



# Quality of Life Related to Visual Impairment in Visually Impaired Learners at the Center for Social Promotion of the Blind in Parakou in 2022

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## Research Article

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## Abstract

**Introduction:** Sight is important for learning and daily living life and becomes a challenge in cases of visual impairment. This study aims to assess the impact on the quality of life of learners at Parakou Social Promotion Centre for the Blinds.

**Method:** A cross-sectional study was conducted on 57 visually impaired and blind participants, using the PedEyeQ scale. Data were analysed using statistical tests to identify factors influencing quality of life.

**Results:** The prevalence of visual impairment was linked to a variety of causes, with an overall satisfaction rate of 50.9%. Specific dimensions such as "Self-image" showed positive scores, but "Daily life" revealed dissatisfaction in 51.1% of blind people. Factors such as female gender and age between 15 and 25 were associated with a less positive quality of life.

**Conclusion:** This study highlights disparities in the quality of life of visually impaired learners, underlining the importance of appropriate interventions to improve their well-being.

**Keywords:** Visual Impairment; Quality of Life; Self-Image Dimension; Psyche Dimension

## Introduction

Sight plays an essential role in all aspects and stages of our lives. Without vision it is difficult to learn to walk, to read, to participate in class and to work [1]. Visual impairment expresses an insufficiency or absence of an image perceived by the eye. It is related to damage to the eye or to the visual pathways to the brain. These impairments may be congenital or acquired (accidents or diseases) [2]. Visual impairment (VD) is a public health problem that is far from being

resolved, despite advances in the diagnosis and treatment of eye diseases [3]. Worldwide, at least 2.2 billion people suffer from visual impairment and/or blindness, at least 1 billion of whom have an impairment that could have been prevented or is still untreated [1]. Blindness and low vision affect both adults and children. The latter represent a very large proportion. There are around 1.4 million blind children in the world, including 1 million in Asia and 300,000 in Africa. Around 500,000 children worldwide got blind every year [4]. Childhood blindness remains a major global problem.

The prevalence of blindness in children varies from 0.20 to 1.10% in North America, and from 0.63 to 1.09% in Asia. Estimates of the prevalence of blindness are respectively 0.10 to 0.50% in European countries, and 0.50 to 1.10% in sub-Saharan Africa [5].

## Study Method

This was a prospective cross-sectional study with descriptive and analytical aims. It took place over a period of 1 month from 1st March to 31st March 2022.

The target population for the study consisted essentially of visually impaired and blind learners at the Centre for the Social Promotion of the Blind named Centre de Promotion Sociale des Aveugles (CPSA) in the commune of Parakou. We used non-probability sampling with exhaustive recruitment of CPSA learners. Thus, all learners who met the inclusion criteria were included. The dependent variable of the study was the quality of life of visually impaired and blind learners. The quality of life of visually impaired learners was assessed using the PedEyeQ (Pediatric Eye Questionnaire) scale adapted to the present context. This is a questionnaire that provides information on how eye disease can affect an individual's daily life. Each of these dimensions comprises questions with modalities («Never», «Sometimes» and «All the time») rated respectively at 2 points, 1 point and 0 points. At the end, for each student, the dimensions were classified as follows: poor for a score less than or equal to 50% of the total score; average for a score between 50% and 65% of the total score; good for a score greater than 65% of the total score. All subjects, after questioning, underwent a complete, bilateral and comparative ophthalmological examination including: assessment of visual acuity using the Snellen or Monoyer scale with the best optical correction worn. We used the WHO (World Health Organisation) visual impairment guideline as visual acuity of less than 3/10 after optical correction and/or a visual field of less than 10° on the better eye. People are considered blind when their visual acuity is less than 1/20 on the best seeing eye. If the patient could not see the optotypes, visual acuity was assessed according to the perception of light and/or hand movements monocularly and binocularly. Examination of the adnexa and anterior segment with the headlamp and binocular loupe; measurement of pressure with the Icare tonometer; fundus examination with the indirect ophthalmoscope after pupillary dilation with 0.5% tropicamide.

