

Relationship between Visual Impairment of Elderly and Their Quality of Life

Mai A. El-banna^{1*}, Gehan M. Ismail², Heba M. Sharaa³

¹Clinical Instructor, Community Nursing Department, Faculty of Nursing, Cairo University, Egypt

²Professor, Community Nursing Department, Faculty of Nursing, Cairo University, Egypt

³Assistant Professor, Community Nursing Department, Faculty of Nursing, Cairo University, Egypt

*Corresponding author: Mai A. El-banna

| Received: 15.05.2019 | Accepted: 25.05.2019 | Published: 30.05.2019

DOI:10.21276/sjnhc.2019.2.5.4

Abstract

Visual function is the most important sensory function of the human body; visual impairment is a common and debilitating health problem among elderly. It is affected elderly's daily life and leads to functional disabilities and other health problems. **Thus:** The aim of the current study was to assess relationship between visual impairment of elderly and their quality of life. **Design:** A descriptive correlational research design was adopted in this study. **Setting:** The study was conducted at outpatient clinics in Governmental Ophthalmic Hospital in Kafer El-Sheikh governorate, Egypt. **Tools:** Data were collected through interviewing elderly using two tools: I) Elderly Client Interviewing Questionnaire Tool which divided into two parts, 1st part: the demographic characteristics of the elderly and 2nd part: medical history and chronic disease. II) An Arabic Version of National Eye Institute Visual Function Questionnaires Tool (ARB-VFQ-25). **Results:** results revealed that, the main cause for visual impairment was cataract (84%). The highest mean score of sub-scale were vision health and color vision (66.13±34.67). A statistically significance correlation was found between visual impairment and quality of life among elderly (p= 0.012). **Conclusion:** Visual impairment is associated with significant reduction in different quality of life domains for the elderly. Quality of life becomes poor with increasing severity of visual impairment. **Recommendations:** the study recommended conducting a health education programs for elderly with visual impairment to promote their quality of life.

Keywords: Visual impairment, elderly, quality of life.

Copyright @ 2019: This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

INTRODUCTION

Populations are rapidly aging across the world. It is estimated that the number of elderly in the world will grow from 524 million in 2010 to nearly 1.5 billion in 2050, most of this increase will occur in developing countries [1]. Egypt like many other countries is undergoing a demographic transition towards an ageing society. In Egypt, elderly number represents 6.9% of the total population, while it is expected to rise to 11.6% in 2030 [2]. Increased longevity is a triumph for public health and the result of social and economic development. However many individuals will face, as they age, the risk of having at least one chronic disease, such as hypertension, diabetes and muscular-skeletal conditions like osteoarthritis and osteoporosis [3].

According to the World Health Organization (WHO) visual impairment is responsible for 3.9% of the overall disease burden and disability-adjusted-life-year. Also, WHO reported that about 39 million people were blind and 285 million of the world's population suffers from vision impairment including 154 million people

aged 50 years and older [4]. Because more than 90% of visually impaired people reside in developing countries, WHO approved an action for "Vision 2020" over the next decade. One of its main recommendations was to provide all countries worldwide regularly updated data regarding the prevalence and causes of blindness and visual impairment, for the use in evidence-based advocacy, planning, and monitoring of eye care programs [5].

Visual impairment refers to loss of vision due to blindness and or low vision state of a person, which cannot be corrected by conventional ophthalmic therapy such as refractive correction, use of medication or surgery and consequently affects visual capabilities [6]. According to the WHO [7] people are visually impaired if they have a visual acuity less than 6/18 in the better eye or visual field that doesn't exceed 10 degrees at its widest angle. The definition of visual impairment promoted by WHO has 5 categories: (1) moderate visual impairment with presenting visual acuity from 6/18 to 6/60; (2) severe visual impairment with

presenting visual acuity from 6/60 to 3/60; (3) blindness with presenting visual acuity from 3/60 to 1/60; (4) blindness with presenting visual acuity from 1/60 to no sight perception; and (5) blindness with no sight perception at all.

The causes of visual impairment are many and varied; some of them are present at birth and others acquired later in life. Congenital conditions namely, glaucoma, amblyopia, cataract, nystagmus and malformation of the visual system have been implicated in visual impairment. Some other cited causes of visual impairment include ocular injuries; age related diseases such as age related macular degeneration (ARMD), diabetic retinopathy and other forms of degenerative eye diseases [8]. Also, there are risk factors for VI including strokes and Traumatic Brain Injury (TBI), gender, ethnicity, family history, smoking, exposure to UVA\UVB wave lengths and dietary habits [9].

