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## Quality Of Life of Elderly Patients with Cataract

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### Abstract:

**Background** Cataract affects about half of all patients in their seventies, and by the nineties, almost everyone will be affected. Poor vision may result in an increased risk of falling and lower quality of life (QOL). **Aim of the study:** The present study aimed to determine the QOL of elderly patients with cataract **subject &Method: Research design.:** A descriptive cross-sectional design was utilized to conduct this study. **Setting:** The study was conducted in the outpatient clinic of ophthalmology in Fakous Hospital. **Subjects:** The study involved a Purposive sample of 100 elderly recruited from the study setting with diagnosis of cataract. **Tools of data collection:** Three tools were used for data collection in the present study. The first tool was an interview questionnaire consisted of three parts to collect the necessary data about elderly subjects. The second tool was a lifestyle behaviour sheet. The third tool was the Quality of life assessment questionnaire which includes 2 parts. **Results:** The results revealed that elderly with cataract lack healthy lifestyle habits. Their visual dysfunction increases with age, diabetes and other chronic diseases, and lack of education. Cataract limits their daily activities, and has negative impact on their QOL. **Conclusion:** Cataract limits elderly's daily activities, and has negative impact on their QOL. **Recommendations:** The study recommends regular check-up of elderly visual functions. Also educational interventions are proposed to help them have a healthy lifestyle to improve their QOL.

**Key words:** Quality of life; elderly; patients; cataract

### Introduction

Age-related cataract is the single most important cause of reversible visual impairment. It has been estimated that about half of all patients in their seventies will have a significant cataract and by their nineties, almost everyone will be affected. One of the consequences, therefore, of the demographic shift towards old age witnessed in the population of the world is an increase in the prevalence of cataract <sup>(1)</sup>

In Egypt, the prevalence of low vision for all ages is 47.9% of the population aged 65 years, with cataract being the major cause of blindness (54.8%) <sup>(2)</sup>.

Cataract is defined as loss of optical uniformity of the crystalline lens, develops gradually extending from minimal changes of original transparency of the lens to total opacity <sup>(3)</sup>.

Cataract may result in trouble driving, reading, or recognizing faces <sup>(4)</sup> Poor vision may also result in an increased risk of falling and depression <sup>(5)</sup>. Cataracts are the cause of half of blindness and 33% of visual impairment worldwide <sup>(6)</sup>

Quality of life (QOL) is perceived quality of an individual's daily life, an assessment of his/her wellbeing. This includes emotional, social and physical aspects of the individual's life. In healthcare, health-related quality of life (HRQOL) is an assessment of how the individual's wellbeing may be affected over time by a disease, disability or disorder <sup>(7)</sup>. Quality of life results from the level of wellness, which is defined as a general term for the condition of an individual or group, for example, their social, economic, psychological, spiritual or medical state. A high level of wellbeing means the individual or group's

experience is positive while low wellbeing is associated with negative happenings<sup>(8)</sup>

The Gerontological nurse is responsible for improving the life style of older adults with cataract through advise them to eat fruits and vegetables rich in vitamin C, E and beta- carotene that can prevent or delay cataract formation. Five to nine daily servings of fruits and vegetables, follow exercise program, avoid smoking, and avoid prolonged exposure to sunlight are recommended for eye health. The Gerontological nurse is responsible for improving quality of life of older adults with cataract through encouraging them to have annual eye examination for early detection of cataract<sup>(9)</sup>.

#### **Significance of the study:**

Older people with cataract are less able to earn a living or contribute to the household. These restrictions not only have obvious economic implications, but also they can affect many social and psychological aspects of person's life. Reduced opportunities for interaction and involvement with social networks, for example, could lead to feelings of isolation and lack of social support. There is some indications of a relationship between age-related vision loss and depression in later life. When older adults become visually impaired or blind, their ability to contribute economically, and to social and family life, is greatly reduced; this loss can be felt quite keenly by other members of the household. Therefore, this study was conducted in order to assess quality of life of the elderly patients suffering from cataract.<sup>(10)</sup>

#### **Aim of the study**

The aim of this study was to determine the Quality of Life of Elderly Patients with Cataract.

#### **Research questions**

- What is the effect of life style behavior on cataract among elderly?

