Original Article

Impact Of Visual Impairment On Quality Of Life Among Attendees Of Ophthalmology Department Al-Zahraa University Hospital, Egypt

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Abstract

Objective: To evaluate the impact of visual impairment (VI) on quality of life among subjects attending the eye clinic, Al-Zahraa University Hospital, Egypt.

Subjects and methods: A cross-sectional study, conducted over a period of 4 months and included 220 participants with blindness and low vision who attented the Ophthalmology Outpatient Clinic of Al-Zahraa University hospital. All subjects underwent a comprehensive ophthalmologic examination. Blindness and visual impairment were defined according to World Health Organization (WHO) criteria. An Arabic Version of National Eye Institution Visual Function Questionnaires Tool (NEI VFQ-25) delivered, Individuals who scored less than the overall mean in the NEI VFQ-25 score are considered to have poor vision related quality of life.

Results: Sociodemographic features of the study participants: revealed that, 42.7% of participants aged ≥ 60y, 63.6% of them were females, 8.6% of them were highly educated. The degree of VI was found mild in 22.3%, moderate in 65.5%, severe in 6.8% and blindness in 5.5%. Causes of VI was cataract in 36.4%, errors of refraction in 33.2%, retinal disease in 19.5%, glaucoma in 6.4%. Poor quality of life among participants was 46.4%, VI was found to be associated with advancing age, residency in rural area, low education, and low income (P=0.00). There was a statistically significant negative correlation between VI and the quality of life (r= - 0.467, P= 0.00).

Conclusion: poorer quality of life in patients with a higher degree of VI. Cataract and errors of refraction are reversible causes of VI. Identifying subjects with VI by health care providers, and management by health care policy planners will improve quality of life.

Keywords: Visual acuity, visual impairment, quality of life**.**

INTRODUCTION:

Loss of vision is associated with depression, social isolation, falls, and medication errors [1]. The World Health Organization has declared that blindness and visual impairment affect 37 million and 124 million individuals

worldwide, respectively [2]. Over 90% of individuals with blindness and low vision live in developing countries [3]. Despite assessment of functional outcomes such as clinical or physiological measures (e.g., symptoms, signs, visual acuity) are important in the study of medical and surgical interventions in eye disease, the health-related quality of life (HRQOL) as gained focus in the past decade as a critical outcome of treatment [4].

Severe visual impairment occurs at a rate of 0.06 per 1,000 [5]. Visual impairments have considerable economic impact, even in developed countries, and have been shown to have a negative effect on total health-related quality of life in various studies [6] . Few studies in Egypt investigated the impact of visual impairment on quality of life and these studies examined specific age group or special eye disease [7]. The purpose of the current study was to investigate the impact of visual impairment (VI) on quality of life among subjects attending the eye clinic, Al-Zahraa University Hospital, Egypt.

Methodology:

This cross-sectional study was conducted over a period of 4 months among individuals with blindness and low vision who were recruited from the Ophthalmology Outpatient Clinic of Al-Zahraa University hospital, a minimal age limit of 7 years. Excluded from this study were patients affected by more than one eye disease, serious mental or major systemic illness (affecting QoL). Ethical approval was obtained from by the Research Ethics Committee of the Faculty of Medicine, Al-Azhar University in accordance with the Declaration of Helsinki, 2013. Written informed consent was obtained from all participating patients.

Sample size and sampling technique: Sample size was calculated using the following formula: n=[(Zα/2)2 P (1-P)]/d2. By considering the 95% confidence level (Zα=1.96), a marginal of error (d) of 5%, and the expected prevalence of poor quality of life among visually impaired persons (13.8%) which based on previous study in Egypt [7], a sample size of 183 participants was used. All eligible patients who agreed to participate were randomly assigned on two days per week.

Study Tools:

1- **Ophthalmological examination and assessment:** All subjects underwent complete history, physical and ophthalmologic examination including best corrected visual acuity (BCVA), slit-lamp examination, tonometry, fundus examination. We applied WHO criteria for vision impairment severity, the categories were moderate vision impairment (defined as visual acuity of ≥6/60 and <6/18), severe vision impairment (visual acuity of ≥3/60 and <6/60), and blindness (visual acuity of <3/60 or <10° visual field around central fixation.

2- **Interviewing questionnaire that divided into two parts**.

