Quality Of Life of Students in Schools for the Blind, South Eastern Nigeria.

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ABSTRACT
Aim: To assess the quality of life of students in schools for the blind, south-east Nigeria.
METHODS: This was a descriptive, cross-sectional study of 146 randomly selected students out of a total of 215 in three schools for the blind carried out from February to March, 2019. An interviewer-administered, vision-specific quality of life (QOL) questionnaire was administered to the participants, after obtaining their socio-demographic and clinical profiles.
Data was analyzed using statistical package for the social science version 20.0.Using the Time Trade Off method, a utility score for each domain of the questionnaire was estimated. Chi square was used to establish the association of QOL with socio-demographic characteristics and pattern of vision. The level of significance was at p< 0.05.
RESULTS: The participants were mainly males 93(63.7%), less than 18 years of age 77(52.7%), with greater than 10 years of blindness 76(52.1%), and cannot perceive light 78(53.4%). Overall maximal impact of blindness on QOL was 49(40.4%). Poor QOL was associated with female gender, age >18 years, >10 years of blindness and visual acuity of no light perception, though none was statistically significant.
CONCLUSION: In south-east Nigeria, the overall QOL in 40% of the blind students was not optimal. Measures aimed at improving their QOL especially for the older, blind females should be instituted and sustained by policy makers.
Key words: quality of life, school for the blind

I. Introduction:

Globally, there are estimated 39 million blind persons, and approximately 9 million of them in Sub-Sahara Africa, representing 18.4% of the world's blind, the highest regional burden of blindness in the world.[1] In Nigeria, 1.13 million persons aged 40 years or more are blind, out of whom 126,039 are in the south-east region.[2] The World Health Organization defined Quality of Life (QOL) as individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, personal beliefs and their relationship to salient features of their environment.[3]

Blindness is one of the most tragic, yet often avoidable disabilities in the developing world. It is one disability, almost everyone would dread to have.[4]The situation is more tragic when blindness afflicts a child because of the longer blind-years ahead. Children who are blind have to overcome a lifetime of emotional, social and economic difficulties, which affect the child and the society. The lost productivity due to blindness has significant economic and social implications in every society.[5]

Although, the cost of treatment and rehabilitation for the blind have significant economic consequences, they improve quality of life and facilitate development.[6] The importance of vision in the activities of daily living of individuals and the direct effect of blindness on their functional status and quality of life cannot be overemphasied.[7.] Similarly, it has been shown that blindness rehabilitation programme in special

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schools for the blind, where specialized compensatory skills are taught improve functional status of the blind and thus enhances their QOL.[8]

In the past, functional outcome of interventions in eye diseases were based on physiological measures such as visual acuity, color saturation and contrast sensitivity. Currently, assessment of eye care treatment outcome has focused on health-related quality of life because the burden of disability in daily activities from the patient's perspective may not be adequately characterized by functional measurements.[9]

The learning conditions, resources for rehabilitation and quality of education available to blind students at special schools affect their quality of life.[10] In Nigeria, most of the studies carried out in the schools for the blind were aimed at finding the causes of blindness,[11,12] and scarcely on assessing the quality of life of their students. This study therefore sought to assess the quality of life of the students in the schools for the blind within the south-east Nigeria aimed at generating evidence to inform policy makers using the vision specific quality of life (VisQoL) questionnaire, a utility instrument designed for resource-limited settings for evaluation of eye care and rehabilitation programmes.[13]

II. Methods

Study Areas: There are 3 schools for the blind in the South East Nigeria located at Oji River, Enugu State; lsulo, Anambra State; and Afaraukwu, Umuahia, Abia State. The first two are special education schools for the blind and deaf while the last is exclusively for the blind.

The schools are boarding primary / vocational school established in 1958, spanning from class one to class six. The Oji River had a total of 75 registered blind students, while the Isulo and Afaraukwu had 62and 78 registered blind students respectively.

Study population: The 215 students from the three schools for the blind in the South-east Nigeria, who met with the inclusion criteria.

Study design: This was a school-based, descriptive, cross-sectional study involving the blind students in the three schools for the blind in South East Nigeria in April 2019, using **an** interviewer- administered questionnaire for vision specific quality of life (VisQoL).

Inclusion Criteria: Blind students who were 6 years old and above, with consent to participate by parents or guardians and assent from the pupils.

