Vol: 05, Issue 02
OPHTHALMOLOGY PAKISTAN

The Comparison of Visual Versus non Visual Factors Related to Quality of Life in Visually Impaired patients

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Objectives: To compare the association of visual and non-visual factors related to quality of life in patients having low vision. Visual factors include contrast sensitivity, glare, use of electronic devices etc. Non visual factors involve patient's living situation, financial status, general health etc.

Method: This comparative cross sectional study involved 100 visually impaired patients and the comparison of visual and non-visual factors related to quality of life in visually impaired patients. This study was conducted in September, October and November, 2014.

Results: Quality of life score of visual factors in visually impaired patient showed that fourteen percent patients have poor QOL while thirty nine percent patients have fair QOL and forty seven percent patients have good QOL. Score of non-visual factors related QOL displays that fifty four percent patients have poor QOL while forty three percent patients have fair QOL and only three percent patients have good QOL. On comparing visual and non-visual factors QOL, visual factors lead to good QOL while non-visual factors mostly leads to poor QOL.

Conclusion: There is a significant comparison of visual and non-visual factors related quality of life that is visual factors are more significant indicators of QOL. Visual factors lead to good quality of life while non-visual factors leads to poor quality of life. This study also concludes that visual impairment is associated with quality of life.

Key Words: Low vision (LV), visual impairment (VI) and quality of life (QOL).

Introduction:

Low vision is a decrease of best corrected visual acuity and it occurs as a result of irreversible eye pathology.[1] World Health organization defined the LV as "an individual who has deterioration of visual functioning even after treatment or basic refractive correction, and has a visual acuity of less than 6/18 to light perception in the good eye or having field of view of less than 10˚ from the fixation point, but who is capable of using his vision for the planning and assassination of a task or project".[2]

Functional low vision is referred to as impaired vision for which no therapy and refractive correction can better the visual acuity up to greater than 6/18 in good/better eye. Bilateral Blindness is defined as visual acuity which is 3/60 in the improved eye and visual field of less than 10˚ from point of fixation. Blindness and impaired vision that occur in childhood are a main hindrance to the normal development of children.[3] The main reasons of blindness and impaired vision in children are congenital disorders, glaucoma, cataract, retinal disorders, strabismus and retinopathy of prematurity.[3]

The functional complaints or symptoms reported by patients with LV are difficulty in driving, performing daily living activities, walking difficulty, problem in recognizing faces and loss of social interaction.[4] Bilateral blindness and LV most commonly occur in older and illiterate individuals. The leading reasons for bilateral blindness and LV are cataract and refractive errors.[5]

LV has adverse effects on person's health like difficulty in performing routine life activities, mental health problems, physical malfunction and poor health related quality of life (QOL). Eye care specialists in low vision clinic can reform their quality of life.[6]

The aim of LV rehabilitation is to encourage the patient who has irreversible loss of vision to live independently and participate in social activities so that patient can get higher level of contentment with life.[7] The management of most common causes (cataract, ROP and strabismus) of blindness and impaired vision include:

- Impaired vision that occurs due to cataract must be treated with proper surgical techniques.
- Image clarity to achieve further visual development.
- Provide LV services to improve QOL in children having cataract.
- Decrease the development of retinopathy of prematurity.
- Supervise the results of retinopathy of prematurity management.
- Find and treat the reason of squint.
- Enhance binocularity.
- Manage amblyopia
- Provide the refractive correction and LV services.[3]

Quality of life (QOL) is referred to as person`s thinking about their status in life in relation to their civilization and customs in which they live and is linked to their aims, intentions, code and entanglement. It is defined as the physical, mental, practical, communal and financial welfare of a person. The effect of pathology is that it will result in loss of healthiness related QOL and vision related QOL.[1]

The term QOL explains a person`s complete sense of welfare and it involves the aspects like prosperity and contentment with life completely. QOL is the most essential outcome to judge the efficacy of treatment in individuals with cureless pathologies.[8] QOL involves the subjective and objective forms. Subjective forms of QOL include prosperity, contentment, welfare and value of life. Objective forms of quality of life can be analyzed by the factors like obedience of cultural norms, attainment of demands and awareness of potential of life.[8]

Visual impairment (VI) is defined as visual acuity 20/60 with best optical correction or serious central field loss. It is also referred to as distance VA of 20/50 or poor in good viewing eye. Vision is an essential hint of health and QOL. Older patients with visual impairment are at high danger of falls and fractures.[9]

Visual functioning is necessary for ideal occupational and communal life. It has impact on patient's physical and emotive welfare. Impaired vision will result in difficulty in performing routine life activities and is linked to QOL.[8]