Visual impairment often leads to functional disabilities and thus detrimental to people everyday lives, especially for older adults. In particular, visual impairment affects older adults' ability to perform tasks necessary for physical self-care, thus they need help from others. Specifically, visual impairment may lead to the following problems: a) Difficulties in activities of daily living. b) Falls, hip fracture and other accidents. C) Social isolation and loneliness. d) Lower life satisfaction, anxiety, depression, and suicide. F) Increased need for residential or institutional nursing care and increased use of health care services; and g) Increased mortality [10]. Geriatric health nurse (GHN) has great role in helping elderly to prevent vision disorders and consequential morbidity and mortality. GHN plays an integral role in providing services that include assessing vision risk, provide information, discuss available testing options and provide appropriate supportive counseling [11].

Significance of the Study

Eyes are important organs of body and it is also known as "The Windows of the Soul". They are important to perform daily functions. The study done by Abofaty [12], to examine the association between Health-related Quality of Life (HRQOL) among 123 elderly patients at outpatient clinics of ophthalmology hospital in Shebin El-kom city, Menoufia Governorate reported that there was a statistically significant negative correlation between total score of visual impairment and QOL total score. Also, this study found that the higher visual impairment score, the lower QOL satisfaction about different aspects of their lives.

During the past two decades, an increasing number of studies have investigated the impact of visual impairment on QOL of older people. Although some review articles regarding the association of QOL with ocular disorders in literature, were generally performed from the perspective of specialists in the fields of

ophthalmology but not the nursing field, still there is a lack of reviews on QOL of older people with wide range of age-related visual disorders from perspective of Gerontological Health Nursing [13]. Therefore, the aim of this study was to assess relationship between visual impairment of elderly and their quality of life.

Research Question

1-What is the relationship between visual impairment of elderly and their quality of life?

MATERIALS AND METHODS

Research Design

A descriptive correlational research design was adopted in this study to assess the relation between visual impairment & quality of life among elderly. The descriptive correlational design was suitable to achieve the aim of this study. Schmitz 2012 reported that descriptive research, which is designed primarily to provide static pictures, correlational research involves the measurement of two or more relevant variables and an assessment of the relationship between or among those variables.

Participants

A purposive sample was utilized in the current study. The total sample was 400 cases calculated by Solvin's formula as:

$$n = \frac{N}{1 + N(e)^2} \quad n = \frac{9000}{1 + 9000(0.05)^2} = 385 \text{ (nearly 400)}$$

n=sample size. N=total population, e=Margin of error (0.05), Confidence level =95%

Inclusion Criteria

- Age from 60 year and older.
- Diagnosed with moderate and sever visual impairment according to WHO classifications.
- No physical disability as stroke or mental disabilities as Al-Zehimar disease or dementia.

Setting

The current study was conducted at outpatient clinics in Governmental Ophthalmic Hospital in Kafer El- Sheikh Governorate.

Tools

Data were collected through interviewing elderly using two tools.

The first tool was elderly client interviewing questionnaire tool which designed by investigator after extensive reviewing of related literature, and divided into two parts;

- 1st part: the demographic characteristics of the elderly (age, sex, educational level, occupation and smoking).
- 2nd part: medical history and chronic disease.

The second tool was an Arabic Version of National Eye Institution Visual Function Questionnaires Tool (ARB-VFQ-25). It is a standardized tool,

developed by Mangione [14], cited in [15] to measure the influence of visual disability and visual symptoms on quality of life aspects such as emotional well-being and social functioning, in addition to task-oriented domains related to daily visual function of elderly and was modified by Nizar Saleh Abd El-Fattah *et al.*, [15]. Validity of the tool was (0.60-0.80) and reliability was (0.70-0.91).

- An Arabic Visual Function Questionnaire (ARB -VFQ-25) consists of a set of 25 vision-targeted questions. It generates 12 vision-targeted sub-scales as global vision rating, difficulties in near activities, difficulties in distant activities, limitation in social functioning due to vision and rule limitation due to vision.
- To calculate an overall composite score for the utilized tool (ARB-VFQ-25), simply average the vision-targeted subscale scores, excluding the general health rating question.
- The investigator used the WHO quality of life – BREIF (WHOQOL-BREIF) rating scales (1997) which ranged from 0 to 100 (100=Best, 0= Worst) as present in the original tool (ARB-VFQ-25) into 5 categories. Quality of life rating was very poor, poor, neither poor nor good, good and very good.