Exclusion Criteria: Students whose parents or guardians refused consent to participation and students with co-morbidities.

Ethical clearance: Approval for the study was obtained from the Health Research and Ethics Committee (Institutional Review Board) of the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu according to the tenets of the Helsinki Declaration. Written informed consent,signed or thumb printed was obtained from each participant or guardian and assent from the pupils. Participation in the study was voluntary and at no cost to the subjects. Permission was also sought from the school authorities to carry out the study.

Minimum sample size estimation: This was determined using the Kish and Leslie formula.[15] $N=Z^2pq/d^2$. Where

N = Minimum sample size

Z = 1.96 which corresponds to the 95% confidence level

p = Prevalence of 1.2% $(0.012)^{15}$

q = 1-P = 0.988

d = precision level 2% (0.02)

$$N = \frac{1.96^2 \times 0.012 \times 0.988}{0.02^2} = 114$$

When adjusted for a non-responders rate of 10%, $N$is 114. Hence, a sample of 125 blind students was determined.

Sampling technique: The population of the students that formed the sampling frame (N) of the three schools was as follows: Oji River 75, Afaraukwu – 78 and Isulo - 62 with a total of 215 students. The sampling interval (k) is sampling Frame (N) /sample size (n)

K = N/n = 215/125 = 1.72, therefore consecutive consenting eligible students were recruited until the study sample size of 146 participants was reached.

Quality of life questionnaire (VisQoL**) :** is a utility instrument that consists of 6 domains: physical well-being, independence, social well-being, self-actualization, planning and organization. Every domain represent an item. Each question was preceded by ''Does my vision. . . and each dimension had between 5 and 7 response categories, ranging from, for example, ''no effect'' to ''unable to do.'' Two dimensions also have a ''non-applicable'' option. These items have various response categories with item 1 having 5 response categories, while items 2,4,5,6 have 6 response categories and item 3 has 7 response categories.

A pilot study was conducted in the school for the blind in Abakiliki Ebonyi state in south-east Nigeria, which was not part of the main study, with 30 students to ascertain the feasibility of the study.

Study procedure: The students were evaluated for eligibility and recruited into the study. After obtaining consent, the pre-tested, structured questionnaire comprising of two sections:- socio-demographic and clinical sectionswas administered by the researchers as well as interviewer-administered VisQol assessment form. Thereafter, each subject had the following examinations**:**

Visual Acuity Measurement: Each subject had distance visual acuity (VA) tested using a logMar chart or an illuminated Illiterate E chart at 1 meter, unaided and aided with low vision device, if normally worn. Each eye was tested separately with the other eye occluded.

Tests of Functional Vision[16]: Three simple tests of functional vision were used to determine whether the student had useful residual vision for: **i**independent mobility (ability to navigate without assistance between two chairs, set 2 meters apart, in a well-lit room), social contact (ability to recognize someone known to them at a distance of 2 meters) and near vision (ability to recognize or describe the shape of three 5mm symbols at any distance).

Data Management: Data was cleaned, coded and analysed using the Statistical Package for the Social Sciences (SPSS) version 20.0. Based on participant surveys using the Time Trade Off (TTO) method, a utility score for each domain of the VisQol was estimated and thereafter multiplication model was used to get a utility score ranging from zero to one when all the six domains were combined using the VisQol survey scale[17]. Descriptive statistics was used to summarize the data while Chi square test was used to establish the association between QoL and socio-demographic characteristic and pattern of vision. A p-value of less than or equal to 0.05 was considered significant.

III.   Results:

The participants comprised of 52(35.6%) students from Oji, 52(35.6%) from Afara and 42(28.8%) from Isulo. They were mainly males 93(63.7%), aged 18 years or less 77(52.7%). Other characteristics were as shown in table 1.

The following were the presenting visual acuities of the participants in their better eye:- 21(14%) could counting fingers at 1 metre, 26(17.8%) hand movement, 30(20.5%) perception of light and 69(47.3%) could not perceive light. None of them had any form of visual aids, however they had access to the use of braille.

The overall impact of blindness on Quality of life was minimal in 87(59.6%) and maximal in 59(40.4%) participants with mean score of 1.52 ±0.32. The impact on each of the six domains were as shown in table 2.

Maximal impact, poor QOL was associated with female gender, age greater than 18 years, vocational class, greater than 3 years of study, greater than 10 years of blindness and visual acuity of no perception of light. Though none was statistically significant as shown in table 3.

