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Assessment of Vision-Related Quality of Life in Patients with Vision Impairment Aged 30 Years and Above at Saidu Teaching Hospital, Swat, Khyber Pakhtunkhwa Pakistan: A Cross-Sectional Study

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ABSTRACT

OBJECTIVE: To evaluate vision-related quality of life (VRQOL) of people with VI and identify the association of demographic, physical and psychosocial factors to VRQOL.

METHODOLOGY: A cross-sectional study was conducted to assess VRQOL in people with VI aged 30 years and above visiting the Ophthalmology department at Saidu Teaching Hospital, Swat (STHS). A total of 450 participants were involved consecutively; a validated tool, NEIVFQ-25, was used to evaluate VRQOL. Correlation, chi-square, and linear regression were used to assess the associations between VI, demographic characteristics, and the accomplishment of routine activities, with p <0.05 considered statistically significant.

RESULTS: The mean age of the sample was 58.5 years, with 54.2% female. Participants with occupation "laborer", 10 years of education, having profound VI with visual acuity (VA) =1.3 or blindness (VA>1.3 log MAR) had significantly (p <0.05) low VRQOL scores. In comparison, participants aged 51 to 60 years had lower VRQOL scores for driving and tasks such as focusing on distant objects, with a p <0.05.

CONCLUSION: A significant impact on VRQOL was observed in people with VI. The findings can be helpful for patients and clinicians in understanding the effects of VI and devising a suitable and culturally acceptable rehabilitative strategy to improve VRQOL and, hence, the standard of living.

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INTRODUCTION

Eyesight is a basic need for independent life and plays a vital role in accomplishing activities of daily living (ADL). It contributes about 80% of functional capacity of the combined effect of the special senses.[1] A derangement of vision leading to Visual Impairment (VI), also known as low vision (LV): visual acuity (VA) 0.5 or greater log of minimum angle of resolution (Log MAR) and permanent disability.[2] It may be caused by disease or defect, trauma, or a degenerative condition that cannot be corrected or improved by conventional means, such as refractive error (RE) correction, medication, and/ or surgery.[3] According to recent estimates, about 2.2 billion people have visual problems, with more than a billion cases preventable through RE correction and cataract surgery.[4] People with VI have difficulty accomplishing ADL, which is reflected in their social, emotional, and economic well-being, also known as vision-related quality of life (VRQOL).[5]

The long-term consequences are illiteracy, unemployment, poverty, disability, and a high mortality rate. The effects of VI vary in communities, person to person, and can be assessed by measuring the degree of difficulty or impairment experienced in sight-dependent activities.[6] The effects are more pronounced in developing countries like Pakistan, where most research studies focus on urban areas with easy access to resources. No comprehensive evidence has been found from diverse socio-cultural and rural populations of Khyber Pakhtunkhwa, identifying gaps in the assessment of the impact of VI on VRQOL in these resource-limited settings.

A substantial burden of VI is found in the developing world, with more than 90% of cases and limited resources; the prevalence of profound VI or blindness in sub-Saharan Africa and Ethiopia is 1.4% and 5.3%, respectively. [7] While 7.88 million people in Pakistan have VI,[8] which causes significant deterioration in

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VRQOL. Degenerative phenomena and lifestyle changes predispose the elderly population to diabetes, hypertension and obesity, which ultimately increase the risk of chronic blinding conditions such as diabetic retinopathy (DR), cataract, glaucoma, hypertensive retinopathies and age-related macular degeneration (ARMD) [9] and a projected increase of about 20% is estimated in the elderly age group by the year 2030.[10] People with VI are presented with a variety of problems; difficulty in differentiating objects, defects in visual field (VF) leading to the inability to see a wider area and the need to move their eyes or turn the head to proper focus, difficulties in adapting to darkness and seeing after the sunset, they have problems with brightness and feel very uncomfortable to look into normal lighting i.e. even the indoor lighting becomes intolerable, problems of double vision, visual distortion and difficulties of perception or any combination of the above features.[11] As a result, they face difficulties in accomplishing various routine tasks such as eating, mobility, bathing, washing, dressing, cooking, sewing, going to the toilet, reading, writing, recreation, and even participation in gatherings, leading to loss of confidence and self-esteem. [12] Apart from such personal difficulties, they are observed with a wide range of social, economic, and developmental implications; their constant worry of the condition becoming worse or leading to disability is annoying and may derange their mental health status, leading to anxiety, frustration and even depression.[13] Globally, VI is a significant barrier to achieving the Sustainable Development Goals (SDGs); eradication of extreme poverty, zero hunger, good health and well-being, and quality education.[14] Data from the National Health Interview Survey on Disability, United States of America, suggested that the compromised state of independence and exclusion from education hinder technical expertise, leading to 40-45% fewer opportunities to achieve employment, leading to a huge financial burden of about 411 billion US dollars in the form of loss to productivity and economic growth.[15] Pakistan, with limited resources and a high burden of VI and other disabilities, is ranked fourth highest on age-standardized years lived with disability (YLD 552.98 per 100,000) in South Asia and twenty-first in the global list of 42 low-middle income countries.[16] However, the impact of VI is more pronounced, with a significant contribution to worsening the outcomes, particularly in people with limited resources.[17]