Once the data had been collected, it was entered into Epi Data 3.1fr and then exported to Microsoft Excel IBM SPSS statistics 27 for analysis. Quantitative data were expressed as mean and standard deviation. The median is given if the distribution does not follow the normal distribution. Qualitative data were expressed as percentages and

confidence intervals. The Pearson Chi-square test and the Fischer test were used to analyse the relationships between the variables. All factors included in univariable logistic are significant variables to MVA. A logistic regression model was used to identify factors predictive of poor quality of life in visually impaired learners. The significance level was 0.05.

## Results

Within the framework of the present study, 60 learners were enrolled at the CPSA Parakou. Of these, 57 were visually impaired and were the subjects of our study. It should be noted that 03 participants had a unilateral visual impairment and were excluded from the study.

## Socio-Demographic Characteristics of Participants

The average age of the participants was  $16.70 \pm 4.55$  years, with extremes of 8 and 25 years old. The most represented age group was between 15 and 20 years old (42.1%). There were 41 (72%) male participants and 16 (28%) female participants. The sex ratio was therefore 2.56. The majority of participants (64.9%) came from polygamous families and 52.6% were between the 2<sup>nd</sup> and 4<sup>th</sup> siblings. More than half of the participants (52.6%) were schoolchildren.

## Clinical Aspects

In our series, 32 participants (56.1%) had no personal ophthalmological history. For those who did have a history, it was mainly eye surgery (21.1%) and eye infection in childhood (14.0%). It emerged that 13 participants (22.8%) had a family history of visual impairment. These were brothers in 76.9% of cases, sisters in 38.5% of cases, cousins in 7.7% of cases and mothers in 7.7% of cases.

The eyes most represented were those with visual acuity between 1/50 and light perception on projection (PPL), with a percentage of 86% for the right eye and 80.7% for the left eye. Blindness was discovered at birth in 21 participants (36.8%), and between the ages of 5 and 14 in 19 participants (33.3%). Blindness was present in 82.4% of participants. It was bilateral in 52 participants (91.2%). One participant (1.8%) was blind in the left eye and 4 (7.0%) in the right. The main causes of visual impairment were cataracts (29.8%), corneal scarring (19.3%) and phthisis of the globe (15.8%).

## Categorisation of Causes

Infectious (42.1%) and congenital (35.1%) were the most common causes (Tables 1 & 2).

	Number	Percentage
Infectious	24	42,1
Congenital	20	35,1
Undermined	6	10,5
Hereditary	5	8,8
Traumatic	2	3,5
<b>Total</b>	<b>57</b>	<b>100,0</b>

**Table 1:** Distribution of participants according to categorisation of causes (CPSA, 2022).

#### Overall satisfaction

50.9% of participants were satisfied with their care at the CPSA Parakou.

	Number	Percentage
low satisfaction	4	7,0
Average satisfaction	24	42,1
Good satisfaction	29	50,9
<b>Total</b>	<b>57</b>	<b>100,0</b>

**Table 2:** Distribution of participants according to overall level of satisfaction with care at the CPSA Parakou (CPSA, 2022).

## Analysis of Quality of Life Dimensions

### Self-image

The overall mean score for the «self-image» dimension was  $4.92 \pm 1.13$  (82.0±18.33%). The mean score for visual impairment was  $4.90 \pm 0.99$  (81.7±16.5%) and for blindness was  $4.93 \pm 1.16$  (82.2±19.3%). Participants with a «Good» score were the most numerous, i.e. 70% of visually impaired participants and 74.5% of blind participants (Table 3).

	Visually Impaired		Blind	
	N	%	N	%
Bad	1	10,0	4	8,5
Average	2	20,0	8	17,0
Good	7	70,0	35	74,5
<b>Total</b>	<b>10</b>	<b>100,0</b>	<b>47</b>	<b>100,0</b>

**Table 3:** Distribution of participants according to score qualification for the 'Self-image' dimension (CPSA, 2022).

Factors influencing the 'self-image' dimension after multivariate analysis

After multivariate analysis, female participants were

18.57 times more likely to have a 'Poor' score on the 'Self-image' dimension (Table 4).

	RP	IC 95% RP	p-value
Sex			
Female	18,575	[1,45-236,44]	0,024
Male	1	-	-

**Table 4:** Distribution of participants according to score on the 'self-image' dimension after multivariate analysis (CPSA, 2022).

