopted for this study. This enabled the researchers to be open to participants' descriptions of their lived experiences of low vision and rehabilitation services.

A. PARTICIPANTS

15 participants were selected from a pool of 60 adults living with a visual impairment who have had low vision assessment and acquired the low vision devices at the Low Vision Rehabilitation Unit of UCTH a minimum of two years prior to being recruited for this study. Participant were contacted by the researchers; informed consent and eligibility was determined during a screening telephone interview. Twelve qualified participants met all recruitment criteria, and the informed consent forms were also presented to participants on the day of the interview for signing. Criteria for inclusion were: age between 18 to 59 years and had no other disabilities.

All study procedures and materials were approved by the Ethical Committee of UCTH, and formal consent to participate was provided by participants. Data was collected via in-depth interviews. Face-to-face interviews was conducted, lasted between 35 and 45 minutes, and were audio recorded using a digital recorder. The interviews were semi-structured, enabling participants to talk about their experiences of living with low vision. Probes were used to prompt additional detail and clarify meaning, as required. The interviews focused on experience of vision loss, use of low vision rehabilitation services and how effective this service had been in addressing functional limitations and improving activities of daily living. Transcripts were de-identified to maintain confidentiality, and access to transcripts was limited to the research team. Quotes from participants are referred to pseudonym.

B. DATA ANALYSIS

Audio data from the interview was transcribed verbatim into text. Manual thematic analysis began with the first

interview and proceeded concurrently with data collection. Initially, interview transcripts were read to obtain a general understanding of each personal story, then transcripts were compared and contrasted to identify similarities and differences in experiences and practices (Punch & Oancea, 2014). Preliminary analysis of the interviews identified major themes and variations within the participants' stories that described their experiences of living with low vision and utilising low vision devices. As the data was synthesised, themes that represented the experience of living with low vision and corresponded to the implications of vision loss on individual's functional ability were identified. Data was organised or reduced into themes by identifying words or phrases that best described the common experiences of participants. Illustrative quotes were arranged under codes and, finally, sub-themes were grouped to form three broad themes that are discussed in the next section.

III. RESULTS

Of the 15 contacted participants, 12 met inclusion criteria and agreed to take part in the study. Seven were males and 5 were females. Participants were aged between 25 and 59 years old with an average age of 39. Eight have been living with low vision for 4 to 8 years and 4 for three years. Seven participants lived in urban areas and 5 live in rural areas, in Five of the 18 Local Government Areas of Cross River state. six were married and lived with their spouses, 2 were divorced and the remaining 4 had never been married and lived with their relatives. As noted in UCTH record and the testament of participants, 7 participants acquired low vision from Glaucoma, 3 from Diabetic Retinopathy, 1 from macular degeneration and 1 from Optic Atrophy.

Of the 12 participants, 3 were secondary school graduate; 7 had higher institution certificate or degrees, and 2 were undertaking undergraduate studies. Three participants were employed by private agencies, 1 was self-employed (seamstress), 1 was a retired school principal, 5 were unemployed, and 2 were university students. The occupations of the participants included procurement officer, program manager, education administrator (principal), seamstress, and livestock business.

Three overarching themes were developed from participants' accounts which reflected their experiences of living with low vision and of participating in low vision rehabilitation services in Calabar. These were:

- ✓ Impacts on participation in education, employment, and activities of daily living.
- ✓ Impacts on psychology and social interaction with others.
- ✓ Perception of low vision rehabilitation and low vision devices

THEME 1: IMPACT ON EDUCATION, EMPLOYMENT AND ACTIVITIES OF DAILY LIVING

Participants account on the impact of living with low vision on their functional ability in various life domains, such as education, employment, as well as activities of daily living. Ms B's goal was to further her education to postgraduate

studies, but when she could no longer read and write, she no longer believed she could further her studies. She noted: "I want to do a masters but because of my poor vision, I couldn't further my education... It saddens my mind when I cannot do what others are doing". Similarly, Mr Z reported: "I couldn't read my book and I couldn't see the board as well, then I knew my education was gone, and my career as well".