Importantly, most research studies focus on clinical factors related to outcomes, such as VA improvement, control of intraocular pressure, or reduction in deviations, and neglect holistic VRQOL assessment or planning future interventions that capitalize on remaining visual potential and improve functional capacity. A worser situation in resource-constrained areas like Khyber Pakhtunkhwa, particularly the district Swat, with a scarcity of experts and infrastructure to assess VI and VRQOL, and constraints in designing rehabilitative measures to improve functional vision. Given its importance, no local research on VI and its implications, with no appreciable data available in KP. Therefore, this study aimed to assess and quantify the overall VRQOL perspective of people with VI and find out its association with demographic, physical, and psychosocial factors.

METHODOLOGY

A cross-sectional study was conducted at the ophthalmology department of Saidu Teaching Hospital Swat (STHS) from October 2023 to September 2024. The study aimed to assess the impact of VI on VRQOL in people aged 30 years and above. We also assessed the impact on various domains of quality of life. STHS is a tertiary care institution with a well-established ophthalmology department, which provides comprehensive clinical and community care services and is a major referral center for more than 6 million people in the region. Eligible candidates who fulfilled the inclusion criteria were consecutively involved in constructing the sample size after taking written consent. The sample size was calculated by the standardized formulae used during cross-sectional studies[18], with a 95% confidence interval and 80% power, p = estimated proportion of the prevalence of good QOL in people with VI, the population of 46000 was considered as the average of the total number of patients visiting the OPD each year, with a proportion of QOL (p=50%), as there was no available data on the proportion of QOL. To avoid margin of error and a reduction in sample, dropout/non-respondents, the sample was increased by 4% and 20 %, respectively; the total sample size was 450.

The inclusion criteria were people with VI aged 30 years and above, diagnosed at any age, type and severity. People refused to participate and others with severe systemic diseases, mental health disorders, or with severe functional impairment like immobility, were excluded. A validated tool, the National Eye Institute Visual Functions Quality of Life Questionnaire (NEI VFQ-25), was used to assess VRQOL. The 25 questions of the NEI VFQ-25 are grouped into 12 subscales including one for the assessment of general health and the rest targeting vision-related functions; general health (GH, 1 item), general vision (GV, 1 item), pain in the eye (PE, 2 items), problems in performing near-vision tasks (NV, 3 items) and distance-vision tasks (DV 3 items), social functioning limitation (SF, 2 items); mental health-related problems (MH, 4 items), role limitations (RL, 2 items), dependency on others (DP, 3 items), difficulties in driving (DR, 2 items), problems with color vision (CV, 1 item); and peripheral vision difficulties (PV,1 item).[19] Each of the subscales is answered on a Likert scale, 5-level scales ranging from excellent to poor and the visual capabilities are shown by 6 levels ranging from excellent to blind, depending upon severity. Each set of given answers was converted to a utility value. The subscale score was then calculated, adding the scores of individual questions and dividing by the number of questions in the given subscale.[20]The composite