- 1st part: the demographic characteristics of the participants (age, sex, educational level, marital status, work status and family income).
- 2nd part was an Arabic Version of National Eye Institution Visual Function Questionnaires Tool (ARB-VFQ-25) [8]. It is composed of 12 subscales: general health (1 item), general vision (1 item), ocular pain (2 items), near activities (3 items), distance activities (3 items), vision-specific social functioning (2 items), vision-specific mental health (4 items), vision-specific role difficulties (2 items), vision-specific dependency (3 items), driving (3 items), color vision (1 item) and peripheral vision (1 item).

o Individuals who scored less than the overall mean in the National Eye Institute Visual Function Questionnaire-25(NEI VFQ-25) score are considered to have poor vision related quality of life.

o Individuals who scored the overall mean and above in the National Eye Institute Visual Function Questionnaire-25 scores are considered to have good vision-related quality of life.

Statistical Analysis:

On completion of data collection, data were tabulated and analyzed using statistical package for social sciences (SPSS) program version 21. Descriptive and inferential statistics were performed such as mean and standard deviation; frequency; percentage and (p-value) less than 0.05 was considered as statistically significant.

Results:

The study included 220 participants; the socioeconomic characteristics of all subjects are shown in **Table 1**. Ninety-four Subjects ≥ 60 years (42.7%), 63% were female, 51.8% from urban area, 8.6% were highly educated, 68.6% had no occupation, 85.9% had low income.

Table 1. Sociodemographic characteristics of the studied participants.

Item \ Studied group	No.	%
Sex:		
Male	80	36.4
female	140	63.6
Age (year):		
< 20	22	10.0
20-39	26	11.8
40-59	78	35.5
≥ 60	94	42.7
Residence:		
Urban	114	51.8
Rural	106	48.2
Marital status:		
Single	36	16.4
Married	165	75.0
Divorced	5	2.3
Widowed	14	6.4
Education:		
Unable to read and write	40	18.2
Only able to read and write	33	15.0
Primary	71	32.3
Preparatory	22	10.0
Secondary	35	15.9
University	19	8.6
Work status:		
Currently working	69	31.4
Currently not working	151	68.6
Family income (Egyptian Pound):		
< 2000	17	7.7
2000 - < 4000	172	78.2
≥ 4000	31	14.1

The study found a 6.8% prevalence of severe visual impairment, 5.5% for blindness (table 2). The most common causes of visual impairment was cataract (36.4%), Refractive errors (33.2%) (Figure 1)

Table 2. Clinical characteristics of the studied participants

Item \ Studied group	No.	%
Degree of visual impairment		
Mild	49	22.3
Moderate	144	65.5
Sever	15	6.8
Blindness	12	5.5
Comorbidities:		
Yes	140	63.6
No	80	36.4

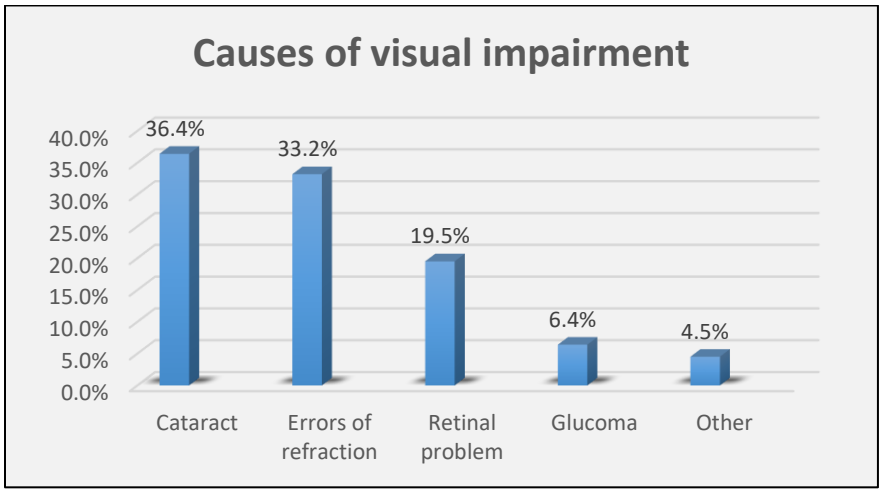

Figure (1): Causes of visual impairment

In the current study, 53.6% of patients with visual impairment had poor overall vision related quality of life **(Figure 2).**

Patients with increasing visual impairment had poorer quality of life (a significant negative correlation between degree of visual impairment and quality of life; r = - 0.467, P = 0.00) **(table 3).**