IV.   Discussion*:*

The participants were mainly males and aged 18 years or less. This demographic profile was similar with other studies [11,18] done in developing countries. The socio-cultural belief in these countries that male education should be given priority may explain this finding. Universal access to education should therefore be encouraged. Females with disabilities should be given equal opportunities with their male counterparts.

The overall impact of blindness on Quality of life was maximal in 40.4% of theparticipants. Similar report was documented in other studies done. [7,19,20]

However, in this study blindness had a minimal impact in the domains of social well-being and planning. This was in contrast with a study done elsewhere in south-west Nigeria[19] which showed a poor quality of life in the domain of social interaction. This may be explained by the fact that the participants in the present study have good rehabilitation in the area of communication; as they were exposed to reading and writing with braille, which has improved their communication skills, their independence and self-confidence in activities of daily living.

In this study, blindness had a very minimal impact on the QoL domain of physical well-being. Contrarily, a study done among Taiwanese subjects [21] that reported that vision impairment has a significant impact on the physical and social functioning scale. This is not surprising because the Taiwan study participants were elderly, and the associated loss of dexterity that comes with ageing, and other age-related co-morbidities may be contributory to their poor physical well-being.

In this study maximal impact of blindness whichtranslates to poor QOL was associated with female gender, age greater than 18 years, greater than 10 years of blindness and visual acuity of no perception of light, though none was statistically significant. This corroborates with the report made in Zahedan Iran,[22] where the QOL was significantly lower in females.

V.   Conclusion:

In south-east Nigeria, the quality of life in 40% of the blind students was not optimal. Measures aimed at improving QOL should be instituted and sustained by policy makers. Provision of adequate modern rehabilitation material and personnel resources in these schools would impact positively on the students' quality of life with ultimate reintegration into the larger society.

Conflict of interest: The authors declare no conflict of interest.

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Tables

Tables 1: Socio-demographic characteristics of participants

Socio-demographic characteristic	Frequency (n=146)	Percentage (%)
Age (years)		
≤18	77	52.7
>18	69	47.3
Sex		
Male	93	63.7
Female	53	36.3
Class of study		
1-3	58	39.7
4-6	64	43.8
Vocational	24	16.4
Year of study		
1-3	94	64.4
>3	52	35.6
Years of blindness		
1-10	70	47.9
>10	76	52.1

Table 2: Distribution of Vision Related quality of life

Impact of blindness on QOL	Number (n=146)	Percent (100%)	Mean (Std Dev)
Physical well being			
Minimal	117	80.1	1.37(0.25)
Maximal	29	19.9	
Independence			
Minimal	123	84.2	1.75(0.43)
Maximal	23	15.8	
Social well being			
Minimal	141	96.6	1.52(0.26)
Maximal	5	3.4	
Organization			
Minimal	134	91.8	1.43(0.31)
Maximal	12	8.2	
Self-actualization			
Minimal	122	83.6	1.62(0.40)
Maximal	24	16.4	
Planning			
Minimal	140	95.9	1.43(0.26)
Maximal	6	4.1	
Overall impact on QoL			
Minimal	*87*	*59.6*	*1.52(0.32)*
Maximal	*59*	*40.4*	

Table 3: Socio-demographic characteristics and pattern of vision with overall quality of life dimension

Variable	Impact on QoL		χ^2 test	p value
	Minimal n (%)	Maximal n(%)		
Age (years)				
≤18	51(66.2)	26(33.8)	2.987	0.084
>18	36(52.2)	33(47.8)		
Sex				
Male	57(61.3)	36(38.7)	0.308	0.579

Female	30(56.6)	23(43.4)		
Class of study				
1-3	32(55.2)	26(44.8)		
4-6	43(67.2)	21(32.8)	2.921	0.232
Vocational	12(50.0)	12(50.0)		
Year of study				
1-3	57(60.6)	37(38.4)	0.121	0.728
>3	30(57.7)	22(42.3)		
Years of blindness				
1-10	43(61.4)	27(38.6)	0.189	0.664
>10	44(57.9)	32(42.1)		
Visual acuity				
Count Finger	15(71.4)	6(28.6)		
Hand Movement	17(60.7)	11(39.3)	4.403	0.221
Perception of Light	14(73.7)	5(26.3)		
No Perception of Light	41(52.6)	37(47.4)		

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