



Original Article

Comparative Analysis of Quality of Life Questionnaires in Low Vision Patients

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ABSTRACT

Low vision affects large number of people globally, which can interfere with daily activities and lower quality of life. **Objective:** To evaluate the results of the Low Vision Quality of Life Questionnaire (LVQOL) and the National Eye Institute VFQ-25 as measures of patients' quality of life. **Methods:** Between August-October 2022, a comparative cross-sectional study was carried out at Madina Teaching Hospital, Faisalabad. Through Non-Probability Purposive Sampling Technique, 40 patients were included. Participants who were between the ages of 25 and 55, having visual acuity of less than 6/18 and had a visual field that did not extend more than 10° from the fixation point were considered. Every patient underwent a thorough ocular examination, which included testing for near visual acuity, BCVA, tonometry, fundus examination, and slit lamp bio microscopy. **Results:** Participants' average age was 47 ± 2.71. 17(42.5%) were female, whereas 23(57.5%) were male. Demographic data were recorded. Retinitis pigmentosa affected 12(30%) of patients, and age-related macular degeneration affected 9(22.5%) of the patients. Remaining diagnoses included glaucoma 8(20%), albinism 4(10%), diabetic retinopathy 4(10%) and degenerative myopia 3(7.5%). NEI VFQ-25 and LVQOL questionnaire's mean overall scores were 41 ± 5.02 and 44 ± 4.89 respectively. Ratings can vary from 0-100, with 0 representing the worst and 100 denoting no visual impairment. **Conclusions:** NEI VFQ-25 composite scores and LVQOL had a strong correlation. Especially useful for analyzing the growth of low-vision rehabilitation since they can be used to gauge the quality of life for people with vision impairment.

INTRODUCTION

Since they have an effect on a person's quality of life, cognitive ability, and access to social services, as well as on society as a whole, low vision and blindness require for specialized rehabilitation. It relates to finances, work opportunities, and educational choices [1]. In 2010, the World Health Organization (WHO) projected that there were 285 million visually impaired people living in the world. 39 million of them were claimed to be blind, while 246 million were categorized as having impaired vision. Untreated refractive errors and conditions like cataracts that are curable are the main causes of visual impairment (in 80% of cases). Leading indicators in developed countries include

age-related macular degeneration (AMD), glaucoma, and diabetic retinopathy [2]. After optical correction and, if necessary, medical or surgical therapy, low vision is defined as having a distant visual acuity of a value below 6/18 or a visual field in the better eye that is 20° or decreased. The competent authorities are concentrating on the primary problem of low vision with their global programme, Vision 2020, to end preventable blindness [3]. According to statistics, 65% of those with vision impairment and 82% of those who are blind are 50 years of age or older [2]. As the world's population increases, more people will be at risk. When blindness or impaired vision

cannot be prevented or fixed, visual rehabilitation can help people live better lives. Visual impairment is linked to efficiency and difficulties in daily activities requiring eyesight [4]. An individual with vision loss may struggle with visual, functional, psychological, social, and financial issues [5-7]. Due to difficulties performing vision-dependent tasks in educational, occupational, and recreational settings, these conditions can negatively impact a person's quality of life [8, 9]. The concept of "quality of life" refers to an individual's degree of autonomy, productivity, health, and capacity for engagement with or enjoyment from life events. According to the WHO, a person's decision regarding where they are in relation to their goals, aspirations, and worries, as well as the culture and value systems in which they live, constitutes their quality of life [10]. Researchers may be better able to comprehend how low vision impacts a person's daily functioning, wellbeing, wants, and objectives by conducting quality of life questionnaires with low vision patients. To improve low vision services, it is vital to assess the quality of life and the effects of rehabilitation on people with low vision [11]. Measuring factors including reading passage length and fluency, contrast sensitivity, and visual field had an effect on the majority of analyses. These objective vision tests, however, do not evaluate every component of visual function, making it challenging to determine how the patient perceives their medical condition. The doctor could determine that employing technology to enhance quality of life is suitable in this situation. A few questions are utilized in the methods for measuring everyday functioning and aspects of life that are related to health when evaluating quality of life. Numerous assessment methods, including functional, social, and psychological tests, are beneficial for evaluating poor vision services [11]. Two of them have been implemented: The Low Vision Quality of Life Questionnaire (LVQOL) and the National Eye Institute Visual Function Questionnaire (NEI VFQ-25). A 25-item questionnaire with four dimensions—regular tasks, adjustment, fine work like reading and writing, transportation, and illumination—makes up the Wolffsohn and Cochrane LVQOL [12]. It was created especially for those with vision impairments. This study aim was to determine whether low vision therapy may satisfy the demands of poor vision patients for daily activities. On a scale of 1 to 5, where a score of 5 denotes no difficulty, patients are asked to rank their challenges. Higher values indicate a higher quality of life; the overall score runs from 0 to 125. The LVQOL has been developed as a sensitive, accurate, and logically consistent indicator of quality of life for people with vision impairment. The NEI VFQ-25 can be utilized to evaluate how different ocular characteristics may affect a person's quality of life. There