Procedure

A primary approval was granted from the Ethical Research Committee, Faculty of Nursing Cairo University to conduct the current study (9/2016). An official permission was obtained from Ophthalmic Hospital in Kafer El-sheikh after explaining the purpose and nature of the study. Elderly who participated in the pilot study were included in the study. According to inclusion criteria for the sample, oral and written consent were obtained from all eligible participants or their relatives (if needed) who accept to participate. Data was collected by the investigator through interviewing each participant using the study tools while they were waiting for their examination by doctors in the waiting area. Interview with each participant lasted between 30 to 40 minutes to complete sheets. The investigator met participants for two days per week from 9 am to 1 pm. Data were collected within one year (from October 2016 to October 2017).

Ethical Consideration

Primary approval was granted from the research ethics committee at the Faculty of Nursing-Cairo University to conduct the current study. Official permission was obtained from the director of Ophthalmic Hospital in Kafr El-sheikh to carry out this study. Elderly were selected based on their willingness to participate in the study and according to inclusion criteria of the study. Written consents were obtained from the elderly who agreed to participate in the study after they were informed about the purpose and nature of the study.

Statistical Analysis

On completion of data collection, data were tabulated and analyzed using statistical package for social sciences (SPSS) program version 20. Descriptive and inferential statistics were performed such as mean and standard deviation; frequency; percentage and correlation coefficient. Probability (p-value) less than 0.05 was considered significant and less than 0.001 was considered as highly significant.

RESULTS

Research findings are presented in three sections:

Section (1): Elderly client interviewing questionnaire tool which divided into:

- Part I: Demographic characteristics of elderly.
 - Part II: medical history and chronic diseases of elderly.
- **Section (2): Quality of life among elderly with visual impairment**
- **Section (3): Correlations between study variables.**
- **Section (1): Elderly client interviewing questionnaire tool:**

Part I: demographic characteristics of elderly

Table-1 shows that, 44% of the elderly aged between 65 and 70 years old with a mean age=67.99±3.29. Also 67.5% of the sample are females. Regarding their education, 64.0% of the elderly are unable to write or read and only 4.8 % of them have university education. Regarding marital status, 53.8% of the elderly are married and 82.5% of them have more than two children with a mean score =2.71±1.42. Also, 65.3% of the elderly aren't working, while 85% of them are not smoker.

Part II: medical history and chronic diseases of elderly:

Table-2 reveals that, the main cause for visual impairment is cataract (84%) followed by glaucoma (15.5%) and diabetic retinopathy (5.5%). Results reveals that, (66.5%) of the total sample has got chronic diseases in the form of; hypertension (60.2%), diabetes (50.8%), heart diseases (10.5%) and asthma (2.6%). Concerning persons who are responsible for following up elderly health at home, 60.5% of the elderly are followed up by their children and 3.5% of are depending on themselves.

Regarding the grade of visual impairment among elderly, 73.3% have moderate visual impairment and 26.3% have sever visual impairment as approved by their visual acuity measurement (Figure-1).

Section (2):- Quality of life among elderly with visual impairment:

Figure-2 shows that, the highest mean score for quality of life sub-scales are among elderly with general vision and color vision is (66.13±34.67), while

the lowest mean score of sub-scale is among elderly with distant activity (37.86 ± 20.97). Results reveal that, (42.5%) of the elderly have good quality of life, (37.3%) have neither poor nor good quality of life, (13.8%) of them have poor quality of life and only (6.5%) have very good quality of life (Table-3).

Section (3): Correlation between study variables:

Results reveal a statistically significant negative correlation between visual impairment among elderly

and their total quality of life. This means that quality of life of elderly is poorer with the increased severity of visual impairment (Table-4).

Section (1): Elderly client interviewing questionnaire tool

Part I: demographic characteristics of the studied sample.