Mr T highlighted the impact of his vision loss on his job: I can't read. In fact, at work, when they bring documents for me to sign; it was difficult for me to identify the signature line and most times I will sign outside the signature line.... I can't even sign on my bank cheques.

Mrs H also found her vocational performance was significantly impacted by her vision loss as she could no longer use the sewing machine: When I was losing my sight, I then realised I really couldn't function the way I had done normally...I couldn't use the sewing machine like I used to, I feel sad because the work that I am doing now needs my eyes very well. I am a seamstress and I am finding it difficult to hold and use the needle. Similarly, Mr N notes: "one key change is that it has really affected my finance because I am not able to work. I had a job with a bank but I was unable to serve because I couldn't use the computer".

Therefore, the functional limitations experienced by these participants decreased their productivity and capacity to contribute in their workplaces. For other participants, loss of functional abilities prevented them engaging in day-to-day activities. For example, Mrs Q reported that she could not undertake domestic activities: "I am the main cook in my house, I do the shopping and cleaning as well. When I noticed that I was losing my vision, I could not go shopping anymore and cooking became very difficult for me". According to her, it is difficult to identify cooking utensil and some recipe due to poor colour contrast with her kitchen table. She noted: "cooking is sometimes difficult because of their colours I can't see some cooking materials or ingredient on my kitchen table".

Therefore, her vision loss with associated diminished colour contrast impacted on her ability to participate in domestic activities; this resulted in diminished functions. Living with low vision also had a significant impact on the travel skills of participants. Mr E noted: I could move around by myself in the past. But with my vision loss, I could not move around alone. It is difficult to see on coming cars and it is dangerous for me to even cross the road. So I depend on people... sometimes my friends have to take me to places.

Mrs H also noted her loss of independence due to diminished mobility: I was troubled because I noticed that I can't see well enough to move around independently when it is getting dark. So I was scared of becoming blind and I kept on asking myself if I will be depending on people to take me around?

Moving around independently was a major concern for participants, with each reporting that their vision loss resulted in some form of impaired mobility. Overall, living with low vision was associated with reduced participation in education and vocational opportunities as well as diminished activities of daily living.

THEME 2: IMPACT ON PSYCHOLOGY AND SOCIAL INTERACTION WITH OTHERS

According to participants, living with low vision impacted on their social interaction with people. Mrs Q reported that she could not see people's faces from afar, so if someone is waving her, she cannot depict if it was meant for her. She notes "if someone is passing and waving at me, I will not see the person very well. Sometimes I will feel it wasn't me they are waving because I can't see the person very well. People started saying that whenever they greet or wave me, I don't respond well. At a point, I lost my self-esteem and was psychologically down". She further added that her low vision led to a breakdown of her marriage. She reported that: "I must admit that I lost the man; the man I was married to, I lost him. He was no longer interested when my vision was deteriorating. I noticed that he was no longer showing interest so eventually, I lost him".

Mr J noted that his low vision has affected his interaction with friends and people in his community negatively. He reported that "I can walk pass my very own friend and I can't see them... Some people say I snub, every time I keep telling people that I'm sorry I didn't see them.". He also noted that some people got angry and stopped talking to him; some stopped greeting or waving him. Mr J added that his low vision is affecting his marriage. "Because I cannot see well, many things are going wrong in my marriage right now".

The impact of living with low vision on social interaction was common among participants. For some, it resulted in reduced network size, while some experienced a significant change in their intimate relationship.

THEME THREE: PERCEPTION OF LOW VISION REHABILITATION

Participants in this study experienced varying degrees of functional limitation as a result of living with low vision. However, some of these limitations were addressed through participation in low vision rehabilitation services. Mr T attended the low vision rehabilitation service on the recommendation of his ophthalmologist: I have lost hope and I thought nothing can be done to improve my vision but... the ophthalmologist assured me that if I undertake low vision assessment, I can be given glasses that will help me So I went for the low vision assessment and I was happy my vision improved with the glasses I got". For Mr T, participation in low vision rehabilitation services gave him hope as he could make maximum use of his functional vision.

