

Vision Related Quality of Life among Cataract Patients Attending Cataract Surgery Campaigns in Ethiopia: A Dual Centre Study

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ABSTRACT

Introduction: Cataract is multifactorial lens opacity in which its main risk factor is aging. It is the leading cause of blindness worldwide and also in Ethiopia. The impact of visual impairment due to cataract affects the quality of life of an individual by increasing depression, social isolation, increased risk of falls and fractures, poor general wellbeing, increased risk of dependency and finally mortality, in which little is known in Ethiopia. The aim of this study was targeted to determine the vision related quality of life of adults with cataract in Ethiopia.

Methods: An institutional based cross sectional design study with convenient sampling technique was conducted to select 209 patients from June to August 2019. The data regarding vision related quality of life was collected using the national eye institute visual function questionnaires-25 (NEI-VFQ-25) which was adopted in the local system. Binary Logistic Regression (BLR) was used to determine the significant variables associated with vision related quality of life. P-value less than 0.05 were used to declare the significance.

Results: Male participants accounts more than half 111 (53.1%) and more than three fourth 166 (79.4%) were above 50 years of age. Based on presenting visual acuity of better Seeing Eye, about 76 (36.4) have moderate visual impairment. About 149 (71.3%) participants were presented with mature cataract and about 97 (46.4%) have bilateral cataract. About 111 (53.1%) with 95%CI of (46.4, 59.8) of the participants have poor vision related quality of life. Study participants with age greater than 50 years (AOR=2.24; 95%CI (1.03, 4.87)); subjects with severe visual impairment (AOR=1.59; 95%CI (1.52, 4.83)) and study subjects with bilateral cataract (AOR=2.38; 95%CI (1.62, 6.26)) were significant factors associated with poor quality of life.

Conclusion: Greater than half of the study population has poor quality of life. Age, family size, degree of visual impairment and laterality of cataract were found to affect the quality of life of cataract patients in this study.

Keywords: Cataract; Quality of life; Associated factors; Multifactorial

INTRODUCTION

Cataract is multifactorial lens opacity in which its main risk factor is aging. The other factors which can causes cataract are malnutrition, acute dehydrating diseases in young individuals, excessive exposure to ultraviolet light, variety of ocular traumas including radiation and electric shock, medications, metabolic disorders, diabetes and many more. Surgery is the only single commonest treatment modality for all type of cataract [1,2].

Cataract is the leading cause for blindness worldwide and also in Ethiopia. About half of the world blindness is due cataract

especially age related cataract. In terms of visual impairment it is the second cause for mild, moderate and severe visual impairment. Globally the magnitude of visual impairment due to cataract is 65.2 million. From about 110 million people of Ethiopia, the prevalence of blindness is 1.6% and from that about 49.9% are due to cataract. This means around 1.76 million people of Ethiopia are living with blindness and 880,000 people are with cataract [3-5].

Compared to other age related diseases the impact of visual impairment which can be caused by cataract on older patients

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is a greater on daily life activities. The common impact that be occurred due cataract includes increased depression, social isolation, increased risk of falls and fractures, poor general wellbeing, lower social status, increased risk of dependency and mortality. These impacts can generally associated with impaired both vision related and general health related quality of life of cataract patients [6,7].

In Ethiopia little is known about vision related quality of life associated with age related cataract patients. The national eye institute visual function questionnaires-25 (NEI-VFQ-25) is one of reliable tool used to evaluate vision related quality of life. By using this tool this study was targeted to determine the vision related quality of life among older adults with cataract at two cataract surgery campaigns in Ethiopia and also explored significant.

METHODOLOGY

Study subject and settings

Cross sectional design study was conducted at two general hospitals; one is Fitcha general hospital in Oromia region and other is Dubti general Hospital in Afar region of Ethiopia. The two hospitals have only primary eye units and hence no cataract surgery is undergoing there. The cataract surgery teams from St. Paul's Hospital Millennium Medical college of Ethiopia have been conducting surgery in campaign form at the two hospitals. This study done was done in line with the cataract surgery campaigns among patients with cataract at the two centers between June and August, 2019.