Table-1: Distribution of elderly according to their demographic characteristics (n=400)

Socio-demographic characteristics	No.	%
Age (years)		
60 > 65	131	32.8
65 > 70	176	44.0
+70	93	23.3
Mean \pm SD	67.99 \pm 3.29	
Gender		
Male	130	32.5
Female	270	67.5
Education		
Unable to read or write	256	64.0
Read and write	108	27.0
Primary education	10	2.5
Secondary education	7	1.8
University education	19	4.8
Marital status		
Single	8	2.0
Married	215	53.8
Divorced	8	2.0
Widowed	169	42.3
Number of children:		
None	14	3.5
One	20	5.0
Two	36	9.0
More than two	330	82.5
Mean \pm SD	2.71 \pm 1.42	
Work		
Yes	139	34.8
No	261	65.3
Smoking		
Yes	60	15.0
No	340	85.0

Part II:

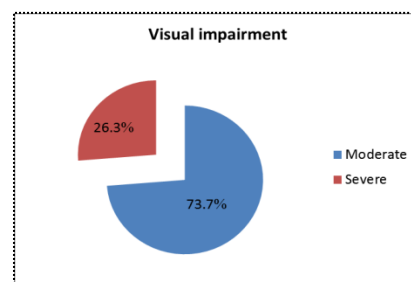


Fig-1: Percentage distribution of elderly regarding their visual impairment grades as approved by their visual acuity measurement (n=400)

Table-2: Percentage distribution of elderly according to their medical history (n=400)

Medical History	No.	%
*The main cause of visual impairment		
Cataract	336	84.0
Glaucoma	62	15.5
Diabetic retinopathy	22	5.5
Chronic disease		
No	134	33.5
Yes	266	66.5
*Type of chronic disease(n=266)		
Hypertension (HTN)	160	60.2
Diabetes mellitus(DM)	135	50.8
Heart diseases	28	10.5
Asthma	7	2.6
Responsible person or caregiver.		
Sons	242	60.5
Husband / wife	126	31.5
A Relative	18	4.5
Rely on themselves	14	3.5

Section (2): - Quality of life among elderly with visual impairment.

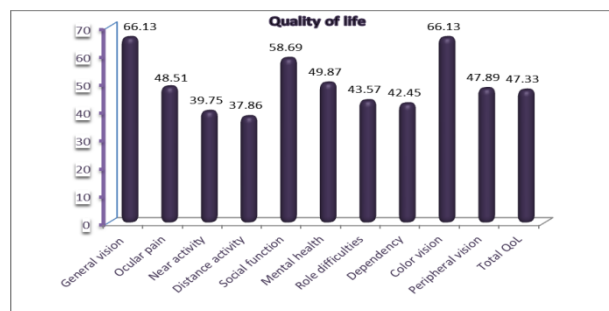


Fig-2: Mean & standard deviation of quality of life sub-scales among elderly with visual impairment (n=400)

Table-3: Percentage distribution of quality of life categories among elderly with visual impairment (n=400)

Quality of life rating	No.	%
Poor	55	13.8%
Neither poor nor good	149	37.3%
Good	170	42.5%
Very good	26	6.5%
Total	400	100%

Section (3): Correlation between study variables.

Table-4: Correlation between visual impairment and quality of life among elderly (n=400)

Variables	Visual impairment	
	R	P
Total quality of life	-0.74	0.012

DISCUSSION

Section (1): Elderly client interviewing questionnaire tools.

Part I: demographic characteristics of elderly.

Regarding demographic characteristics of elderly, results of the current study revealed that, more than one third of elderly aged between 65 and 70 years

old. Also, more than half of them were females. Concerning education, more than half of the study sample were unable to write and read while minority of them had university education (Table-1). These findings agreed with the study done by Hu *et al.*, [16] to assess the prevalence, causes and risk factors for blindness and visual impairment among 4190 aging Chinese and

reported that, 25.7% of visually impaired were 80 years and older. The prevalence of visual impairment among females was (14.6%) and males (6.9%). Also, 28.8% of the elderly were illiterate while 5.3% of them were college graduates or had higher education. Another study done by [17] to evaluate the effect of an educational program to improve the quality of life (QOL) among 70 elderly patients with visual impairment at the ophthalmology outpatient clinics and ophthalmology department at Zagazig University Hospitals, revealed that, the mean age for the studied sample was 70.3 ± 6.9 years and 60% of them were females and unable to read and write.