Impaired vision mostly affects the older people and it has adverse effects on quality of life. Impaired vision occurs as a result of age related ocular pathologies like glaucoma, cataract, macular degeneration and DR and these pathologies are least treated with spectacles and contact lenses.[10]

The WHO evaluated that about 161 million individuals worldwide had visual impairment which occur as a result of ocular pathologies that is cataract, glaucoma and degeneration of macula; further 153 million individuals had visual impairment due to non –correctable errors of refraction.[11] The prevalence of errors of refraction is higher in children. Refractive errors are the leading cause of impaired vision and 2nd major reason of correctable blindness. Decrease vision that occurs in childhood, result in poor performance of child in school and has adverse effect on upcoming life of a child.[11]

Older people with impaired vision are not as physically fit as sighted older people, this will result in decreased patient`s physical activity and welfare. Older people with impaired vision have a big problem that they cannot control balance. Frequent exercises can result in good physiological and psychological advantages.[12]

Impaired vision is one of most common cause which results in decrease ability to perform routine life activities in older individuals. It occurs due to trauma to eye, other eye diseases (that has impact on capability of receiving and altering visual information) or due to errors of refraction (it is the eye`s inability to focus correctly the light rays on retina).[13] Impaired vision and blindness are more common in older individuals as compared to children.[14] Blindness and impaired vision are considered to be on top, it is the major dilemma of older and industrial countries population[15]

Impaired vision and quality of life are related to each other. Visual impairment is more common in older people and depression is also mostly associated with them.[16] QOL is influenced by loss of vision. QOL decreases as visual acuity is reduced and has worse effect on quality of life of older patients.[17] Increase level of impaired vision is related mostly to the symptoms of depression and it decreases the contentment with life. As age progresses, visual loss will also enhance. In other words increase in age is an important indicator of visual impairment.[10]

Visual impairment and complete blindness are common in old people.VI has worse influence on vision related QOL. Vision related QOL will result in serious visual loss which increases in elder patients.[18] Uncorrected VI will significantly affect the physical and emotional health of patients.[19] Impaired vision is extremely correlated with depression in communal susceptible old people. Refractive errors which are not corrected, cataract and pathologies of retina are the main sources of mild, medium impaired vision and complete blindness in elder people with age of 50years.[20] Errors of refraction are a curative reason of visual impairment. Refractive errors have serious social and commercial impacts on persons and communities, it also restricts the individual to avail the educational and job opportunities.[21]

Visual impairment can result in occupational deterioration; therefore patients are unable to perform daily living activities specifically older patients. VI influences the older people's capacity to do tasks important for physical maintenance, mobility and orientation; therefore older people require help from other persons. Visual loss has got third rank after heart disease and arthritis among the most prevalent chronic pathologies which affect the capacity to perform routine life activities in old patients of 70 years of age or more. In particular visual impairment can result in following complications:

- Unable to perform activities of daily living.
- Fall from stairs, fracture of hip and other type of accidents.
- Communal desolation and lonesomeness
- Mistrust, sorrow, contentment with life decreases and suicide
- Death rate increases
- Increase demand of health related services and self-care
- Loss of intellectual abilities and loss of memory.[22]
- Many individuals with visual impairment have very less social web because of their inability to take part in communal activities. Social help is the main contributor to health linked quality of life for visually impaired individuals. LV services enables the individuals to spend an independent life.[22]

Materials and Methods:

This was a comparative cross-sectional study. 100 Patients having irreversible visual loss /low vision under 50 years of age were included in this study. Patients with any disability other than visual were excluded.

Variables:

a) Dependent Variables:

- Quality of life
- walking difficulty
- Ability to groom oneself
- Ability to do housework
- Visual impairment

b) Independent Variables:

- Age
- Gender
- Race
- Economic status
- Living situation
- Eye condition
- Education status
- Distance VA
- Near VA
- Contrast sensitivity
- Glare
- Optical devices
- Non optical devices

Data Collection Method

Data was collected through a questionnaire and a proforma which consists of the follwing points:

- A Proforma about: Name, age, sex, chief complaints, distance and near VA etc.
- And a Questionnaire about Visual and psychosocial factors which contribute to the QOL of low vision patients.

Results:

Table 1: Quality of life score of visual factors * contrast sensitivity see curtains.

		Contrast Sensitivity See Curtains		
		Yes	No	Total
quality of life score of visual factors	Poor	4	10	14
	Fair	37	2	39
	Good	46	1	47
Total		87	13	100

p= 0.000. This means that this visual factor is highly significant indicator of QOL

Table 2: Quality of life score of visual factors * contrast sensitivity see currency

		contrast sensitivity see currency		Total
		Yes	No	
quality of life score of visual factors	Poor	2	12	14
	Fair	37	2	39
	Good	47	0	47
Total		86	14	100

p= 0.000. This shows that the visual factor contrast sensitivity see currency is highly significant.