score of VRQOL, ranging from 0 to 100, provides a useful summary to denote visual functions and quantify the impact of VI on VRQOL score.[21] A high score indicates better VRQOL and less impact. People visiting the ophthalmology department were thoroughly examined, and those diagnosed with VI meeting the inclusion criteria were identified, informed, and asked to participate in the study. Before inclusion, each participant was briefed about the study and informed that written consent was obtained for a comprehensive eye examination [22] and NEI VFQ-25 administration. VA for distance and near were recorded using the Bailey-Lovie VA chart, designed on the principle of the logarithm of the minimum angle of resolution (Log Mar) and is considered more accurate, reliable, and easy to administer than the routinely used Snellen's VA chart.[23] If a person cannot read or name the letters or numbers, the illiterate (E), Landolt rings (c), and LH symbols (shapes of rectangle, house, heart, butterfly, etc.) were used. To know the actual value of VA and reduce chances of guessing, instead of noting it as counting fingers or hand movement, the testing distance was reduced and VA checked again; participants who could not appreciate any of the largest letters monocularly at 4 meters were seated at 2, 1 and ½ meter respectively, it provided a quantified figure for better understanding and standardization.[24] For the sake of understanding and depending upon severity, VA was noted in three categories. Those found with their distance VA best corrected to 0.5 log MAR or greater were selected for the study and examined comprehensively: using a slit lamp to note any abnormality in the anterior segment, measurement of intraocular pressure (IOP), dilated fundus examination for the exclusion of any additional abnormalities and to note the severity of DR, ARMD and primary open angle glaucoma (POAG). Based on the level of VA, VI was categorized into 5 levels by the current version of the International Classification of Diseases (ICD-11). The participants were comprehensively interviewed face-to-face by an interviewer fluent in Pashto language using the translated form of the validated NEI VFQ-25; need-based assistance was provided to ensure its accurate completion. An individual interview took about 35 minutes, and the collected data was transferred to an Excel sheet. Response to a question was transformed into an equivalent score by the Likert method of summarizing evaluations, after summarization it was converted to a raw scale score for each concept. The raw scale score was then converted to a scale from 0 to 100, with scores less than the mean considered poor VRQOL.[25]

Considering the Helsinki Declaration of 1975, revised in 2000, the proposed research protocol was followed during the inclusion, examination, data collection, and Interview. The ethical review committee of STHS approved all the procedures conducted on the study participants via Approval number 114-ERB/023 dated 25-09-2023. Written informed consent was obtained from each participant, and the obtained information was kept secret, maintaining confidentiality throughout the research process.

Descriptive and inferential statistical methods were applied to show frequencies, percentages and assess the association of VRQOL with severity levels of VI and other demographic characteristics. VRQOL scores were demonstrated through different subscales affected by VI, such as GH, GV, NV, DV, CV, PV, SF, RL, WDD, DP, MH, and Pain in the eyes. The correlation of different variables with each other and the VRQOL score was studied, and the correlation coefficient (Pearson's) values were used to show their mutual relation. The chi-square test was used to evaluate the association of different demographic variables, such as gender, age, qualification, and economic status, with VRQOL. Regression was used to evaluate the impact of different independent variables and identify the predictors of VRQOL. The strength and direction of association were quantified by a beta coefficient and significance by a *p*-value less than 0.05. ANOVA was applied, and the F-test was used to determine any variance in the VRQOL score attributed to VA and VI; variances attributed to individual subscales were also determined. Statistical Package for Social Sciences (SPSS for Windows version 22, IBM Corporation USA) was used for the statistical analysis.

RESULTS

Demographic characteristics of the participants:

Table 1 shows the mean age of the study participants (n=450) was 58 years and 6 months, with most in the age range 51 to 60 years (48%) and a slightly higher female (54.2%) to male (45.8%) ratio. Most of the participants were literate with SSC (44.2%), laborers (41.8%), and from the middle class (32%).

Table I: Demographic characteristics of the participants

S.No	Variables	n	%
1	**Gender**		
	Male	206	45.8
	Female	244	54.2
2	**Age (Years)** Mean=58.5±16		
	30-40	37	8.2
	41-50	95	21.1
	51-60	216	48
	Above 60	102	22.7
3	**Education Status**		
	Uneducated	60	13.3
	SSC	199	44.2
	Intermediate	121	26.9
	Graduate	64	14.2
	Post Graduate	6	1.3

4	**Occupation**		
	Jobless	118	26.2
	Laborer	188	41.8
	Farmer	78	17.3
	Businessmen	37	8.2
	Govt. employ	29	6.4
5	**Economic Status**		
	Lower class	105	23.3
	Lower Middle	96	21.3
	Middle Middle	144	32
	Upper Middle	80	17.8
	Upper class	25	5.6

"n" represents frequency, and "%" represents percentage.