- What are the effects of cataract on quality of life for elderly?

#### **Subjects and Methods:**

##### **Research Design:**

A descriptive Cross-sectional design was used in conducting this study to examine the relation between cataract visual dysfunction and QOL.

##### **Study Setting:**

The study will be conducted at out patients clinic ophthalmic in fakous hospital

##### **Study Subjects:**

Sample criteria: The subjects of this study consisted of 100 elderly selected from the study setting according to the following eligibility criteria.

Inclusion criteria:

Age 60 years or older; with diagnosed cataract.

##### **Tools of data collection**

##### **Tool I: An interview questionnaire**

was prepared by the researcher to be used for data collection. It consisted of the following three parts.

**Part 1:** This was for data about the demographic characteristics of the study subject such as age, gender, marital status, educational level, job, living condition, source of income, etc.

**Part II:** This was for assessment of the medical history of the elderly such as the presence of chronic diseases, their types, duration, and medication used, with special emphasis on the detailed history of diabetes and hypertension and their related eye problems.

**Part III:** This part was dedicated to the details of the cataract disease. It included questions about the side and duration, treatment received including surgery, and any family history.

##### **Tool II: Life style behavior of elderly with cataract:**

This tool consisted of a lifestyle behavior sheet of the elderly with cataract. It was developed by the researcher based on literature review. It assesses five categories of lifestyle behaviors, namely dietary habits such

as the frequency of intake of food from different groups to make a balanced diet, smoking, caffeine consumption, exposure to sunlight, and practice of physical exercise. Each healthy lifestyle behavior was scored "+1," whereas a negative lifestyle behavior was scored "-1." The total lifestyle behavior score was calculated by simple summation of the scores of the individual items. This total was converted into as percent score. An elderly who achieved 60% or more of the total score was considered as having a healthy lifestyle, while achieving a score of less than 60% was considered as unhealthy lifestyle.

### **Tool III. Quality of life assessment questionnaire:**

This tool was developed by Ellwein et al <sup>(11)</sup> and measures quality of life of elderly patients with cataract and includes 2 parts:

#### **Part 1: Vision Function (VF) Questionnaire:-**

This part involved a Vision Function (VF) Questionnaire. It has 11 questions categorized as follows:

- Question 1 assesses the overall visual function;
- Question 2-5 assess visual perception, limitation in everyday activities and visual acuity;
- Question 6 assesses peripheral vision;
- Questions 7a, 7b, 8, 9, 11a and 11b assess the sensory and light-dark adaptation, visual search, color discrimination, glare disability;
- Question 10 assesses depth perception.

**Scoring:** Each item is checked on a 4-point Likert scale "no, low, moderate, and high problem." These are scored from one to four respectively. For questions 7a, 7b, and 11a, 11b the subscale scores are based on the response of either a or b, depending on which response represents the greater degree of the problem. The scores of the items are summed-up so that a higher score indicates a higher

level of visual dysfunction. This total was converted into as percent score. A score of 60% or more was considered as high visual dysfunction, whereas a score less than 60% was considered low visual dysfunction.

#### **Part 2-Quality of life questionnaire:**

This part was a scale for Quality of Life (QOL). It was developed by Ellwein et al <sup>(11)</sup> to measure the QOL of elderly patients with cataract. It consists of 14 items asking about the adverse effects of visual dysfunction on elderly QOL. These are categorized as follows:

- Self-care: 4 items concerning bathing, eating, dressing and toileting;
- Mobilization: 3 items related to walking to the homes of neighbors, walking to shop, and doing household chores;
- Social: 4 items concerning attending social functions and meeting with friends;
- Mental or psychological: 3 items related to feeling of a burden on others, and loss of confidence.

#### **Scoring system for part 2:**

Each item is checked on a 4-point Likert scale "no, low, moderate, and high adverse effect." These are scored from one to four respectively. The scores of the items of each of the four categories and of the total scale are summed-up so that a higher score indicates a higher adverse effect of visual dysfunction on QOL. These totals were converted into percent scores. A score of 60% or more was considered as low QOL, whereas a score less than 60% were considered high QOL.