Part II: medical history and chronic diseases of elderly

The results of current study showed that, about two third of the elderly had chronic diseases in the form of diabetes mellitus (DM) and hypertension (HTN) (Table-2). These results were supported by Falahaty, Cheong & Isa [18] 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 conditions or diseases among elderly with visual impairment were diabetes (78.7%) and hypertension (76.7%). Another study done by Hu *et al.*, [16] revealed that, 74.7% of elderly with visual impairment had hypertension and 80% had diabetes mellitus. These results confirmed that, chronic diseases especially diabetes and hypertension are associated with visual impairment as a risk factor for the disease.

The result of the current study reflected that, more than three quarters of the elderly had cataract as a main cause for visual impairment followed by glaucoma that represented one sixth of them while minority of the study sample had diabetic retinopathy (Table-2). These results were in agreement with Chew *et al.*, [19] who conduct a study to estimate visual impairment and its causes from a National Eye Survey in Malaysia (NESII) among 15,000 subjects and revealed that, untreated cataract (58.6%), diabetic retinopathy (10.4) and glaucoma (6.6%) were the most common causes of visual impairment and blindness.

Also, Ofeibea Amedo *et al.*, [6] who conducted a study to evaluate the influence of visual impairment on quality of life among 294 patients reporting at low vision Centre of the Eastern Regional hospital of Ghana reported that, the major causes for visual impairment for those who aged 30 and 80 years old were cataract (32.6%), glaucoma (27.9%) and refractive error (16.3%).

On the other hand, the results obtained from the study done by Pan *et al.*, [20] on 4579 elderly 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%). Also, Koc, Erden, & Sefi Yurdakul [22] who conducted a study to define the base line disorders causing low vision and blindness among 347 Turkish adults in accordance with WHO criteria and found that, those who aged 50 years and older had age-related macular degeneration (21%) as a leading cause. Diabetic retinopathy (17%) corneal opacities (14%) and glaucoma (9%) were also important. In contrast with the study results, Erzurum and Turkey [22] who found that, the leading cause for visual impairment among 71 elderly aged 65 years and older was cataract, glaucoma and age-related macular degeneration.

From these results it is noticed that, there are many diseases that can cause visual impairment but according to the report from WHO [4] the principal causes of visual impairment globally were uncorrected refractive errors (43%) and cataracts (33%). Other causes were glaucoma, 2%, age related macular degeneration (AMD), diabetic retinopathy, trachoma and corneal opacities, all about 1%.

Concerning visual impairment grades, results of the current study indicated that, about three quarters of the elderly had moderate visual impairment while only one quarter of them had sever visual impairment according to WHO criteria (Figure-1). These findings were in agreement with Ofeibea Amedo *et al.*, [6] who stated that, most of patients had moderate visual impairment (23.8%) while only few of them had sever visual impairment. On the other hand, a study done by Oluleye, Adigun, Ladipo & Olowookere [23] on the causes of visual impairment and its impact on quality of life among 375 adult patients (229 older than 60 years) with ocular symptoms in Nigeria stated that, the majority of patients had sever visual impairment while very few had moderate visual impairment. These results may be due to the sample selection.

Section (2): - Quality of life among elderly with visual impairment.

Regarding mean scores of quality of life sub-scales, results of the current study revealed that, the highest mean score of the sub-scales were general vision and color vision. While the lowest mean score of the sub-scales were near activities and distant activities (Figure-2). In accordance with the study results, Cypel *et al.*, [24] who conducted a study to determine the vision status, ophthalmic findings and quality of life among 150 very elderly in Brazil and reported that, quality of life sub-scales for elderly with moderate Visual Impairment had higher mean scores in social function, color vision, peripheral vision and mental vision than driving, near activities, ocular pain and general vision. While elderly with sever visual impairment had the lowest mean scores for sub-scales of distant activities, role difficulties and color vision than other sub-scales. In the

same line, a study done by Khorrami-Nejad, Sarabandi, Akbari & Askarizadeh [25] who conduct a study on 121 subjects in Iran and reported that, emotional status had highest mean score (33.68) then self-care (28.51) followed by mobility, social and leisure (14.17, 10.23 & 7.80 respectively). From these studies, it is noticed that visual impairment can affect one's quality of life, independence and mobility and has been linked to falls, injury and worsened status in domains spanning mental health, cognition, social function and employment. Regarding total quality of life categories, the results of the current study showed that, two fifth of the elderly had good quality of life and less than one fifth of them had poor quality of life while one third of the elderly had neither poor nor good QOL (Table-3). This finding was in agreement with a study done by Oluleye *et al.*, [23] which reported that, vision-related quality of life of elderly was good in 85.1% of patients and only 14.9% had got poor QOL. Also, Amedo, Adede, Koomson & Osae [6] who stated that, 53.5% of elderly with visual impairment had good QOL and 7% of them had poor QOL, while 37.2% of visually impaired had neither poor nor good QOL.

