



HEALTH-RELATED QUALITY OF LIFE (HRQOL) AMONG DIABETIC RETINOPATHY PATIENTS IN HYDERABAD, INDIA: A CROSS-SECTIONAL STUDY

Dr. Umesh Bhammarkar*

Head Of Department, Vitreo Retinal Surgery, Lions Club Of Hyderabad - Sadhuram Eye Hospital, Hyderabad. *Corresponding Author

ABSTRACT

Background: Diabetic retinopathy (DR), a leading cause of vision impairment, significantly affects the daily lives and overall well-being of patients. This study assesses the health-related quality of life (HRQOL) among patients with DR in Hyderabad, India. **Objective:** To assess the health-related quality of life (HRQOL) among diabetic retinopathy (DR) patients in Hyderabad, India. **Methods:** A cross-sectional study was conducted at a tertiary eye care center involving 259 DR patients. Socio-demographic and clinical data were collected using a structured questionnaire, including the National Eye Institute Visual Function Questionnaire (NEI-VFQ-25). **Results:** The majority were aged 51–70, male, and from urban areas. The average duration of diabetes was 8.4 years. HRQOL was moderately impaired in most domains, particularly near/distance activities and mental health. **Conclusion:** DR significantly impacts HRQOL, especially in older and longer-duration diabetes patients. Timely management and counseling are vital.

KEYWORDS : HRQOL, diabetic retinopathy, NEI-VFQ-25, India, cross-sectional study

INTRODUCTION

Diabetic retinopathy (DR), a microvascular complication of diabetes mellitus, is a primary cause of visual impairment and blindness in working-age adults globally. India, with over 77 million diabetics, is experiencing a significant increase in DR cases [1]. Beyond visual loss, DR affects patients' mental, emotional, and social well-being. This broader disease impact is assessed through health-related quality of life (HRQOL), a multidimensional concept that evaluates how a medical condition affects daily functioning and psychological health.

The National Eye Institute Visual Function Questionnaire (NEI-VFQ-25) is a validated tool widely used to assess vision-related HRQOL [3]. Despite its increasing relevance, limited data exist on HRQOL among Indian DR patients. This study aims to fill that gap by evaluating HRQOL in DR patients attending a tertiary eye care hospital in Hyderabad.

MATERIALS AND METHODS

Study Design And Setting

A hospital-based cross-sectional study was conducted at an Eye Hospital, a tertiary care center in Hyderabad, India, from January to June 2024.

A total of 259 patients diagnosed with diabetic retinopathy were recruited consecutively from the outpatient department. Inclusion criteria were age ≥ 18 years, confirmed diagnosis of any stage of DR by a retina specialist, and ability to provide informed consent. Patients with other significant ocular conditions (e.g., glaucoma, age-related macular degeneration), recent ocular surgery (within 3 months), or cognitive impairment were excluded.

Data Collection- Participants were interviewed using a structured, pre-tested questionnaire in their preferred language (Telugu, Hindi, or English). The instrument had three components:

1. Socio-demographic data (age, gender, education, residence, marital status)
2. Clinical history (duration of diabetes, DR stage, comorbidities like hypertension, cardiovascular disease)
3. HRQOL assessment using the NEI-VFQ-25, covering 12 domains including general vision, near/distance activities, mental health, dependency, role difficulties, color vision, and peripheral vision.

Written informed consent was taken from all participants.

Statistical Analysis-Data were analyzed using SPSS version

25. Descriptive statistics (mean, standard deviation, frequencies, percentages) summarized the demographic and clinical characteristics. Mean scores were calculated for each VFQ-25 domain. Multiple linear regression was performed to identify factors significantly associated with HRQOL, with $p < 0.05$ considered statistically significant.

RESULTS

Mean $\pm$ SD age of the study participants was 56.7 ± 10.4 years. The other details on socio demography are shown in Table 1.

Table 1: Socio-demographic Profile of Study Participants

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	138	53.3%
	Female	121	46.7%
Marital Status	Married	211	81.5%
	Unmarried/Widowed/Separated	48	18.5%
Area of Residence	Urban	186	71.8%
	Rural	73	28.2%

In the present study age at diagnosis of Diabetes was < 30 years in 19 (7.3%), 30–39 years in 42 (16.2%), 40–49 years in 81 (51.3%), 50–59 in 75 (29.0%) and ≥ 60 years in remaining 42 (16.2%) of the study participants. Table 2 represents HRQOL

Table 2: HRQOL Scores by NEI VFQ-25 Domains

VFQ-25 Domain	Mean Score ($\pm$ SD)	Interpretation
General Vision	62.3 ± 14.8	Moderate impairment
Near Activities	58.1 ± 16.0	Moderate difficulty
Distance Activities	59.7 ± 15.2	Moderate difficulty
Social Functioning	63.0 ± 13.6	Slightly affected
Mental Health	50.2 ± 17.5	Highly affected
Role Difficulties	54.1 ± 16.7	Highly affected
Dependency	48.9 ± 18.2	Severely affected
Driving	N/A	Not applicable to many participants
Color Vision	69.8 ± 12.1	Slightly affected
Peripheral Vision	65.0 ± 13.3	Moderate impairment

DISCUSSION

This study highlights the substantial impact of diabetic retinopathy (DR) on the health-related quality of life (HRQOL) among patients in an Indian urban setting. Most participants were older adults (mean age 56.7 years), male, and from urban areas—demographics in line with national DR profiles [4]. Early onset of diabetes, particularly between 40–50 years,

aligns with the rising burden of type 2 diabetes in middle-aged Indians.

The NEI-VFQ-25 scores reveal moderate to severe impairment in key life domains. Particularly, the lowest scores in mental health, dependency, and role difficulties reflect the profound psychological toll of vision loss. Prior studies by Fenwick et al. [2] and Rani et al. [6] have similarly documented reduced emotional well-being among DR patients, reinforcing our findings. Patients with proliferative DR or coexisting conditions such as hypertension or cardiovascular disease showed even lower HRQOL scores.

These findings emphasize the need for multidisciplinary management strategies. Integrated care involving ophthalmologists, endocrinologists, and mental health professionals is vital. Regular screening, education, and counseling services can improve patients' understanding, reduce anxiety, and promote better disease self-management.

CONCLUSION

Diabetic retinopathy significantly impairs quality of life, particularly in domains related to vision, emotional well-being, and independence. Patients with advanced DR stages and multiple comorbidities are at greater risk of reduced HRQOL. Comprehensive care models that incorporate timely diagnosis, patient education, and psychosocial support are crucial in managing this chronic visual disability.

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