### Psych Dimension

The overall mean score for the «Psyche» dimension was  $3.21 \pm 1.01$  (80.3±25.3%). The mean score for the visually impaired was  $3.70 \pm 0.67$  (92.5±16.8%), and for the blind was  $3.10 \pm 1.04$  (77.5±26.0%).

Participants with a «Good» score were the most represented, i.e. 90% among the visually impaired and 74.5% among the blind, as shown in the following (Table 5).

	Visually Impaired		Blind	
	N	%	N	%
Bad	1	10,0	12	25,5
Good	9	90,0	35	74,5
<b>Total</b>	<b>10</b>	<b>100,0</b>	<b>47</b>	<b>100,0</b>

**Table 5:** Distribution of participants according to score qualification for the «Psyche» dimension (CPSA, 2022).

After multivariate analysis, female participants were 6.17 times more likely to have a 'Poor' score on the 'Psyche' dimension (Table 6).

	RP	IC 95% RP	P-value
Sex			
Female	6,173	[1,21-31,55]	0,029
Male	1	-	-

**Table 6:** Distribution of participants according to score on the 'Psyche' dimension, after multivariate analysis (CPSA, 2022).

### Daily Life Dimension

The overall mean score for the «Daily life» dimension was  $8.63 \pm 2.71$  (53.9±16.9%). The mean score for the visually impaired was  $11.10 \pm 2.02$  (69.4±12.6%) and for the blind was  $8.10 \pm 2.56$  (50.6±16.0%).

Participants with a «Poor» score were the most represented, at 51.1% in the blind group. The score was «Good» in 50% of cases for the visually impaired (Table 7).

	Visually impaired		Good	
	N	%	N	%
Bad	1	10,0	24	51,1
Average	4	40,0	19	40,4
Good	5	50,0	4	8,5
<b>Total</b>	<b>10</b>	<b>100,0</b>	<b>47</b>	<b>100,0</b>

**Table 7:** Distribution of participants according to score qualification for the 'Daily life' dimension (CPSA, 2022).

Factors influencing the 'Daily life' dimension after multivariate analysis.

Female participants were 5.76 times more likely to have a «Poor» score on the «Daily life» dimension (Table 8).

	RP	IC 95% RP	p-value
Sex			
Female	5,763	[1,41-23,51]	0,015
Male	1	-	-

**Table 8:** Distribution of participants according to score on the 'Daily life' dimension after multivariate analysis (CPSA, 2022).

### Frustration/Anxiety Dimension

The overall mean score for the «Frustration/ Worry» dimension was  $17.49 \pm 5.68$  ( $62.5 \pm 20.3\%$ ). The mean score for the visually impaired was  $20.30 \pm 6.46$  ( $72.5 \pm 23.1\%$ ), and for the blind was  $16.89 \pm 5.39$  ( $60.3 \pm 19.3\%$ ). Participants with a «Good» score were the most numerous, at 50.0% among the visually impaired. The score was «Average» in 46.8% of blind participants. This is shown in the following (Table 9).

	Visually Impaired		Blind	
	N	%	N	%
Bad	2	20,0	12	25,5
Average	3	30,0	22	46,8
Good	5	50,0	13	27,7
<b>Total</b>	<b>10</b>	<b>100,0</b>	<b>47</b>	<b>100,0</b>

**Table 9:** Distribution of participants according to score qualification for the 'Frustration/ Worry' dimension (CPSA, 2022).

### Factors Influencing the 'Frustration/ Worry' Dimension after Multivariate Analysis

After multivariate analysis, female participants were 10.39 times more likely to have a «Poor» score-t-on the «Frustration/ Worry» dimension. Similarly, participants aged between 15 and 25 were 28.26 times more likely to have a 'Poor' score on the 'Frustration/ Worry' dimension (Table 10).

	RP	IC 95% RP	p-value
Sex			
Female	10,397	[2,10-51,30]	0,004
Male	1	-	-
Age			
0-14 ans	1	-	-
15-25 ans	28,267	[1,78-448,30]	0,018

**Table 10:** Distribution of participants according to score on the 'Frustration/anxiety' dimension after multivariate analysis (CPSA, 2022).