On the other hand, this result contradicted the study by Khorrami-Nejad *et al.*, [25] who classified the QOL of elderly with visual impairment into 3 levels; relatively desirable QOL (52.1% of the elderly), desirable QOL (39.7% of the elderly) and undesirable QOL (only 1.7% of the elderly).

Section (3): Correlations between study variables

The results of the current study clarified that, there was a statistically significant negative correlation between visual impairment and total quality of life (Table-4). These results were in agreement with Adigun, Oluleye, Ladipo & Olowookere [23] who identified that, poor quality of life in patients is associated with a higher degree of visual impairment. In the same line, Abd-Allah *et al.*, [17] found that, there was a statistically significant negative correlation between total score of visual impairment and Quality of Life scores and reported that, the higher the visual impairment grade, the lower the quality of life scores. The study which conducted by Jones, Bartlett & Cooke [26] to investigate the impact of visual impairment on activities of daily living and vision-related quality of life among 96 participants living with visual impairment in the United Kingdom indicated that, even those with visual impairment below the level required for sight reported a reduced in Quality of Life.

From the investigator point of view, visual impairment is a serious problem that could affect elderly population not only their quality of life (physical, social & psychological aspects) but also their families (care givers) and communities specially with low productivity level. So, increasing public awareness in addition to early detection for this problem and

regular follow up are very important to improve elderly's health.

CONCLUSION

The study concluded that, there is a significant relationship between visual impairment among elderly and their quality of life. Also, the highest mean score of sub-scales of quality of life were general vision, color vision, social function, mental health, ocular pain and peripheral vision had the highest mean score while the lowest mean score of the sub-scales were role difficulties, dependency, near activities and distant activities.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were suggested:

- Replication of the study on a nationwide large-scale sample of elderly in different setting in Egypt.
- Conducting health education programs for elderly with visual impairment to promote their quality of life. Further researches are needed to identify prevalence, causes and risk factors associated with visual impairment in Egypt.

REFERENCES

1. World Health Organization. (2017). Global Health and Aging. *NIH Publication No 117737*, 1(4), 273–277.
2. Central Agency for Public Mobilization and Statistics (Egypt) GHDx. 2018.
3. Hootman, J. M., Helmick, C. G., & Brady, T. J. (2012). A Public Health Approach to Addressing Arthritis in Older Adults: The Most Common Cause of Disability. *American Journal of Public Health*, 102(3), 426-433.
4. World Health Organization. (2014). Global status report on alcohol and health. *World Health Organization*. https://doi.org/entity/substance_abuse/publications/global_alcohol_report/en/index.html
5. Budenz, D. L., Bandi, J. R., Barton, K., Nolan, W., Herndon, L., Whiteside-de Vos, J., ... & Tema Eye Survey Study Group. (2012). Blindness and visual impairment in an urban West African population: the Tema Eye Survey. *Ophthalmology*, 119(9), 1744-1753.
6. Amedo, A. O., Adade, S., Koomson, N. Y., & Osae, E. A. (2016). Influence of Visual Impairment On the Quality of Life: A Survey of Patients Reporting At the Low Vision Centre of the Eastern Regional Hospital of Ghana. *Journal of Ophthalmic Science*, 1(3), 1-13.
7. World Health Organization. (2003). The World health report: 2003: shaping the future.
8. 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 Global Health*, 2(2), e000264.