Table 3: Quality of life score of visual factors * contrast sensitivity see traffic lights

		contrast sensitivity Traffic Light			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	2	12	0	14
	Fair	37	2	2	39
	Good	47	0	0	47
Total		86	14	2	100

p= 0.006. This shows that the visual factor contrast sensitivity see traffic lights is a significant factor.

Table 4: Quality of life score of visual factors * contrast sensitivity see stairs

		contrast sensitivity see Stairs		Total
		Yes	No	
quality of life score of visual factors	Poor	1	13	14
	Fair	18	21	39
	Good	47	0	47
Total		66	34	100

p= 0.000. This shows that the visual factor contrast sensitivity see stairs is highly significant factor

Table 5: Quality of life score of visual factors * contrast sensitivity see food on plate

		contrast sensitivity see Food on plate		Total
		Yes	No	
quality of life score of visual factors	Poor	1	13	14
	Fair	38	1	39
	Good	47	0	47
Total		86	14	100

p= 0.00. This shows that the visual factor contrast sensitivity see food on plate is a significant factor.

Table 6: Quality of life score of visual factors * contrast sensitivity see borders or edges

		contrast sensitivity see borders or edges			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	1	13	0	14
	Fair	31	7	1	39
	Good	47	0	0	47
Total		79	20	1	100

P= 0.000. This shows that the visual factor contrast sensitivity see borders or edges is a highly significant factor.

Table 7: Quality of life score of visual factors * glare difficulty in seeing bright light.

		glare difficultly in seeing light			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	6	3	5	14
	Fair	34	5	0	39
	Good	38	9	0	47
Total		78	17	5	100

P= 0.000. This shows that the visual factor difficulty in seeing bright is a highly significant factor.

Table 8: Quality of life score of visual factors * glare comfortable in bright light

		glare comfortable in bright light			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	3	6	5	14
	Fair	5	34	0	39
	Good	9	34	0	47
Total		17	78	5	100

P= 0.000. This shows that the visual factor comfortable in bright light is a significant factor.

Table 9: Quality of life score of visual factors * knowledge about condition do you know about your eye condition

		knowledge about condition do you know about eye condition			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	6	5	3	14
	Fair	17	16	6	39
	Good	43	4	0	47
Total		66	25	9	100

P= 0.000. This indicates that the visual factor knowledge about patient's eye condition is a significant factor.

Table 10: Quality of life score of visual factors * adaptation to visual loss can manage visual loss

		adapation to visual loss can manage visual loss		Total
		Yes	No	
quality of life score of visual factors	Poor	9	5	14
	Fair	35	4	39
	Good	47	0	47
Total		91	9	100

P= 0.000. This shows that the visual factor adaptation to patient's visual loss is highly significant.

Table 11: Quality of life score of non-visual factors * distance visual needs see TV

		distance visual needs see tv			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	1	51	0	52
	Fair	5	38	0	43
	Good	0	2	1	3
Total		6	91	1	98

P= 0.000. This indicates that the non-visual factor distance visual needs see TV is a significant factor.

Table 12: Quality of life score of non-visual factors * distance visual needs walking without falling

		distance visual needs walking without falling		Total
		Yes	No	
quality of life score of visual factors	Poor	33	19	52
	Fair	30	13	43
	Good	3	0	3
Total		66	32	98

P= 0.382. This shows that the non-visual factor distance visual needs walking without falling is a non-significant factor.

Table 13: Quality of life score of non-visual factors * near visual needs read newspaper

		near visual needs read newspaper			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	2	49	1	52
	Fair	3	39	1	43
	Good	1	2	0	3
Total		6	90	2	98

P=0.349. This represents that the non-visual factor near visual need read newspaper is a non-significant factor

Table 14: Quality of life score of non-visual factors * near visual needs see prices

		near visual needs see prices		Total
		Yes	No	
quality of life score of visual factors	Poor	10	42	52
	Fair	13	30	43
	Good	2	1	3
Total		25	73	98

P= 0.119. This shows that the non-visual factor near visual needs see prices is not a significant factor.

Table 15: Quality of life score of non-visual factors * near visual needs see medicine labels

		near visual needs see midicine labels			Total
		Yes	No	N/A	
quality of life score of visual factors	Poor	2	50	o	52
	Fair	3	39	1	43
	Good	1	2	0	3
Total		6	91	1	98

P= 0.222. This shows that the non-visual factor near visual needs see medicine labels is not a significant factor.