### Social Dimension

The overall mean score for the «Social» dimension was  $9.88 \pm 2.35$  ( $70.57 \pm 16.78\%$ ). The mean score for the visually impaired was  $9.40 \pm 2.95$  ( $67.1 \pm 21.1\%$ ), and for the blind was  $10.0 \pm 2.22$  ( $71.4 \pm 15.9\%$ ).

Participants with a «Good» score were the most represented, i.e. 40% among the visually impaired and 42.6% among the blind, as shown in the Table 11 below.

	Visually impaired		Blind	
	N	%	N	%
Bad	2	20,0	8	17,0
Average	4	40,0	19	40,4
Good	4	40,0	20	42,6
<b>Total</b>	<b>10</b>	<b>100,0</b>	<b>47</b>	<b>100,0</b>

**Table 11:** Distribution of participants according to score qualification for the «Social» dimension (CPSA, 2022).

Factors influencing the 'Social' dimension after multivariate analysis

Female participants were 33.15 times more likely to have a poor score (Table 12).

	RP	IC 95% RP	p-value
Sex			
Female	33,150	[3,23-339,69]	0,003
Male	1	-	-

**Table 12:** Distribution of participants according to score on the 'Social' dimension after multivariate analysis (CPSA, 2022)

Overall mean score of the adapted PedEyeQ scale. The overall mean score for quality of life was  $69.85 \pm 19.52\%$ , as shown in the following (Table 13).

	Average (%)	Score	Standard Deviation
Self image	82,00	Good	18,33
Psyche	80,30	Good	25,30
Daily life	53,90	Bad	16,90
Frustration	62,50	Good	20,30
Social	70,57	Good	16,78
<b>Global Means Score</b>	69,85		19,52

**Table 13:** Summary of the mean scores of the five dimensions of the quality of life assessment scale, and the overall mean score of the scale.

## Discussion

### Socio-Demographic Data

**Age:** The mean age of the participants was  $16.70 \pm 4.55$  years with extremes of 8 and 25 years. This result is similar to that of Monteiro, et al. [6] in Parakou at Benin, in 2017, with an average age of  $16.07 \pm 4.02$  years and extremes of 8 and 25 years old. On the other hand, Guirou, et al. [4] in Bamako, Mali, in 2018 found a lower average age of 12 years, with extremes of 5 and 15 years. This difference could be explained by the variation in the age limits considered from one study to another. In contrast, Thapa, et al. [7] in Nepal, Asia in 2018 reported a higher mean age of  $69.64 \pm 64$  years, with extremes of 60 and 95 years. This significant difference could be explained by the fact that their study was carried out on an elderly population.

**Sex:** In this study, the gender distribution 72% male to 28% female with a sex ratio of 2.56 showed a greater proportion of male subjects, which is observed in many studies [8-11]. The higher proportion of men does not necessarily reflect greater blindness in male subjects. However, this predominance could be explained by the greater social importance given to the education of boys in Beninese society, hence the decision

to place them in specialized centers for the blind. In contrast, Thapa, et al. [7] in Nepal, Asia, in 2018, and Mba Aki, et al. [12] in Bamako, Mali, in 2019, noted a female predominance of 55.86% and 64.5% respectively. These different results could also be justified by the socio-demographic disparities between the different study populations, the nature of the study and the sampling. In the present study, schoolchildren were in the majority (52.6%). This could be explained by the fact that parents prefer to keep younger children at home rather than enrol them in rehabilitation centers.

**Clinical Data:** Previous surgery, the type of which could not be specified, had been performed in 21.1% of the participants. Probable childhood eye infection was found in 14% of cases. A previous study [6] carried out in the same center in 2017 revealed that childhood measles was the cause of blindness in 18.92% of cases. According to Kello, et al. [13], measles is one of the main causes of blindness in children in Third World countries. Vaccination against measles can therefore reduce ocular complications. Thirteen (13) participants (22.8%) had a family history of visual impairment. The hereditary nature of certain pathologies causing visual impairment could justify this rate. In this study, eyes with a visual acuity of 1/50 to no light perception were more represented with a rate of 86% on the right and 80.7% on the left. Monteiro, et al. [6] in Parakou, Benin in 2014 reported a rate of 80.95% for eyes with no light perception. These rates reflect the severity of visual impairment in centers for the visually impaired. Visual impairment was discovered in most subjects at birth (36.8%). This rate is lower than that reported by Ntim-Amponsah, et al. [14] in Ghana and Alagaratnam, et al. [15] in England (42.8% and 45% respectively). The fact that the visual impairment has existed since birth suggests that the lesions responsible for it were precocious or even congenital.