All patients who were diagnosed with cataract and willing to participate on the study were included in the study population. The sampling was convenient non-probability technique and hence all subjects who were eligible to participate were invited to give the data for the study. From both hospitals a total 209 subjects; 109 from Fitcha Hospital and 100 from Dubti Hospital were included in the study. For all study subject basic ocular examinations with slit lamp bio microscope and visual acuity measurement with Snellen visual acuity chart was done just for the diagnosis of cataract.

Data collection procedures

The data was collected by trained optometrists at both sites using structured questionnaires. The questionnaire was translated to local language of Afan Oromo for Fitcha hospital and Afaregna for Dubti Hospital. The data was collected by using interview for all subjects regarding their socio-demographic characteristics. The data regarding vision related quality of life was collected using the national eye institute visual function questionnaires-25(NEI-VFQ-25) [8] which was adopted in the local system.

Ethical consideration

Ethical clearance was obtained from St. Paul's Hospital Millennium Medical College IRB office and oral informed consent was obtained from study participant before data

collection. Declaration of Helsinki was under consideration and the confidentiality about data and information was kept for all participants

Statistical analysis

Data entry was done using Epi data version 3.5.1 and analyses was by SPSS version 23. Descriptive statics such as measures of central tendency and variance was used to summarize about the socio-demography and quantify the quality of life. Univariable and multivariable binary logistic regression was used to determine the significant variables associated with vision related quality of life. P-value less than 0.05 were used to declare the significance.

RESULTS

AA total of 209 study participants were included and give their information with a mean age of 64.2 and SD of 14.6 years. From the total population, more than three fourth 166 (79.4%) were above 50 years of age. Male participants were more than half 111 (53.1%) and about 175 (83.7%) were married. Regarding educational status 163 (78.0%) have no any formal education and about 156 (76.1%) were farmer participants. More than half 112 (54.6%) and equal number of study participant have 6 and more family size and were earn about \$46 per month (Table 1).

Table 1: Socio-demographic characteristics of study participants, 2019 (n=209).

Variable	Frequency	Percentage
Age		
Up to 50	43	20.6
50 and above	166	79.4
Sex		
Male	111	53.1
Female	98	46.9
Marital status		
Unmarried	34	16.3
Married	175	83.7
Educational status		
No formal education	163	78
Primary level	30	14.4
Secondary and above	16	7.7
Occupation		
No	34	16.6
Farmer	156	76.1
Employee (government/private)	15	7.3
Family size		
Up to 5	93	45.4
6 and above	112	54.6
Household monthly income		
Up to \$46	93	45.4
\$46 and above	112	54.6

Based on presenting visual acuity of better Seeing Eye, about 76 (36.4) have moderate visual impairment (from 6/18 to 6/60), 64 (30.4%) have severe visual impairment (from 6/60 up to 3/60) and 69 (33.0%) had blindness (less than 3/60). About 149 (71.3%) participants were presented with mature cataract and about 97 (46.4%) bilateral cataract. Regarding ocular co-morbidity 102 (48.8%) has other ocular conditions, 91 (43.5%) individuals were stayed longer with cataract of one year and above (Table 2).

Table 2: Clinical characteristics of study participants, 2019 (n=209).

Variables	Frequency	Percentage
Visual impairment category		
Moderate	76	36.4
Severe	64	30.6
Blindness	69	33
Cataract maturity status		
Immature	60	28.7
Mature	149	71.3
Laterality		
Unilateral	112	53.6
Bilateral	97	46.4
Ocular co-morbidity		
Yes	102	48.8
No	107	51.2
Duration of cataract		
Up to 1 years	118	56.5
1 years and above	91	43.5

Based on 25-item vision related quality of life questionnaire analysis, about 111 (53.1%) with 95%CI of (46.4, 59.8) have poor vision related quality of life from a total study participants (Figure 1).