Association of demographic variables with VRQOL score:

Table 2 shows a significantly low VRQOL score in the elderly (p <0.001) and participants with any other disability (p=0.032). Other variables such as education status, occupation, and economic status affected the VRQOL score insignificantly.

Table II: Association of demographic variables with vision-related quality of life Scores

S.No	Variable	x2	Degree of Freedom	%
1	Age	19.76	1	<0.001*
2	Education Status	0.4	1	0.843
3	Occupation	1.59	1	0.207
4	Economic Status	2.17	1	0.140
5	Other Disability	4.56	1	0.033*

X2 represents the number of variables,

*Statistically significant (p-value < 0.05) by comparing variables such as Age and Other disability with VRQOL scores, using chi-square test.

Impact of different levels of VA, VI, duration, and causes of VI on VRQOL Score:

Table 3 shows that most (54.9%) of the participants had VA 0.5 to 1 with mild VI (48.7%) and duration of the disorder less than 1 year (49.3%). The most frequent causes of VI were DR (32%), ARMD (29.6%), glaucoma (21.1%), Stargardt (6.7%), corneal disease (4.9%), and others (4.9%). Some of the participants (20%) were found with other organ disabilities. A summary of the descriptive statistics of the VRQOL scores showed the composite mean score of 50.6±23, with both mode and median 51.2, suggesting a central tendency. The range varied from 27.6 to 73.8 with a high precision (SD 0.52). A better VRQOL score was shown by participants with VA 0.5 to 1 (57.8±7, p <0.001), mild VI (58.2±7.2, p <0.001), with duration more than 3 years (61.6±4, p <0.001) caused by DR (56.2±8), having no other disability (50±12, p = 0.033).

Table III: Impact of different levels of visual acuity, visual impairment, and duration of visual impairment on vision-related quality of life score

S.#	Variables	n	%	Mean (VRQOL)	*p-value*
1	**VA** (2.4±0.75)				
	0.5 to 1	247	54.9	57.8±7	<0.01
	> 1 to 1.3	130	28.9	47.3±3.7	<0.01
	> 1.3 to NPL	73	16.2	3 2 ± 4	<0.01
2	**VI** (3.8±1.23)				
	Mild VI	219	48.7	58.2±7.2	<0.01
	Moderate VI	33	7.3	53.5±4.9	<0.01
	Severe VI	114	25.3	47.5±3.8	<0.01
	Profound VI	80	17.8	34±6.6	<0.01
	Blind	4	0.9	33.2±5	<0.01
3	**Duration of VI** (2.3±0.75)				
	< 1 year	223	49.3	50±11	<0.01
	1 to 3 years	149	33.4	45.4±8	<0.01
	> 3 years	78	17.3	61.6±4	<0.01
4	**Causes of VI**				
	Corneal Disease	22	4.9	37.6±0	0.43
	Glaucoma	95	21.1	48.5±10	0.35
	ARMD	133	29.6	47.5±12	0.32
	DR	144	32	56.2±8	0.29
	Stargardt	30	6.7	53.1±10	0.36
	RP	4	0.9	27.6±0	0.05
	Others	22	4.9	55.2±0.9	0.37
5	**Other disability**				
	Yes	90	20	52.8±4.6	0.03
	No	360	80	50±12	
	Total	**450**		**50.6±11**	

"n" represents frequency and S.E. represents Standard Error. *Statistically significant (p-value < 0.05) by comparing variables such as VA, VI, Duration of VI, and Other disability with VRQOL scores, using regression and ANOVA.

Association of VA, VI, and duration of VI with daily activities (subscales scores):

Table 4 shows the highest score was recorded in the subscale for pain & discomfort in participants with VA 0.5 to 1 (74±18, p=0.005) and mild VI (74±20, p=0.032). The lowest scores were recorded for the subscale "driving" in participants with VA greater than 1.3 (20±2, p < 0.001) or blind (20±1, p-value < 0.001). Participants with VI caused by DR had relatively higher scores in most of the subscales; highest score was recorded in the subscale "pain & discomfort" and lowest was recorded in VI caused by "RP" and "others" in subscales "social functioning" (20±1, p= 0.199) and "driving" (20±1, p=0.199). The duration of VI was less than one year for most of the participants. The highest score was recorded in participants with duration more than 3 years for the subscale "pain & discomfort" (78±14, p = 0.714), while the lowest score was

shown in the duration of 1 to 3 years for the subscale "driving" (20±4, p <0.001).