#### **Content of Validity and reliability:**

Once the preliminary form of the tool was ready, it was presented to three experts from nursing and medical disciplines. They rigorously reviewed the tool for face and content validation through assessing clarity, relevance, comprehensiveness and understandability. The pilot study also served to examine the reliability of the

scales used in the data collection tool. This was done through assessing their internal consistency. They proved to have good reliability as shown by their high Cronbach alpha coefficients of visual dysfunction 0.937 and QoL scale 0.974

#### **Field work :**

The researcher visited the study setting, and met with the managers to get their cooperation in data collection. Then, the process of recruitment of the elderly in the sample was done according to the eligibility criteria. After explaining the purpose of the study to each elderly person, he/she was invited to participate after ensuring his/her rights.

Once the elderly person agreed to participate, the researcher started the interview session using the data collection tool. This was done in the waiting area of the examination room where he/she was waiting to be examined by the ophthalmologist. The researcher started the interview by introducing herself and ensured privacy and that the elder is seated comfortably.

The researcher managed to interview 3 to 4 elderly daily. The time spent in each interview to be completed ranged from 25 to 30 minutes. This was achieved according to a prepared schedule from Saturday through Wednesday, between 9:00 am and 1:00 pm. Data collection lasted from September to the November 2015.

#### **-Pilot study:**

A pilot study was carried out on 10% of the study subjects to test applicability, feasibility, and practicability of the tool. Then, necessary modifications were done according to the results of pilot study.

#### **-Administrative and Ethical considerations**

An official permission was obtained from the hospital administration using proper channels

of communication from authorized personnel. This was done through an official letter from the dean of the Faculty of Nursing at Zagazig University to the manager of Fakous Hospital to obtain an approval to collect the necessary data from the outpatient clinic.

The study protocol was approved by the Research and Ethics committee at the Faculty of Nursing, Zagazig University. An oral informed consent was obtained from each participant elderly before collecting any data. This was done after explaining the study aim and procedures individually to each elderly person in a simple and clear manner to be understood by common people.

Participants were informed about their right to refuse or withdraw from the study at any time without giving any reason. Data were considered confidential and not be used outside this study without participant's approval. No harmful maneuvers were performed or used, and no foreseen hazards were anticipated from participation in the study.

#### **Statistical analysis**

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians and interquartile ranges for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the tool scales through their internal consistency. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to

identify the independent predictors of the scores of visual dysfunction and QoL, multiple linear regression analysis was used, and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

#### Results:

**Figure 1:** Total quality of life (QoL) affection among elderly in the study sample (n=100).

In sum, Figure illustrates that the QoL domain of mobilization was the most affected by visual dysfunction (81%), whereas the self-care domain was the least affected (58%). Overall, slightly more than one-half of the elderly were having low total QoL (55%).

**Table 1:** The study sample consisted of 100 elderly persons whose age ranged between 61 and 93 years, with Mean 73.1 years (Table 1), with slightly more males (60.0%), and married (59.0%). The majority had no formal education (82.0%), and were not living alone (97.0%). Slightly more than one-third (37.0%) of them were unemployed (housewives or retired). Slightly more than half of the elderly (52.0%) considered their income as sufficient.

**Table 2:** indicates insignificant associations between elderly lifestyle and their visual dysfunction as well their QoL.

**Table 3:** demonstrates statistically significant associations with all QoL dimensions, as well as with the total QoL (p<0.001). It is evident that high visual dysfunction is associated with low QoL.

**Table 4** indicates the presence of a strong positive correlation between the scores of elderly QoL affection and of visual dysfunction (r=0.833). Meanwhile, the scores of lifestyle had no correlations with the scores of visual dysfunction or QoL.

**Table 5:** demonstrates statistically significant moderate positive correlation between patients' age and duration of diabetes from one hand and the scores of visual dysfunction

and QoL affection from the other hand. Conversely, the score of QoL affection had statistically significant weak negative correlation with the level of education.

**Table 6:** Best fitting multiple linear regression model for the QoL affection score Variables entered and excluded: gender, education, marital status, job, living alone, income, lifestyle habits, duration of cataract and diabetes Concerning the multivariate analysis model for elderly' QoL affection score.

**Table 7** demonstrates elderly age and visual dysfunction score are statistically significant independent positive predictors. Their standardized beta coefficients indicate their almost equal influential effect. The model explains 78% of the variation in QoL affection as the value of r-square indicates.