are 13 subscales in total, including general health, general vision, ocular pain, expectations for vision, nearby and distant activities, social functioning related to vision, mental health related to vision, character challenges related to vision, dependency related to vision, driving, peripheral vision, and color perception. The National Eye Institute Visual Function Questionnaire (NEI VFQ-25) and the Low Vision Quality of Life Questionnaire (LVQOL) were used in this research to assess subject's quality of life.

METHODS

From August 2022 to October 2022, a multi-centered comparative cross-sectional study was carried at Madina Teaching Hospital, Faisalabad. The Non-Probability Purposive Sampling Technique was used to enroll a total of 40 participants in the trial. The number of samples required for this study has been estimated with the assistance of the Raosoft sample size calculator. Only participants in this study who were aged 25 to 55, had a visual acuity of less than 6/18, and had a visual field that did not extend more than 10° from the fixation point were considered. Each study subject underwent a thorough ophthalmologic examination that involved a number of diagnostic techniques. The best corrected visual acuity (BCVA), distance, and near visual acuities of each patient were measured as part of this test, which also included a slit-lamp examination of the anterior region of the patient's eyes. A fundus examination was also conducted to evaluate the back of the eye, while applanation tonometry was used to measure intraocular pressure. Furthermore, a low vision examination was performed to determine the extent of visual impairment in patients. Each patient's visual acuity was determined by measuring it in the eye based on better vision. These questionnaires were given to patients after their ophthalmologic exam in order to gauge their quality of life in relation to their vision. All participants were subjected to the questions. These questionnaires were to be completed by the patients after the assessment. Each participant completed an informed consent form before to the collection of data, confirming their desire to take part in the study after being made aware of its goals, methods, and potential risks and benefits. For data analysis, SPSS software (version 22.0) were employed. In order to interpret the distribution of age, gender, and disease frequency, descriptive statistics were used. Chi-square was used to determine whether there was any correlation between the two questionnaires.

RESULTS

In current study, total subjects were 40 and mean age of the participants were 47 ± 2.71 (Figure 1). In this analysis, out of 40 subjects 17 (42.5%) were female and 23 (57.5%) were male.

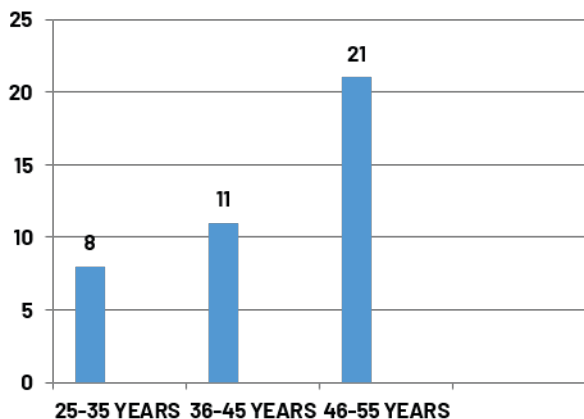


Figure 1: Age Distribution

Results concluded that out of 40 subjects, retinitis pigmentosa affected 12 (30%) of the patients, and age-related macular degeneration affected 9(22.5%) of the patients. The remaining diagnoses included glaucoma 8 (20%), albinism 4 (10 %), diabetic retinopathy 4 (10%) and degenerative myopia 3(7.5 %)(Figure 2).