**Type of Visual Impairment:** Blindness occurred in 82.5% of cases, compared with poor vision in 17.5%. This rate of blindness in the present study is comparable to that of Domngang, et al. [11] in Cameroon (87.5%), Mba Aki, et al. [13] in Mali (80%) and Asferaw, et al. [10] in Ethiopia (89.8%). The African studies found a higher proportion of blind people in the group of people with sight impairments visual. These results contrast with those of high-income countries, where treatment is earlier and more appropriate [12].

**Affected Eye:** The rate of binocular blindness was in the majority, with 52 cases (91.2%), compared with 5 cases (8.8%) of monocular blindness. This finding is similar to that of a study by Tchabi, et al. [16] in Cotonou at Benin in 2014 who found 100% binocular blindness. However, significantly lower rates of bilaterality have been reported by some authors. In the case of blindness, Balo, et al. [17] in Togo in 2000, Traore, et al. [18] in Mali in 2006, Al-Akily, et

al. [19] in Yemen in 2010, and Eballe, et al. [20] in Cameroon in 2008, reported 2.47%, 5.8%, 7.9% and 34% respectively. This significant difference could be justified by the fact that the present study was carried out in a center specifically for amblyopes and blind people.

#### **Main Causes of Blindness and Visual Impairment:**

The main causes of blindness, in descending order, were cataract (29.8%), corneal scarring (19.3%) and globe phthisis (15.8%), retinitis pigmentosa (8.8%), glaucoma (7.0%) and optic nerve atrophy (7.0%). These results are practically in line with those of the WHO, which states that childhood blindness is mainly linked to corneal opacities, cataracts, retinal diseases and uncorrected refractive disorders in countries with limited resources [21]. Many authors [3,8,22,23] also confirm that the proportion of visual impairment attributable to cataract is higher in low- and middle-income countries than in high-income countries. Assavedo, et al. [24] in Parakou, Benin, in 2017 found that the main causes of blindness were cataracts (36.74%), glaucoma (19.70%), retinochoroiditis (10.23%) and corneal opacities (7.58%). According to the National Blindness Control Programme (PNLC) in Benin, cataracts (54%), glaucoma (15%) and corneal opacities (11%) were also the main ocular conditions responsible for blindness [25]. This difference in the proportion for glaucoma could be explained by the fact that our study population is a young population, whereas these authors conducted a «general population» study.

**Categorisation of Causes:** The causes of visual impairment were mainly infectious in 42.1% of cases and congenital in 35.1%. Satisfaction with treatment at the CPSA Parakou.

Overall, 50.9% of participants were satisfied, 42.1% were moderately satisfied and 7% were not very satisfied. For the latter, the reasons given were the poor quality of accommodation and food, the fact that products were sometimes not available in the infirmary for treatment when needed, and the lack of qualified teachers with a good command of Braille, especially at secondary level.

**Analysis of Quality of Life Dimensions:** The study of the quality of life of people with disabilities has become an increasing priority. However, research into the quality of life of blind and partially sighted people is rare and limited to clinical outcomes [26]. This study attempts to analyse the quality of life of blind and partially sighted people in a specific center. The quality of life of learners at the CPSA Parakou was assessed along 5 dimensions: self-image, psyche, daily life, frustration and social.

**Self-Image Dimension:** Both visually impaired and blind people maintained a good self-image, with mean scores (SM) of  $81.7 \pm 16.5\%$  and  $82.2 \pm 19.3\%$  respectively. Numerous

studies have reported that disabled people can have a much more positive self-image than the healthy people around them [26]. Gender was significantly associated with self-image in both univariate and multivariate analyses, with P-values of 0.007 and 0.024 respectively. Female participants were 19 times more likely to have a poor score for the «Self-image» dimension.