#### Discussion:

Visual impairment is a very disabling condition, especially when it is acquired in later life Hooper et al<sup>(12)</sup>. It is associated with depression and low Quality of Life (QoL) among elderly Renaud, et al<sup>(13)</sup>. The ability of healthcare providers to identify early signs of cataracts in individuals at risk of vision loss is critical to early diagnosis and management of this common age-related eye disease. This can help preserve vision through encouraging behavioral modifications that reduce risk factors, as well as referring affected persons to low-vision rehabilitation services, visual aids, and community support resources, which would improve the QOL of those individuals with visual impairments Marra et al<sup>(14)</sup>

The study sample included elderly with a wide age range, and a slight preponderance of males. This might reflect the gender distribution in the study setting, where males may have a higher tendency to visit hospitals for healthcare at this age. In agreement with this, a study in Sweden concluded that there was a gender inequity in

access to cataract surgery, and this would lead to bias in reporting gender differences in the rates of visual impairment and cataract worldwide Zetterberg <sup>(15)</sup>. On the same line, a study in Turkey revealed that women with visual impairment had significantly lower compliance to follow-up compared with men Kivanç, et al <sup>(16)</sup>.

Although approximately two-fifth of the sample of elderly were unmarried, the great majority were not living alone. This is common in the society from which the sample was taken, where the families tend to be extended ones. Nonetheless, the marital status of the elderly was not found to have any significant association with their visual impairment. In contradiction with this, a study in Singapore Zheng, et al <sup>(17)</sup> demonstrated that the unmarried status had a negative impact on visual impairment even after adjustment for gender and educational level.

According to the present study findings, the majority of the elderly had no formal education. This has two explanations. The first is the higher prevalence of illiteracy among the rural community populations as in the present study. The second is that the education was not available to these elderly when they were at school age. In congruence with this current study finding, a study in France demonstrated a significant association between elderly's lower educational level and visual impairment, and this was confirmed through multivariate analysis Soler, et al <sup>(18)</sup>.

In the current study sample, about Nearly of the elderly viewed their income as insufficient, and were dependent on financial assistance from others. This reflects the poverty of the community from which the sample was drawn. In addition to the low level of education, this constitutes a risk factor for low QoL and unhealthy lifestyle habits. In agreement with this, a study in the United States came to the conclusion that visual impairments

have significant relations with the elderly's socioeconomic factors, thus showing related disparities in prevalence, clinical characteristics, and management. Hence, better understanding of these socioeconomic factors and their clinical relevance is critical to alleviating the burden of cataract-related visual impairment

The current study has also assessed the QoL of the elderly with visual impairment. The findings revealed that more than half of them were having low QoL. This low QoL was more related to the negative impact of low vision on their ability to mobilize and socialize rather than on their self-care activities. In agreement with this, Crews, et al <sup>(19)</sup> in a study in the United States, demonstrated similarly low levels of QoL among the elderly suffering visual impairment. They reported more frequent physically and mentally unhealthy days, and activity limitation days in the last 30 days compared to those reporting a little or no visual impairment.

The foregoing present study finding indicates that the elderly could adapt to their visual impairment at home but not outside. This could be attributed to their fear of falling or getting injured, or their exposure to derogatory situations in social interactions due to their visual dysfunction. In congruence with this, a study in Thailand identified visual impairment as one of the main risk factors increasing the susceptibility to falling among elderly Kantayaporn, et al <sup>(20)</sup>

Concerning the high affection of the social dimension of QoL among the elderly in the present study, Palmer, et al <sup>(21)</sup> in a study in the United States, mentioned that healthy social relationships are important for maintaining mental and physical health in later life. Thus, less social support, smaller social networks, and negative social interactions have been linked to depression, poorer immune

functioning, lower self-rated health, increased incidence of disease, and lower QoL.