9. World Health Organization. (2017). Global Nutrition Report 2017: Nourishing the SDGs. Bristol, UK: Development Initiative.
10. Stevelink, S. A., Malcolm, E. M., & Fear, N. T. (2015). Visual impairment, coping strategies and impact on daily life: a qualitative study among working-age UK ex-service personnel. *BMC public health*, 15(1), 1118.
11. Rudd, A. G., Bowen, A., Young, G. R., & James, M. A. (2017). The latest national clinical guideline for stroke. *Clinical Medicine*, 17(2), 154-155.
12. Abofaty, F. M. M. (2016). *Health-related Quality of Life among Elderly Adults with Age-related Visual Impairment* /. Menoufia university. Retrieved from http://eulc.edu.eg/eulc_v5/Libraries/Thesis/Browse/ThesisPages.aspx?fn=ThesisPicBody&BibID=12344286&TotalNoOfRecord=135&PageNo=1&PageDirection=previous
13. Wang, C. W., Chan, C. L. W., & Chi, I. (2014). Overview of Quality of Life Research in Older People with Visual Impairment. *Advances in Aging Research*, 3(2), 79-94.
14. Mangione, J. (1996). *The Dream and the Deal: The Federal Writers' Project, 1935-1943*. Syracuse University Press.
15. Abdelfattah, N. S., Amgad, M., Salama, A. A., Israel, M. E., Elhawary, G. A., Radwan, A. E., ... & Embaby, D. K. (2014). Development of an Arabic version of the National Eye Institute Visual Function Questionnaire as a tool to study eye diseases patients in Egypt. *International journal of ophthalmology*, 7(5), 891.
16. Hu, J. Y., Yan, L., Chen, Y. D., Du, X. H., Li, T. T., Liu, D. A., ... & Wu, Q. (2017). Population-based survey of prevalence, causes, and risk factors for blindness and visual impairment in an aging Chinese metropolitan population. *International journal of ophthalmology*, 10(1), 140.
17. Abd-Allah, E. S., Zahra, S. B. M. G., & El-Seoud, A. R. A. (2018). Educational Program To Improve Quality Of Life in Elderly patients with Visual Impairment. *Saudi Journal of Nursing and Health Care*, 7921, 307-311.
18. Falahaty, K., Cheong, L. S., & Isa, M. B. H. M. (2015). Disability among Elderly People with Visual Impairment in Two Welfare Homes in Malaysia. *Biomedical & Pharmacology Journal*, 8(2), 1369.
19. Chew, F. L., Salowi, M. A., Mustari, Z., Husni, M. A., Hussein, E., Adnan, T. H., ... & Goh, P. P. (2018). Estimates of visual impairment and its causes from the National Eye Survey in Malaysia (NESII). *PloS one*, 13(6), e0198799.
20. Pan, C. W., Qian, D. J., Sun, H. P., Ma, Q., Xu, Y., & Song, E. (2016). Visual impairment among older adults in a rural community in eastern China. *Journal of ophthalmology*, 2016, 1-6.
21. Koc, F., Erden, V., & Sefi Yurdakul, N. (2018). Causes of low vision and blindness in a Turkish adult population: the Izmir eye study. *EMHJ-Eastern Mediterranean Health Journal*, 24(02), 161-168.
22. Güllüce, M., Sökmen, M., Şahin, F., Sökmen, A., Adigüzel, A., & Özer, H. (2004). Biological activities of the essential oil and methanolic extract of *Micromeria fruticosa* (L.) Druce ssp *serpyllifolia* (Bieb) PH Davis plants from the eastern Anatolia region of Turkey. *Journal of the Science of Food and Agriculture*, 84(7), 735-741.
23. Adigun, K., Oluleye, T. S., Ladipo, M. M., & Olowookere, S. A. (2014). Quality of life in patients with visual impairment in Ibadan: a clinical study in primary care. *Journal of multidisciplinary healthcare*, 7, 173.
24. Cypel, M. C., Salomão, S. R., Dantas, P. E. C., Lottenberg, C. L., Kasahara, N., Ramos, L. R., & Belfort Jr, R. (2017). Vision status, ophthalmic assessment, and quality of life in the very old. *Arquivos brasileiros de oftalmologia*, 80(3), 159-164.
25. Khorrami-Nejad, M., Sarabandi, A., Akbari, M. R., & Askarizadeh, F. (2016). The Impact of Visual Impairment on Quality of Life. *Medical Hypothesis, Discovery & Innovation Ophthalmology Journal*, 5(3), 96-103.
26. Jones, N., Bartlett, H. E., & Cooke, R. (2019). An analysis of the impact of visual impairment on activities of daily living and vision-related quality of life in a visually impaired adult population. *British Journal of Visual Impairment*, 37(1), 50-63.