**Psyche Dimension:** The visually impaired have a better psyche ( $SM=92.5 \pm 16.8\%$ ) than the blind ( $SM=77.5 \pm 26.0\%$ ). Nevertheless, the score is good in both cases. As associated factors, age at onset of visual impairment and gender were significantly associated with «Psychism», with P-values of 0.030 (univariate analysis) and 0.029 (multivariate analysis) respectively. Female participants were 6.17 times more likely to have a poor score. The earlier the onset of visual impairment, from an early age, the better the quality of life. People who are blind from birth, or who are blind for most of their lives, find it easier to overcome their problems. This finding has also been made by other authors in their studies: Vuletic, et al. [26] in Croatia in 2016, Amini, et al. [27] in Iran in 2010, and Pey, et al. [28] in the UK in 2012. Patients who become blind later in life go through a series of phases of acceptance and adaptation to the new situation. Whereas those blind from birth learn to accept their life and their disability from birth. Thus, the late onset of visual impairment is much more difficult to accept. Patients generally declare that they have had to go through a shock, wanting their lives to remain unchanged and resisting rehabilitation. The fact remains, however, that vision loss most certainly affects their lives. The stages they go through are affected by strong emotions (more profoundly by a sense of loss), and by the desire to regain their sight. Many never manage to adapt and lose their independence [29].

**Daily Living Dimension:** With regard to «Daily life», visually impaired people were satisfied with their daily life ( $SM=69.4 \pm 12.6\%$ ), whereas blind people were moderately satisfied ( $SM=50.6 \pm 16.0\%$ ). In univariate analysis, gender (P-value=0.18) and the type of eye affected (P-value=0.39) were significantly associated with «Daily life». Subjects with unilateral involvement had a better daily life than those with bilateral involvement. This is normal and obvious since subjects with unilateral blindness see better. They have less difficulty taking charge of their lives and carrying out activities of daily living. Female subjects are 6 times more likely to have a «Poor» score on the «Daily life» dimension.

**Frustration/Anxiety Dimension:** Visually impaired participants were the most satisfied ( $SM=72.5\% \pm 23.1$ ) with their quality of life in relation to the «Frustration/Worry» dimension, whereas blind participants were moderately satisfied ( $SM=60.3\% \pm 19.3$ ). After multivariate analysis, gender and age were significantly associated with this

dimension, with P-values of 0.004 and 0.018 respectively. Female participants were 10 times more likely to have a 'Poor' score on the 'Frustration/Worry' dimension. Participants aged between 15 and 25 were 28 times more likely to have a 'Poor' score on the 'Frustration/ Worry' dimension. So the older you get, the poorer your quality of life, because children are ignorant and not yet fully aware of their situation. The older you get, the more aware you become of life situations, the more concerned you are about your life and the more worried you are about your future security. A study by Vuletic, et al. [26] in Croatia in 2016 on the quality of life of visually impaired and blind people noted that both visually impaired and blind people were less satisfied with their future safety.

**Social Dimension:** Both blind and partially sighted people have a good social relationship, with mean scores of  $67.1 \pm 21.1\%$  and  $71.4 \pm 15.9\%$  respectively. The blind seem to be more satisfied with their social relationships than the partially sighted. Vuletic, et al. [26] also found that blind people were the most satisfied with their «close relationships» (SM =  $85.78 \pm 16.98$ ) with those around them. Chen-Wei, et al. [30] in China in 2018, in their study, found that blind and partially sighted people had a mean score of  $71.33 \pm 19.57$  on the «social functioning» dimension. Gender was significantly associated with the «Social» dimension (P-value = 0.001). Female participants were 33 times more likely to have a poor score.

The results of the study showed a statistically significant difference in the mean scores for all the dimensions of the PedEyeQ according to the type of visual impairment, and that the quality of life of visually impaired people was better than that of blind people. Other authors such as Vuletic, et al. [26], Pey, et al. [28] and Crewe, et al. [31] have also found similar results. Blind people find it harder to take charge of their lives than visually impaired people. Visually impaired people also have less difficulty moving around, recognizing objects and reading better than blind people. It was also noted that gender was significantly associated with quality of life on all the dimensions of the study scale. Men have an easier time adapting to and overcoming their disability than women. Women are more likely to have a poor quality of life.