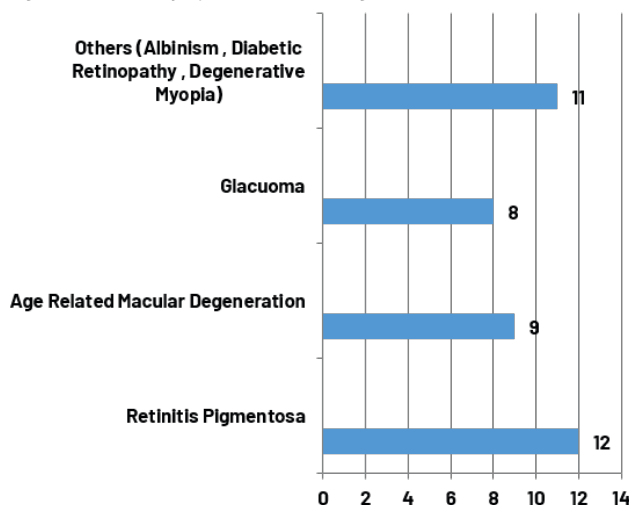


Figure 2: Frequency of Diseases

The NEI VFQ-25 and LVQOL data were evaluated to determine how vision impairment influenced the participants' quality of life. While the LVQOL questionnaire focuses on how vision impairment impacts daily living activities, the NEI VFQ-25 questionnaire is a frequently used tool to assess functioning and well-being related to vision. The severity of the patients' vision impairment and how it affected their quality of life were assessed using the mean total scores from both surveys. The NEI VFQ-25 questionnaire produced a mean overall score of 41 ± 5.02 , which represents the participants' average level of impairment. Similar results were obtained from the LVQOL survey, which had a mean total score of 44 ± 4.89 (Table 1). These questionnaires utilize a rating range from 0 to 100, where 100 indicates no vision impairment at all and 0

represents the most severe visual impairment. The average degree of vision impairment indicated by the participants clearly falls below the average level of the grading scale, according to the data.

Table 1: Mean Comparison of NEI VFQ-25 And LVQOL Questionnaires

NEI VFQ-25	LVQOL	p-value
41 ± 5.02	44 ± 4.89	0.03

The studies were able to learn more about the individuals' level of vision impairment and how it affected their general well-being and everyday activities by using these questionnaires and analyzing the data. Healthcare workers may find this information useful in recognizing and meeting the requirements of patients with vision impairment, with the ultimate goal of enhancing their quality of life.

DISCUSSION

Visual acuity, readability, sharpness of contrast, and visual field were a few of the tests used to measure low vision patients' visual function. These traits, however, do not precisely reflect a person's visual environment. It is crucial to evaluate patients' subjective visual function and the outcomes of rehabilitation's therapy. Currently, low vision services are thought to work optimally when visual task complexity is reduced [14]. The patient's self-reported quality of life is a crucial factor in determining the efficacy of low vision therapy, according to Stelmack. As is well known, visual acuity tests frequently fall short of accurately reflecting how poor vision patients really live their daily lives [15]. The quality of life of individuals with permanent visual impairment has not been examined in any studies specifically created for patients with glaucoma, AMD, retinitis pigmentosa, cataracts, or optic neuritis [16-18]. In order to evaluate both the effectiveness of low vision therapy and the quality of life of people with poor vision, Wolffsohn and Cochrane established the LVQOL in 2000 [19]. This questionnaire is one of the best tools to use with patients who have low vision because the questions are based on the difficulties that persons with low vision face every day. The LVQOL scores and other measures of the quality of life associated with vision, such as visual acuity, were found to be strongly correlated. The LVQOL subscales' construct validity was also demonstrated to be strong. Additionally, established was the 25-item NEI VFQ, which quickly became the most used visual function test [20]. The Wisconsin Epidemiologic Study of Diabetic Retinopathy, the Age-Related Eye Disease Study, and the Optic Neuritis Treatment Trial were three well-known eye studies that made use of the NEI VFQ-25 [21-23]. It has gone through multilingual translation and assessment. According to a large patient sample made up of people with a range of eye disorders and visual impairments, this test

appears to have the necessary psychometric features, including reliability and construct validity [24]. Sivaprasad *et al.*, showed that the overall scale, as well as each of the subscales measuring close- and far-proximity activities, had good reliability over time, internal consistency, and validity between tests in regards to functional reader independence rating and optimum reading speed among individuals with geographic atrophy [25]. A significant to highly powerful association between the combined results from the two surveys and the relevant subscale scores was discovered using correlational analysis. According to these results, these measurements would be reliable in determining patients' quality of life and the effectiveness of rehabilitation for vision impairment.

CONCLUSIONS

The study's findings revealed a strong relationship between the overall NEI VFQ-25 scores and LVQOL. Both can be utilized to assess how well low-vision rehabilitation is working and how well people with low vision are living their lives.

Authors Contribution

Conceptualization: MJ

Methodology: SSA, SSG, MS

Formal analysis: MJ, ZA

Writing-review and editing: MJ, KJ

All authors have read and agreed to the submitted version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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