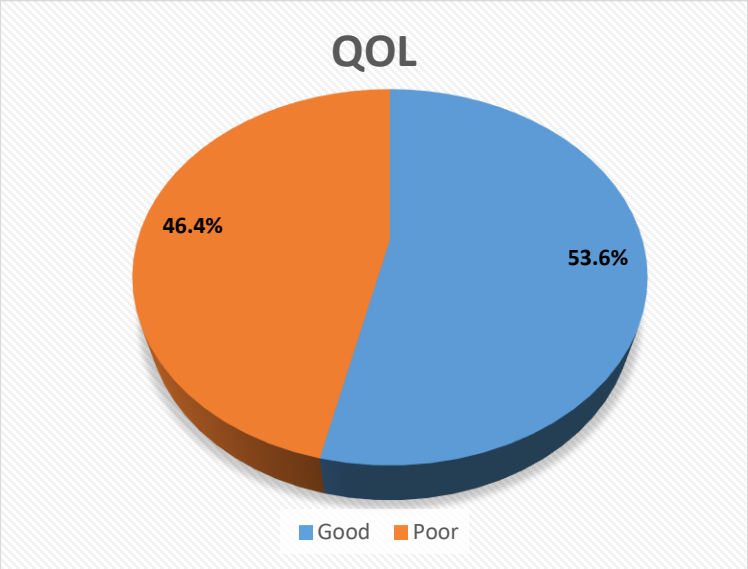

Figure (2): Distribution the quality of life among studied participants

Table 3. Correlation between degree of visual impairment and quality of life

Variable	**Quality of life**	
	r	P-value
Degree of visual impairment	- 0.467	0.00**

*p ≤0.05 is significant

Results of bivariate analysis for sociodemographic characteristics and quality of life are shown in **table 4**; A significantly greater number of patients with age ≥ 60 y (55.9%) had poor quality of life ($\chi 2$=33.5, P=0.00), 58.8% of patients who were from rural area were significantly associated with poor quality of life ($\chi 2$=8.6, P=0.00). Low level of education was significantly associated with poor quality of life ($\chi 2$=36.05, P=0.00). Low income was significantly associated with poor quality of life ($\chi 2$=9.7, P=0.00).

Table 4. Relationship between sociodemographic characteristics and quality of life among studied participants

*p ≤0.05 is significant

Item \ Quality of life	Good (118)	Poor (102)	X^2	P-value
	No. (%)	No. (%)		
Sex:				
- Male	44 (37.3)	30(29.4)	1.5	0.218
- female	74 (62.7)	72 (70.6)		
Age (year):				
- < 20				
- 20-39	19 (16.1)	3 (2.9)	33.5	0.00*
- 40-59	24 (20.3)	2 (2.0)		
- ≥ 60	38 (32.2)	40 (39.2)		
	37 (31.4)	57 (55.9)		
Residence:				
- Urban	72 (61.0)	42 (41.2)	8.6	0.00*
- Rural	46 (39.0)	60 (58.8)		
Marital status:				
- Married	81 (68.6)	84 (82.4)	5.4	0.01*
- Unmarried	37 (31.4)	18 (17.6)		
Education:				
- Unable to read and write	15 (12.7)	25 (24.5)	36.05	0.00*
- Only able to read and write	23 (19.5)	10 (9.8)		
- Primary	23 (19.5)	48 (47.1)		
- Preparatory	14 (11.9)	8 (7.8)		
- Secondary	28 (23.7)	7 (6.9)		
- University	15 (12.7)	4 (3.9)		
Working status:				
- Currently working	42 (35.6)	27 (26.5)	2.1	0.14
- Currently not working	76 (64.4)	75 (73.5)		
Family income (Egyptian Pound):				
- < 2000	6 (5.1)	11 (10.8)	9.7	0.00*
- 2000 - < 4000	88 (74.6)	84 (82.4)		
- ≥ 4000	24 (20.3)	7 (6.9)		

Discussion:

Vision has a vital role for best performance in functional and social life. Eyesight/vision accounts for about 80% of the function of all the five senses combined [9]. Hence, visual impairment leads to a restriction in all areas of life and, and visual impairment influence QOL by reducing activities associated with participation in society and daily living, and intense visual tasks [10].

Sociodemographic features of our study participants revealed that, 42.7% of participants aged ≥ 60 y, 63.6% of them were females. Concerning education, 18.2% of the study sample were unable to write and read while 8.6% of

them had university education **(Table-1).** These findings agreed with the study done by **Hu et al.,** [11] who reported that visual impairment was 7.6% among their participants of the study (4190 Chines persons, ≥60 years of age), The females were (57.5%) The prevalence of visual impairment was generally higher among women than men and lower levels of education tended to be associated with visual impairment.