Table IV: Impact of visual acuity, visual impairment, and duration of visual impairment on daily activities

	GH	GV	NV	DV	CV	PV	SF	RL	W.D.D	Driving	MH	Pain
Visual Acuity												
VA=0.5 to 1	68±15	51±8	64±8	52±8	58±12	56±12	60±8	60±10	60±12	30±10	60±12	74±18
VA>1 to 1.3	68±14	44±14	48±6	40±10	36±8	56±8	52±10	50±10	48±4	20±8	44±8	74±18
VA>1.3 to NPL	67±10	32±4	32±2	28±2	33±14	48±4	34±10	30±10	26±8	20±2	36±8	68±16
***p*-value**	0.09	<0.001	<0.001	<0.001	0.003	0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
Visual Impairment												
Mild VI	70±20	48±8	64±8	52±8	50±12	80±12	60±10	60±10	56±12	32±10	60±14	74±20
Moderate VI	74±12	45±6	56±6	46±6	50±16	76±16	60±6	56±8	56±8	20±6	56±10	80±12
Severe VI	68±16	37±10	48±6	40±10	50±12	78±16	52±10	50±10	48±4	20±8	40±8	76±16
Profound VI	65±16	30±6	34±6	30±6	44±10	60±2	36±12	32±12	28±12	20±2	38±8	78±16
Blind	58±2	28±0	34±0	26±0	40±8	74±20	40±12	30±12	30±10	20±1	40±10	60±2
***p*-value**	0.02	<0.001	<0.001	<0.001	<0.001	0.081	<0.001	<0.001	<0.001	<0.001	<0.001	0.032
Causes of Visual Impairment												
Corneal	51±3	40±2	34±4	39±2	38±8	50±12	50±2	40±3	40±5	20±5	50±5	60±3
Glaucoma	74±20	42±12	54±14	40±12	36±10	30±8	50±14	50±14	46±14	26±8	52±14	80±20
ARMD	70±16	36±12	48±12	40±12	46±8	52±14	52±20	52±18	46±16	26±10	46±18	70±16
DR	64±12	50±14	60±10	54±8	50±2	46±14	60±6	60±14	56±12	30±10	52±12	76±12
Stargardts	80±20	44±6	60±12	46±8	48±14	52±14	50±8	48±10	56±20	28±10	62±14	80±20
RP	60±3	36±10	26±2	26±6	28±12	42±4	20±1	40±2	20±3	20±3	30±1	60±3
Others	75±1	30±4	60±3	26±3	54±10	60±10	60±1	60±1	60±1	20±1	60±1	80±1
***p*-value**	0.084	<0.001	<0.001	<0.001	0.065	0.173	0.001	0.001	<0.001	0.199	0.001	0.084
Duration of Visual Impairment												
< 1 year	72±14	48±10	52±14	44±12	40±12	50±12	54±14	52±14	52±18	28±10	50±14	76±14
1 to 3 years	68±20	47±10	50±12	40±10	34±8	50±10	48±12	48±14	44±12	20±4	40±8	70±20
> 3 years	68±14	52±12	68±6	56±4	32±8	48±20	68±8	68±10	56±8	40±3	66±8	78±14
***p*-value**	0.14	<0.001	<0.001	<0.001	<0.001	0.054	<0.001	<0.001	0.936	<0.001	<0.001	0.714

GH, GV, NV, DV, CV, PV, SF, RL, WDD, and MH represent general health, general vision, near vision, distance vision, color vision, peripheral vision, social functioning, role limitation, well-being, distress, dependency, and mental health.
*Statistically significant correlation (p-value < 0.001) by comparing variables such as visual acuity, visual impairment, causes, and duration of visual impairment with GV, NV, DV, SF, RL, WDD, Driving, and MH, using regression.

Figure 1. Distribution of the frequency and vision-related quality of life score.