The overall average score on the quality of life assessment scale of the respondents was 69.85%, within the theoretically expected world norm of between 60 and 80% according to Cummins [32]. Vuletic, et al. [26], At the end of their study of the quality of life of blind and partially sighted people in Croatia in 2016, also found a result (68.19%) within the normative range. Albrecht, et al. [33] in Chicago in 1999 found from their quality of life study that 54.3% of people with a severe disability reported an excellent or good quality of life, despite their severe disability. These individuals strive to gather sufficient resources to cope with the problems

they encounter. Ultimately, they find the meaning, values and motivation to manage the disability. In this particular context, what could justify these results is the fact that the subjects surveyed are cared for in a rehabilitation center that provides them with education, accommodation and nutrition. In this way, the subjects surveyed live in an environment where everyone is disabled visual impairment apart from the supervisors. In addition to the hospitality offered by the center, the residents are entitled to a school for the blind using the Braille writing system. Blind and sighted students attend the same secondary school outside the center. This being the case, they receive the same training programs as at the sighted school, the only difference being that there is a system for transcribing lessons into Braille and vice versa. The only difference is that there is a system for transcribing lessons into Braille and vice versa, to ensure that results are consistent and unanimous in national examinations. Belonging to a community where all the members suffer from the same disability inevitably has a positive effect on the quality of life of those concerned. People are less socially isolated and more involved in their community. This is why the quality of life of blind and partially sighted people is within the normative range theoretically expected. One of the recommendations for future studies is to compare the quality of life of blind and partially sighted people living in the general population with that of those enrolled in CPSAs. This could provide some interesting results. During the course of this research, it was noted that children are sometimes sent to the CPSA without having been consulted by an ophthalmologist; this would explain the presence of children who do not belong in the center for the blind.

## References

1. WHO (2020) World Vision Report. Department of Noncommunicable Diseases, Geneva, Switzerland, pp: 192.
2. National Union of Ophthalmologists of France (2022) Visual impairment and handicap. Ophthalmologists of France.
3. Ammari W, Harrath S, Mbarek S, Mahmoud A, Chebbi W, et al (2016) Incidence and causes of visual impairment in the Governorate of Mahdia, eastern Tunisia: retrospective study of 1487 cases. French Journal of Ophthalmology 39(1): 771-779.
4. Guirou N, Thera JP, Abba KY, Dougnon A, Traore L, et al (2018) Causes of blindness among children in a school for the blind in Mali. Tropical Medicine and Health 28(4): 439-442.
5. Dombia SM (2012) Epidemiological investigation into childhood blindness in the Koulikoro region in 2010.