The results of current study showed that, about 63.6 % of the participants had systemic comorbidities in the form of diabetes mellitus (DM) and/or hypertension (HTN) (Table-2). These results were supported by **Hu et al.,** [11] who revealed that, 74.7% of elderly with visual impairment had hypertension and 80% had DM. Also, **Falahaty et al.,** [12] who conducted a study to determine factors associated with visual impairment and disability among two welfare home residents in Malaysia and found that, the most common medical diseases among elderly with visual impairment were diabetes (78.7%) and hypertension (76.7%), and stated that subjects with diabetic, eye disease, heart disease, hypertension and stroke were significantly more likely to be blind or visually impaired ($p<0.01$).

The result of the current study reflected that, 36.4% of the participants had cataract as a main cause for visual impairment followed by errors of refraction that represented 33.2% of them, 19.5% of the study sample had diabetic retinopathy, 6.4%had glaucoma while 4.5%had other ocular disorders as age related macular degeneration (AMD), corneal opacities (figure 1). These results were in agreement with **Chew et al.,** [13] who conduct a study to estimate visual impairment and its causes from a National Eye Survey in Malaysia subjects: cataract cases were (58.6%), diabetic retinopathy (10.4) and glaucoma (6.6%) were the most common causes of visual impairment and blindness. Also, **Amedo et al.,** [14] who conducted a study to evaluate the influence of visual impairment on quality of life in Ghana reported that, the major causes for visual impairment for those who aged 30 - 80 years old were cataract (32.6%), glaucoma (27.9%) and refractive error (16.3%).

The results obtained from the study done by **Pan et al.,** [15] in a rural community in China to determine the prevalence, causes of visual impairment revealed that, cataract was the leading cause of blindness (72.7%) while uncorrected refractive error was the leading cause of moderate visual impairment (46.6%) and other causes of moderate visual impairment include posterior segment disorders (3.5%), corneal opacity (6.4) and cataract surgical complications (0.8%). According to the report from **WHO** [16] the principal causes of visual impairment globally were uncorrected refractive errors (43%) and cataracts (33%). Other causes were glaucoma, 2%, AMD, diabetic retinopathy, trachoma, and corneal opacities, all about1%.

Concerning visual impairment grades, results of the current study indicated that, about 22.3% of the participants had mild visual impairment, about 65.5 % of the participants had moderate visual impairment, 6.8% of them had sever visual impairment, while only 5.5% of them were blind **(Figure-1).** These findings were in agreement with **Amedo et al.,** [14] who stated that, most of patients had moderate visual impairment (23.8%) while only 3.4% had sever visual impairment.

The results of the current study showed that, 53.6% of the participants had good quality of life and 46.3% of them had poor quality of life **(figure 2). Amedo et al.,** [14] in their study revealed that, 53.5% had good QOL and 7% of them had poor QOL, while 37.2% of visually impaired had neither poor nor good QOL.

There was a statistically significant negative correlation between visual impairment and the quality of life among our participants ($r= - 0.467$, $P= 0.00$), **(Table 3).** In accordance with our study results, **Cypel et al.,** [17] who conducted a study included 150 participants in Brazil and reported that, quality of life for participants with sever visual impairment had the lowest activities. Also, a study done by **Adigun et al.,** [6], included 375 adult participants in Nigeria (229 of them >60 years), stated that the Quality of life is related to the degree of visual impairment, ($\chi 2= 23.48$, $P<0.001$). The study which conducted **by Jones et al.,** [18] on 101 participants with visual impairment in the United Kingdom indicated that even persons with visual impairment below the level required for sight impairment

registration report a reduced VR-QoL and the level of visual impairment does affect QoL although this was not statistically significant

The present study found that rural residents were 58.8% had poorer VRQOL compared to urban residents (41.2%). This result agrees with **Tran et al.,** [19]. This might be due to patients who live in rural areas may not seek medical attention for eye problems for early detection and treatment, seeking care very late after the disease gets severe [20]. Moreover, rural patients may have less family income, for example, in this study, 7.7% of participants have < 2000 Egyptian pounds monthly income, 78.2% had 2000-4000 monthly and 14.1% had > 4000 monthly. **Broman et al.,** [21] observed that visual acuity impairment, in both better-seeing and worse-seeing eyes, was associated with a decrease in quality of life domains, and the steepness of that decrease was associated with the level of visual impairment.

Conclusion and recommendations: poorer quality of life in patients with a higher degree of VI. Cataract and errors of refraction are reversible causes of VI. Our findings help the population concerning quality of life, eye care professionals, low vision rehabilitation providers, and health care policy planners; as the leading causes of VI as refractive error and cataract are entirely treatable, indicating that much VI is avoidable.

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