According to the present study findings, the QoL of the elderly was negatively related to their age and education. Thus, the older age and the lack of formal education were associated with lower level of QoL. The relation with age was confirmed by multivariate analysis and it is expected given the increasing difficulties the elderly person faces with the process of aging, leading to more dysfunctions and worse QoL. As regards the effect of education on QoL, it could be attributed to the fact that educated people can better cope with difficult life situations and find other alternatives. In agreement with this, a study carried out in Serbia demonstrated a positive association between the QoL and the level of education of patients Peric et al <sup>(22)</sup>. Moreover, as shown in a study in Germany, educated people suffering visual impairment are more likely to engage in sports, and physical and active leisure time activities that can lead to improvements of their QoL Schliermann, et al <sup>(23)</sup>.

The present study also demonstrated that the QoL of elderly people who work as employees is significantly higher compared with the unemployed as well as those having manual worker jobs. This could also be explained by the higher level of education among the employees, as well as the social life they have at work, which could improve their QoL. In congruence with this, a study in Turkey concluded that the social ambience at the workplace, focusing at work and economic independence play a role in decreasing depression and improving the QoL of employees Baskan, et al <sup>(24)</sup>.

Concerning the relations between elderly's visual and their QoL, the present study findings revealed significant associations with all QoL dimensions. This indicates that the higher the visual dysfunction the lower the QoL is. This was confirmed

through the finding of a significant strong positive correlation between the scores of QoL affection and of visual dysfunction. Furthermore, the multivariate analysis identified the score of visual dysfunction as a significant independent positive predictor of the QoL affection score. The effect of visual dysfunction is quite plausible and expected given its negative impact on elderly's personal life, mobilization, and social interactions.

Similar to these foregoing present study findings, a study in Nepal showed that the QoL was reduced among the elderly with visual impairment, and this reduction was significantly correlated to the severity of visual impairment Dev, et al <sup>(25)</sup>. On the same line, a study in Germany reported that people with visual impairments often show a worse quality of life compared with normal-sighted people Schliermann, et al <sup>(23)</sup>.

### **Conclusion**

**The study findings lead to the conclusion that** elderly with cataract lack healthy lifestyle habits related to diet, exercise, and smoking. Their visual dysfunction increases with age, diabetes and other chronic diseases, and lack of education. Cataract limits their daily activities, and has negative impact on their Quality of Life (QOL), especially among those with advanced age and no education. Elderly age and visual dysfunction score are predictors of the QOL affection score.

### **Recommendations**

**In view of the study findings, the following recommendations are proposed.**

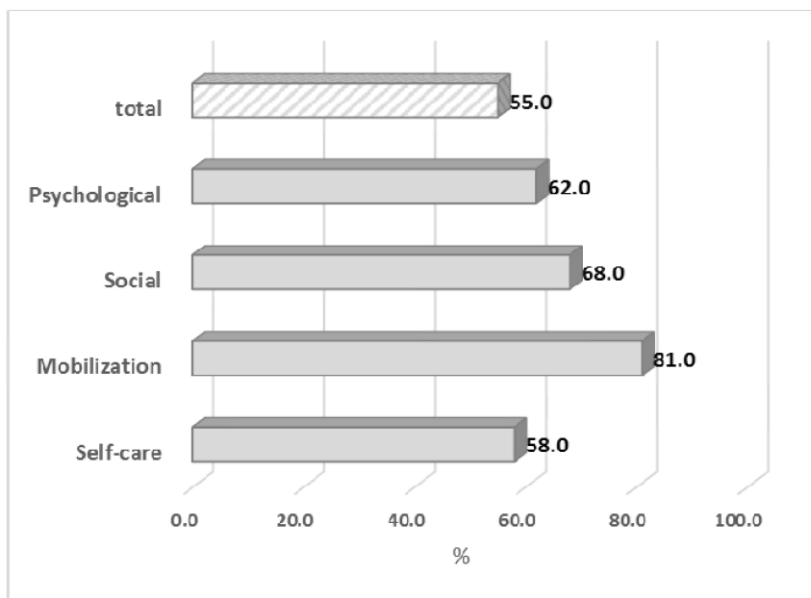
1. Elderly people need regular checkup of their visual functions for early detection and prompt management of any disorders.
2. Educational interventions are proposed to improve elderly people's knowledge of the causes of impaired visual functions, especially cataract,

and their awareness of preventive measures.

- Health education programs are recommended to help those elderly have a healthy lifestyle, with encouragement of practicing physical

activities, eating balanced diet, and quitting smoking.