Table 16: Quality of life score of non-visual factors * near visual needs read small prints

		near visual needs read small prints		Total
		Yes	No	
quality of life score of visual factors	Poor	2	50	52
	Fair	3	40	43
	Good	1	2	3
Total		6	92	98

P= 0.111. This indicates that the non-visual factor near visual needs read small prints is a non-significant factor.

Table 17: Quality of life score of non-visual factors * financial status financially strong

		financial status financilly stong		Total
		Yes	No	
quality of life score of non-visual factors	Poor	31	21	52
	Fair	27	16	43
	Good	1	2	3
Total		59	39	98

P= 0.597. This shows that the non-visual factor patient's financial status is not a significant factor.

Table 18: Quality of life score of non-visual factors * social activities gathering

		Social Activities Gathering		Total
		Yes	No	
quality of life score of non-visual factors	Poor	41	11	52
	Fair	34	9	43
	Good	2	1	3
Total		77	21	98

P=0.878. This represents that the non-visual factor patient's social activities like gathering is a non-significant factor.

Table 19: Quality of life score of non-visual factors * social activities conversation with friends

		Social Activities conversation with friens		Total
		Yes	No	
quality of life score of non-visual factors	Poor	38	14	52
	Fair	29	14	43
	Good	1	2	3
Total		68	30	98

P=0.325. This indicates that the non-visual factor patient's social activities like conversation with friends are not a significant factor.

Table 20: Quality of life score of non-visual factors * general health good

		general health good		Total
		Yes	No	
quality of life score of non-visual factors	Poor	38	14	52
	Fair	32	11	43
	Good	3	0	3
Total		73	25	98

P=0.582. This indicates that the non-visual factor patient's general health is a non-significant factor

Table 21: Quality of life score of non-visual factors * activities of daily living groom yourself

		activities fo daily living groom yourself		Total
		Yes	No	
quality of life score of non-visual factors	Poor	48	4	52
	Fair	37	6	43
	Good	3	0	3
Total		88	10	98

P=0.507. This shows that the non-visual factor patient's activities of daily living like groom oneself is not a significant factor.

Table 22: Quality of life score of non-visual factors * activities of daily living see phone

		activities fo daily living see phone			Total
		Yes	No	N/A	
quality of life score of non-visual factors	Poor	3	48	1	52
	Fair	4	39	0	43
	Good	0	3	0	3
Total		7	90	1	98

P=0.818. This shows that the non-visual factor patient's activities of daily living like see phone is a non-significant factor

Table 23: Quality of life score of non-visual factors * activities of daily living do your housework

		activities fo daily living do you house work			Total
		Yes	No	N/A	
quality of life score of non-visual factors	Poor	28	22	2	52
	Fair	19	19	5	43
	Good	2	1	0	3
Total		49	42	7	98

P=0.573. This shows that the non-visual factor patient's activities of daily living like do housework are also non-significant factor.

Table 24: Comparison of visual V/S non visual factors on QOL

QUALITY OF RESPONSE	VISUAL FACTORS	NON VISUAL FACTORS
POOR	14	54
FAIR	39	43
GOOD	47	3

P=0.000. This table shows collectively the comparison of visual v/s non-visual factors related quality of life. P value with Chi square 0.000 indicates that there is significant difference between visual and non-visual factors.

Discussion:

This study evaluates that the comparison/difference between visual v/s non-visual factors related QOL is highly significant; that is visual factors are more significant indicators of QOL as compared to non-visual factors. This study shows that the visual factors lead to good quality of life and non-visual factors result in poor quality of life.

Hernandez concluded that the factors which are not visual like physical and communal health are significant indicators of QOL in people with decrease vision as compared to vision related factors.

This study has different result as compared to that

because patients included in this study have age 50 years and have irreversible visual loss moreover this study has less sample size, less time period for study, uncooperative patients and also due to cost effective low vision devices.

The visual and non-visual factors are also different from that study. Visual factors include contrast sensitivity, glare sensitivity, electronic devices, knowledge about condition and adaptation to visual loss while non-visual factors include living situation, general health, social activities, financial status and activities of daily living, distance and near visual needs. Kempen concluded that Low Vision has adverse effects on person's health like difficulty in performing routine life activities, mental health problems, physical malfunction and poor health related quality of life (QOL). It also results in mistrust and desolation.

This study includes a total of 100 patients. On comparing visual and non-visual factors QOL, visual factors lead to good QOL while non-visual factors mostly leads to poor QOL.

Conclusion:

This study concludes that there is a significant comparison of visual and non-visual factors related quality of life that is visual factors are more significant indicators of QOL. Visual factors lead to good quality of life while non-visual factors leads to poor quality of life. This study also concludes that visual impairment is associated with quality of life.

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