- University of Sciences, Techniques and Technologies of Bamako, Mali.
6. Monteiro S, Bio AA, Assavedo AR, Wami R, Alamou S (2018) Causes of avoidable blindness in Parakou. *Journal of Clinical Research and Ophthalmology* 5(2): 30-34.
  7. Thapa R, Bajimaya S, Paudyal G, Khanal S, Tan S, et al. (2018) Prevalence and causes of low vision and blindness in an elderly population in Nepal: the Bhaktapur retina study. *BMC Ophthalmol* 18(1): 42
  8. Zabsonre/Ahnoux A, Traore A, Kousse S, Ouedraogo FK, Zongo F, et al. (2021) Causes of Visual Impairments at the Yalgado Ouedraogo University Hospital Center en 2019. *Journal of the Moroccan Society of Ophthalmology* 30(1): 27-31.
  9. Iye AS, Mwanza NV, Luembe TKD, Kintadi LG, Bapu SR, et al. (2019) Clinical and etiological profile of childhood blindness in the urban-rural population of Lubumbashi. *Rev Afr Med & S* 3(1): 8-17.
  10. Asferaw M, Woodruff G, Gilbert C (2017) Causes of severe visual impairment and blindness in students in schools for the blind in Northwest Ethiopia. *BMJ Glob Health* 2(2): e000264.
  11. Noche CD, Bella AL (2010) Frequency and causes of blindness and visual impairment in schools for the visually impaired in Yaounde (Cameroon). *French-speaking Study and Research Notebooks/ Health* 20(3): 133-138.
  12. Mba Aki T, Sylla F, Assoumou P (2017) Causes of visual impairments in a specialized school in an African urban environment. *Bull Med Owendo* 15(43): 38-44.
  13. Kello AB, Gilbert C (2003) Causes of severe visual impairment and blindness in children in schools for the blind in Ethiopia. *British Journal of Ophthalmology* 87(5): 526-530.
  14. Ntim-Amponsah CT, Amoaku WMK (2008) Causes of childhood visual impairment and unmet low-vision care in blind school students in Ghana. *Int Ophthalmol* 28(5): 317-323.
  15. Alagaratnam J, Sharma TK, Lim CS, Fleck BW (2002) A survey of visual impairment in children attending the Royal Blind School, Edinburgh using the WHO childhood visual impairment database. *Eye* 16(5): 557-561.
  16. Tchabi S, Alamou S, Kpodekon H, Sounouvou I (2013) Causes of blindness and severe visual impairment in the Segbeya social promotion center for the blind and amblyopic in Cotonou. *Black African medicine* pp: 83-90.
  17. Balo PK, Wabagira J, Banla M, Kuaovi RK (2000) Specific causes of blindness and visual impairment in a rural region of southern Togo. *J Fr Ophthalmol* 23(5): 459-464.
  18. Traore J, Boitte JP, Eballe AO, Zefack GM, Perez D (2006) Importance of visual handicap in a population of ophthalmology consultants: About 828 cases at the Institute of Tropical Ophthalmology of Africa in Bamako. *Tropical medicine* 66(5): 477-480.
  19. Akily ASA, Bamashmus MA, Al Mohammadi KA (2010) Causes of blindness in people aged 50 years and over: community-based versus hospital-based study. *EMHJ - Eastern Mediterranean Health Journal* 16(9): 942-946.
  20. Eballe AO, Owono D, Bella AL, Ebana C, Long D, et al. (2008) Clinical and epidemiological characteristics of chronic open-angle glaucoma. *Health Notebooks* 18(1): 19-23.
  21. WHO (2009) *International Statistical Classification of Diseases and Related Health Problems*.
  22. OMS (2021) *Blindness and visual impairment*. World Health Organization.
  23. Keeffe JE, Casson RJ, Pesudovs K, Taylor HR, Cicinelli MV, et al. (2019) Prevalence and causes of vision loss in South-east Asia and Oceania in 2015: magnitude, temporal trends and projections. *Br J Ophthalmol* 103(7): 878-884.
  24. Assavedo CRA, Sylla F, Gbagonou F, Monteiro S, Alamou S, et al. (2017) *Vecu Psychological and Social Disability among People Affected by Blindness in Parakou (Benin)*. *Health Sci Dis* 18(2): 13-19.
  25. National Program for the Fight against Blindness (PNLC) (2020) *Republic of Benin. National Vision Plan*.
  26. Vuletic G, Sarlija T, Benjak T (2016) Quality of life in blind and partially sighted people. *Journal of Applied Health Sciences* 2: 101-112.
  27. Amini R, Shojaee H, Haghanni H, Masoomi M, Davarani HH (2010). *Physical Injuries and Quality of Life in Blind War Survivors: A Cross-sectional Study*. *Archives of Iranian Medicine* 13(6): 504-508.
  28. Pey T, Nzegwu F, Dooley G (2012) *Functionality and the Needs of Blind and Partially-Sighted Adults in the UK*.
  29. Thurston M (2010) *An inquiry into the emotional impact of sight loss and the counselling experiences and needs of blind and partially sighted people*. *Couns and Psychother Res* 10(1): 3-12.



30. Pan C, Wu R, Wang P, Li J, Zhong H (2018) Reduced vision, refractive errors and health-related quality of life among adolescents in rural China. *Clinical and Experimental Optometry* 101(6): 758-763.
31. Crewe JM, Morlet N, Morgan WH, Spilsbury K, Mukhtar A, et al. (2011) Quality of life of the most severely vision-impaired: Quality of life with severe vision loss. *Clinical & Experimental Ophthalmology* 39(4): 336-343.
32. Cummins RA (2003) Normative life satisfaction: Measurement issues and homeostatic model. *Social Indicators Research* 64: 225-256.
33. Albrecht GL, Devlieger PJ (1999) The disability paradox: high quality of life against all odds. *Social Science & Medicine* 48(8): 977-988.