- Counseling programs should be organized to improve the quality of life of elderly people, including social and recreational activities.



**Figure I: Total of quality Of Life**



**Table 1: characteristics of elderly in the study sample (n=100)**

	Frequency	Percent
<b>Gender:</b>		
Male	60	60.0
Female	40	40.0
<b>Age:</b>		
60-	46	46.0
70-	30	30.0
80+	24	24.0
Range	61.0-93.0	
Mean ± SD	73.1±9.0	
Median	71.0	
<b>Marital status:</b>		
Unmarried (single/widow)	41	41.0
Married	59	59.0
<b>Formal education:</b>		
No (illiterate/read write)	82	82.0
Yes	18	18.0
<b>Job:</b>		
House wife	37	37.0
Employee	25	25.0
Worker	38	38.0
<b>Live alone:</b>		
No	97	97.0
Yes	3	3.0
<b>Income:</b>		
Insufficient	48	48.0
Sufficient	52	52.0

**Table2: Relation between elderly's lifestyle and their visual dysfunction and quality of life:**

	Lifestyle				X <sup>2</sup> test	p-value		
	Unhealthy		Healthy					
	No.	%	No.	%				
<b>Visual dysfunction:</b>								
High (60%+)	43	22	68.3	20	15	31.7	0.79	0.37
Low (<60%)	22	59.5	15	40.5				
<b>Self-care:</b>								
Low	37	28	63.8	21	14	36.2	0.09	0.77
High	28	66.7	14	33.3				
<b>Mobilization:</b>								
Low	52	13	64.2	29	6	35.8	0.12	0.73
High	13	68.4	6	31.6				
<b>Social:</b>								
Low	47	18	69.1	21	14	30.9	1.58	0.21
High	18	56.3	14	43.8				
<b>Psychological:</b>								
Low	40	25	64.5	22	13	35.5	0.02	0.90
High	25	65.8	13	34.2				
<b>Total QoL:</b>								
Low	37	28	67.3	18	17	32.7	0.28	0.60
High	28	62.2	17	37.8				

**Table 3 Relation between elderly's visual dysfunction and their socio-demographic and health characteristics**

	Visual dysfunction				X <sup>2</sup> test	p-value
	High		Low			
	No.	%	No.	%		
Self-care:						
Low		82.8		17.2	23.13	<0.001*
High	48 15	35.7	10 27	64.3		
Mobilization:						
Low	62			23.5	33.55	<0.001*
High	1	76.5 5.3	19 18	94.7		
Social:						
Low	58	85.3		14.7	45.31	<0.001*
High	5	15.6	10 27	84.4		
Psychological:						
Low		85.5		14.5	35.38	<0.001*
High	53 10	26.3	9 28	73.7		
Total QoL:						
Low		89.1	6	10.9	35.69	<0.001*
High	49 14	31.1	31	68.9		

(\*) Statistically significant at p&lt;0.05

**Table 4: Correlation matrix of lifestyle, visual dysfunction and QoL scores:**

Scores	Spearman's rank correlation coefficient		
	Lifestyle	Visual dysfunction	QoL affection
Lifestyle			
Visual dysfunction	-0.15		
QoL affection	-0.14	.833**	

(\*\*) Statistically significant at p<0.01

**Table 5 : Correlations between lifestyle, visual dysfunction and QoL scores and elderly's characteristics:**

	Spearman's rank correlation coefficient		
	Lifestyle	Visual dysfunction	QoL affection
Age	-0.17	.666**	.696**
Education	0.13	-.252*	-.249*
Diabetes duration	-0.35	.514**	.501*
Cataract duration	-0.05	-0.07	-0.02

(\*) Statistically significant at p<0.05 (\*\*) Statistically significant at p<0.01

**Table 6: Best fitting multiple linear regression model for the QoL affection score :**

	Unstandardized Coefficients		Standardized Coefficients	t-test	p-value	95% Confidence Interval for B	
	B	Std. Error				Lower	Upper
	Constant	-67.33	16.28		4.136	<0.001	-101.09
Age	1.08	.31	.482	3.452	.002	.43	1.72
Visual dysfunction score	.80	.23	.480	3.434	.002	.32	1.28

r-square=0.78

Model ANOVA: F=44.23, p<0.001

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