Regarding factors associated with poor vision related quality of life in Univariable Logistic Regression (ULR) analysis variables such as age, occupation, family size, duration of operable cataract, level of visual impairment and laterality were associated with poor vision related quality of life. However in Multivariable Logistic Regression (MLR) analysis only four variables such as age, family size, level of visual impairment and laterality were associated with poor vision related quality of life.

As a result a participants with age 50 and above years were 2.24 time more likely to have poor vision related quality of life than those with less than 50 years old (AOR=2.24; 95%CI (1.03, 4.87)). Study participants with family size of 6 and above were 1.26 times more likely to have poor vision related quality of life in comparison to those who have less than six (AOR=1.26; 95%CI (1.03, 3.59)). In addition subjects with severe visual impairment and blindness were 1.59 and 2.12 times more likely to have poor vision related quality of life in relation to those with moderate visual impairment respectively (Moderate: AOR=1.59; 95%CI (1.52, 4.83), Severe: AOR=2.12; 95%CI (1.55, 8.18)). Regarding laterality study subjects with bilateral cataract were 2.38 times more likely to have poor vision related quality of life than those with unilateral cataract (AOR=2.38; 95%CI (1.62, 6.26)) (Table 3).

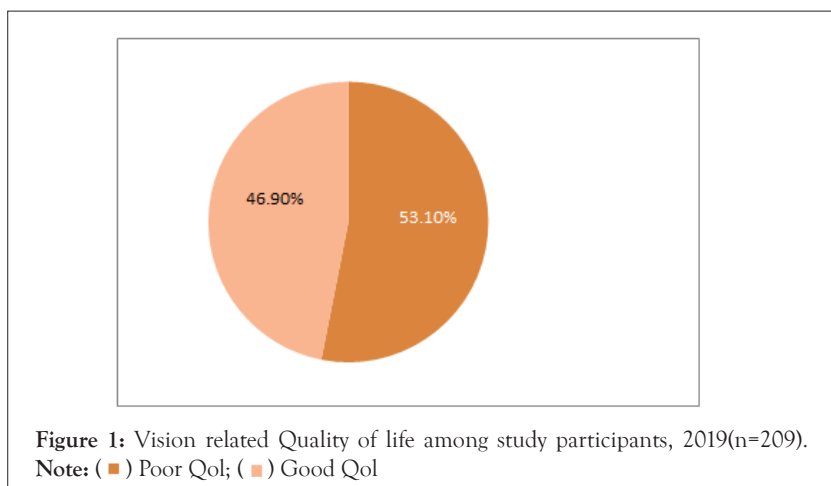


Table 3: Factors associated with poor vision related quality of life among study participants, 2019 (n=209).

Variables	Vision related Quality of life		COR (95%CI)	AOR (95%CI)	P-value
	Poor	Good			
Age					
<50	26	17	1	1	0.022
50+	85	81	1.39 (1.16, 3.94)	2.24 (1.03, 4.87)	
Sex					

Male	58	53	0.93 (0.54, 1.60)	
Female	53	45	1	
Marital status				
Unmarried	18	16	1.00 (0.48, 2.10)	
Married	93	82	1	
Educational status				
Up to primary	83	80	2.12 (0.71, 6.34)	
Secondary	17	13	1.68 (0.47, 6.05)	
Collage and above	11	5	1	
Occupation				
No	15	19	0.67 (0.05, 8.12)	
Farmer	83	73	2.53 (1.71, 9.01)	
Employee	10	5	1	
Family size				
Up to 5	46	47	1	0.001
5 and above	62	50	1.27 (1.13, 2.22)	1.26(1.03, 3.59)
Duration operable cataract				
Up to 24 months	60	58	1	
24 months and above	51	40	1.23 (1.01, 2.94)	
Cataract maturity				
Immature	30	30	1	
Mature	81	68	1.12 (1.05, 2.17)	
Visual impairment				
Moderate	38	38	1	1
Severe	34	30	1.30 (1.06, 2.50)	1.59 (1.52, 4.83)
blindness	39	30	1.15 (1.08, 2.27)	2.12 (1.55, 8.18)
Ocular comorbidity				
Yes	58	44	1.34 (1.18, 2.32)	
No	53	54	1	<0.001
Laterality				
Unilateral	57	55	1	1
Bilateral	54	43	1.21 (1.07, 2.09)	2.38 (1.62, 6.26)