Other participants found encouragement by having the opportunity to look through various low vision devices; seeing clearly than their normal vision was encouraging. Mrs H reported that: "I didn't know I could see as clear as this... I have been tested with various glasses and none had helped me. I was very happy to Know that I can see with some special kind of glasses in this place". Similarly, Mr G notes: "The low vision rehabilitation was so nice because I could not believe that something like that, something of that nature is in a place like that and will restore my lost hope. I was hopeless when I noticed that I was losing my vision, but undertaking low

vision rehabilitation, my hope was restored and I could read again”.

Participants discussed the various aspects of low vision assessment and the significance on enhancing their vision. Participants noted the training on near and distant vision; applying the magnifiers and the hand-held telescopes for spotting but training on environment modification to enhance visual function is seemingly lacking in their low vision training. For example, Mr N related the positive benefits to his life of using the magnifiers which improved his functional capacity and independence at work: “I can read now and I returned to my job as a happy man. Without it, I wouldn’t be able to do a thing”. However, Mrs Q had difficulty in the colour contrast in her kitchen. She couldn’t identify her cooking tools and recipes on her kitchen table.

Even though participants reported that the up take of low vision rehabilitation had improved their vision and functional ability, some participants had a different experience. For example, Mr X had a negative experience with low vision devices. He noted that: “I was given a lens but it was not helpful. Each time I use the lens it bolds and clusters the text and I can’t read them”. Similarly, Mr N noted: “I was depressed and embarrass in school because I couldn’t read. I couldn’t do anything, even the glasses that was given to me was not helpful. I have no glasses now because I couldn’t get the one that will help me”.

In addition, some participants reported that the low vision devices they acquired has not been helpful to them. Some complained of having headache or tearing whenever they used the devices. Mrs W, a procurement officer noted that: “I can’t use my glasses for long because it gives me headache and my eyes will be bringing out water”. Similarly, Mrs H reported that each time she wears her glasses, it’s as though she is falling into a pit. She notes: “My glasses has not been helpful to me because each time I wear them the ground appears as if it is opening and I feel as if I am falling into a pit”. However, it was observed that some participants are using their devices for tasks that it was not meant for. For example, Ms Z noted that: “the doctor told me that the pair of glasses is for reading but I use it for other things and moving around as well... if I wear it for long, I will have headache”.

Overall, participants reported that the up take of low vision rehabilitation enhance their psychology but the impact on their functional abilities were associated to the low vision devices prescribed or acquired. Thus, some participants experienced improved functions across different life settings, including workplaces and school environments; while some did not. All the participants felt that the environmental modification component of low vision rehabilitation can have more positive impact on their functional abilities.

Furthermore, participants noted that the up-take of low vision rehabilitation and the utilisation of low vision devices has enhanced their interaction with people. For instance, Mr J reported that the low vision devices have improved his vision and he can identify people that are greeting or waving him from a distance: “If I put on my glasses, I can see who is greeting or waving me and I respond as well. People are no more complaining that I don’t respond to greetings and my communication with people has improved”.

Participants had greater confidence in interacting with others following their low vision rehabilitation. Mrs P noted that she was feeling embarrassed when people complained of her negative response to greetings and she felt isolated at some point. According to her, the low vision aid she acquired has improved her interaction with people. She noted: “I was ashamed at some point because people were complaining that I don’t respond well to their greetings. Later I noticed that people stopped greeting or talking to me but my glasses has helped me. Now I can see who is greeting me and I respond well”.

IV. DISCUSSION

This study examined the functional and psychological outcome following the up-take of a hospital based low vision rehabilitation services among sample of adults living with low vision in Cross River State of Nigeria. Participants reported functional and psychological limitations following vision loss and a resultant impact on participants’ mobility and daily living activities as indicated in one of the international literatures (McCabe et al., 2000;). These limitations are associated with reduced participation in educational and vocation opportunities.