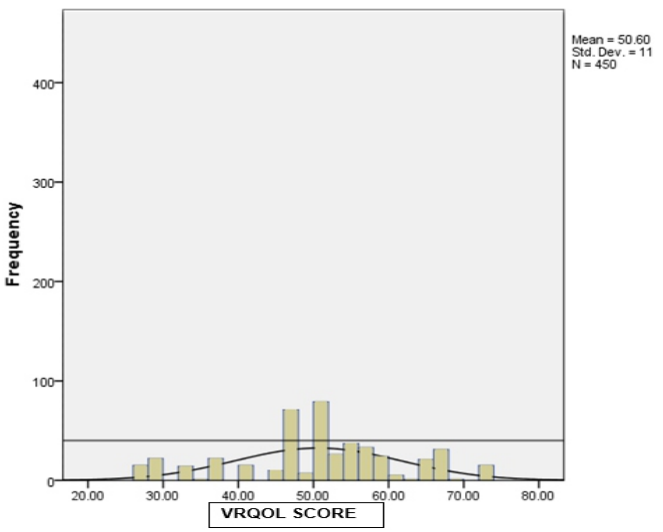
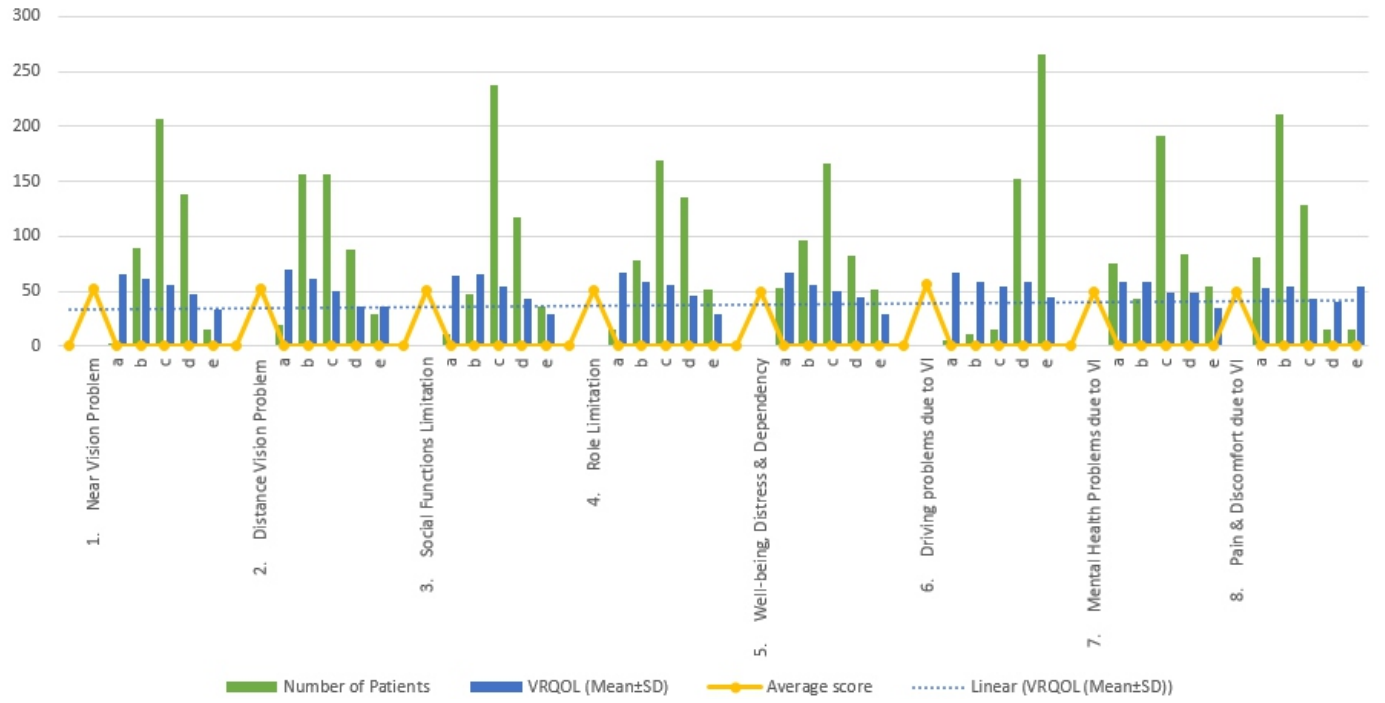


Figure 1. Distribution of the frequency and vision-related quality of life score. Showed the normal distribution of data with frequency (vertical) and VRQOL score (horizontal). The mean score for VRQOL with standard deviation is also mentioned.