DISCUSSION

Cataracts as a common blinding disease of the eye has a profound effect on the quality of life especially vision related activities are highly impaired. The current study found that un-operated cataract was significantly impaired vision related quality of life. Using 25-item quality of life questionnaire analysis, 111 (53.1%) with 95%CI of (46.4 -59.8) study subjects have poor quality of life from a total study sample. The study reported from Ghana and China on vision related quality of life reported similar finding that visual impairment due to age related cataract has a significant effect on vision related quality of life [9,10]. This is because cataractous eye has a potential to reduce not only visual acuity but also visual functions status such as visual perception, peripheral vision, contrast sensitivity, sensory adaptation and depth perception which have direct impact on vision related daily activities and quality of life [11].

The quality of life in terms of different domains revealed that, 98 (51.3%) of participants has a problem on performing different

activities due to vision impairment occurred because of cataract. The activities mentioned were limitation of accomplishing what they would like to do because of vision, unable to work for and feeling of pain or discomfort in and around eyes which can limit the activities they would like to do. In addition, the amount of impaired well-being and independency was 103 (49.3%), a difficulty with daily activities was 77 (37.7%) and over all general health impairment was 87 (41.6%). The other studies also reported similar finding that visual impairment due to cataract has a direct impact on economic gain, increase dependency on the family especially for daily activities like going to toilet and unable to fulfill their social role [12,13].

Regarding factors associated with vision related quality of life participants with age 50 and above years were 2.24 time more likely to have poor vision related quality of life than those with less than 50 years old (AOR=2.24; 95%CI (1.03, 4.87)). This finding is well supported with other findings such that visual impairment due to un-operated cataract maturity is increase with

age increasing older population so that it can significantly affect quality of life [2,6]. Study participants with family size of 6 and above were 1.26 times more likely to have poor vision related quality of life in comparison to those who have less than six (AOR=1.26; 95%CI (1.03, 3.59)). This indicates that the impact of cataract is more severe on wider family because the contributions in daily activities and economical gains for households are affected. The study conducted in India and Sri Lanka were exhibit similar reports that the number of individuals in households of cataract patient, social class and occupational exposure is limited by visual impairing cataract [14,15].

In addition subjects with severe visual impairment and blindness were 1.59 and 2.12 times more likely to have poor vision related quality of life in relation to those with moderate visual impairment respectively (Moderate: AOR=1.59; 95%CI (1.52, 4.83), Severe: AOR=2.12;95%CI (1.55, 8.18)). Quality of life is related to degree of visual impairment i.e., blindness and severe visual impairment resulted in poor vision related quality of life. Visual acuity reduction in cataract is accompanied with reduced contrast sensitivity and generally visual function and visual function hampered visual demanding activities of life [16].

With regard to laterality study subjects with bilateral cataract were 2.38 times more likely to have poor vision related quality of life than those with unilateral cataract (AOR=2.38; 95%CI (1.62, 6.26)). When both eyes affected by cataract and visual impairment resulted the person can able to participate in visual demanding works. Human being is visually motivated and dependent on visual tasks so that bilateral blindness and low vision has a profound impact on quality of life. The other study also supported this result such that bilateral visual impairment associated with reduced functional status and well-being with a magnitude comparable to medical conditions [17].

CONCLUSION

Greater than half of the study participants have poor quality of life. Age, family size, degree of visual impairment and laterality of cataract were found to affect the quality of life of cataract patients in this study. Age, family size, degree of visual impairment and laterality of cataract were also found to affect the quality of life of cataract patients in this current study.

DECLARATIONS

Consent for publication

Not applicable

Availability of data and materials

The dataset used and or analyzed during this study are available from a corresponding author on a reasonable request from Zewdu Yenegeta (contact address: zewduyenegeta@gmail.com)

Competing interests

The authors declare that they have no any competing interests.

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Authors' contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

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