Findings demonstrate that adults living with low vision in Cross River state, Nigeria can regain confidence in social interaction following the up-take of low vision rehabilitation services and the acquisition of low vision devices – glasses that in turn improved their visual function. Social interaction is crucial to well-being and research has demonstrated the importance of social connectedness in the lives of people living with a visual impairment (Cimarolli & Boerner, 2005; Wang & Boerner, 2008). However, the impact of living with low vision on the social functioning of people living with low vision in this sample was significant social isolation. This finding align with studies that indicates that people with visual impairment are more likely to feel lonely and lack social support than the general population and experience a decrease in social functioning (Cimarolli & Boerner, 2005; Thurston, Thurston, & McLeod, 2010). Furthermore, participants reported that attending the low vision rehabilitation services gave them the hope of having improved visual through the utilisation of low vision devices. This is a testament of improved psychology following the up-take of low vision rehabilitation.

The findings presented here are consistent with the concept and aims of low vision rehabilitation services, that is, to assist individuals with low visual to make maximum use of their residual vision through the application of compensatory strategies involving optical and non-optical services (Hinds et al., 2003; Lamoureux et al., 2007; Markowitz, 2006). Therefore, findings from this study demonstrates the significance of a tertiary hospital based low vision rehabilitation services to address the impact of low vision on an individual social skills and to regain functions in various life domains such as education, employment, and activities of daily living.

Although, findings suggest that low vision rehabilitation services with the acquisition of low vision devices can assist

people living with low vision to regain self-confidence to undertake tasks of everyday living and to interact with other people, the study demonstrated that the lack of environmental modification as an aspect of low vision rehabilitation services can result in the diminishment of an individual functional ability in spite of the acquisition of low vision devices. Studies have shown that modifying the visual environment through new lighting and colour contrast can enhance an individual visual functions (Culham et al., 2002; Markowitz, 2006). We therefore suggest that the low vision rehabilitation services in Cross River State, Nigeria may benefit from the addition of an 'environmental modification strategies and perhaps, the development of an environmental modification room for demonstrations'. This can specifically support people living with low vision to adapt to their environment. Thus, reducing functional limitations experienced by these individuals and facilitating their functional ability.

This study finding also revealed that participants are utilising their low vision aids for tasks that it was not meant for. For instance, some participants low vision devices are meant for near vision i.e. reading whereas, these participants are utilising these devices for distant vision dependent tasks i.e. mobility and activities of daily living. This, however, can result in unpleasant or ill feeling such as, headache, tearing of the eyes and/or poor visual function (e.g. diplopia). This finding is consistent with studies that have shown that ocular discomfort can be associated to the disparity of the focal length of the device (Leat, North, & Bryson, 1990; O'Hare, Zhang, Nefs, & Hibbard, 2013). Therefore, we suggest that education on proper usage of low vision devices and the significant of keeping to re-assessment appointment should be enhanced in the hospital based low vision rehabilitation services.

V. CONCLUSION

Living with low vision, results in functional and psychological limitations among people with low vision. These limitations include diminished employability, difficulty to move around, lowered self-esteem, psychosocial introverts, and diminished ability to undertake daily living tasks. As a result, people with low vision experience a less economically productive life and experience reduced opportunity for participation in education, the labour market and the community. With a good low vision rehabilitation services, it is believed that a major bulk of the limitations can be addressed.

Participants viewed low vision rehabilitation services as a support program that brought hope and restored their functional ability. From these participants, the component of low vision rehabilitation services addressed the psychology of their vision loss and their functional limitations. However, participants noted that low vision rehabilitation services in Cross River State, Nigeria is lacking in environmental modification strategies that would have improved their adjustment to their environment. Therefore, it is suggested that low vision rehabilitation services in Cross River State, Nigeria should adopt environmental modification strategies and perhaps, set-up an environmental modification room for

demonstrations. Such an expansion of current service offerings is expected to facilitate the functional ability of people living with low vision.

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