Figure 2 provides information on difficulty levels and/or times the participants felt a particular problem, increasing in severity with a decrease in VRQOL scores. The lowest VRQOL score was noted in participants who stopped doing activities concerned with near vision (33.8±6.4), distance vision (36.4±3.7), social function (30.45±2) and driving (45±8.5), in contrast highest VRQOL scores were found in those who had no difficulty at all in performing ADL concerned with near vision (66.3±1.3), distance vision (69.7±1.25), social function (63±9.6) and driving (66.8±5). Similarly, participants feeling no or lesser impact of VI

had the highest score for VRQOL; they replied with answers in the category "none of the time" for their role limitation (66.8±0.8), mental health problems (58.91±2) and pain (52.6±13). While those feeling greater effect had the lowest VRQOL score and answered "all of the time" when asked about their role limitation (29±1), mental health problems (35±8.3), and pain (55±0.4). Participants were asked if VI has affected their well-being, dependency, and distress; some answered "definitely false" with the highest VRQOL scores (67.4±2.5) and others "definitely true" with the lowest VRQOL scores (29.6±2.1).

Figure 2: Association of vision-related quality of life score and Activities of Daily Life (subscales scores):



DISCUSSION

Visual impairment has a wide range of implications in daily life. The findings of the study suggest that people with VI have low VRQOL scores, presenting difficulties in performing the ADL, such as near and distance vision tasks, driving and social functioning. They had role limitations on the accomplishment of various functions affecting well-being, dependency on others and mental health issues leading to distress. The effects were more pronounced in the elderly with VA more than 1.3 log MAR, having profound VI or blindness caused by RP for a duration of 1 to 3 years, and having other disability. The lowest impact was observed for the subscale "Pain & discomfort," with similar scores in all difficulty levels.

Generally, the findings of this study showed that most of the affected population were elderly, female gender, had no unemployment or worked as laborers, with low literacy and poor socioeconomic conditions. These findings can be related to Su NH. et al. suggest that VI is more common in the elderly with no higher education and employment, leading to socioeconomic deterioration.[26] Participants with other organ disabilities had comparatively lower scores and more difficulties in accomplishing ADL. Apart from other consequences, the economic impact seems to be the most affected and has a greater impact. Rizzo et al. suggested that the worldwide provision of services to enable the visually impaired to independently carry out their daily activities and jobs, if possible, would considerably boost the global economy.[27] Almost half of the participants reported mild VI, and a quarter had severe VI. Blindness was recorded in less than 1%, coinciding with the prevalence of blindness in Pakistan,[28] and almost half of them had a duration of less than a year. A comparatively better VRQOL score was found in participants with better VA or mild VI coinciding with the findings suggested by Taipale et al.[29] Participants with a duration of more than 3 years had the highest VRQOL score followed by a duration less than a year and 1 to 3 years, suggesting a higher frequency of fresh cases with shorter history and no significant association between the duration of VI and VRQOL score, which is contrary to the findings of other studies suggesting a decrease in VRQOL score with time.[30] In this study, DR was the most

frequent cause of VI, followed by ARMD and glaucoma. Glatz M et al. showed ARMD as the most frequent cause of VI in the central European states.[31] Participants with RP had the lowest VRQOL score, followed by those with corneal disorders; the highest score was recorded in participants with DR. The findings are related to other studies.[32] In a few cases, we had more than one disorder as a cause of VI. We considered the professional agreement done by three senior ophthalmologists to take the agreed cause of VI, which best explained the visual problem, as a cause when two or more ophthalmologists agree.[33]

The mean VRQOL score obtained in this study is 50.6±11, and scores for individual subscales of NEIVFQ-25, specified for ADL, and the findings coincide with previous studies, as low scores were recorded in severe cases. [34] The Difficulty or inability to perform a particular activity denotes a reduction in that subscale score and ultimately the overall score of VRQOL. The participants had certain limitations, and the findings showed that the subscale "driving" had the lowest VRQOL score in all categories of VA and VI; the lowest score was recorded in participants with profound VI or blindness caused by "other disease" and a duration of 1 to 3 years. "Pain or discomfort" was the subscale with the least impact on the VRQOL score; the highest score was seen in participants with two categories of VA (0.5 to 1 & > 1 to 1.3) having moderate VI due to disease "other causes" and duration more than 3 years; the findings coincide with others.[35] We also found that the subscale for "Distance vision problems" in the category of "no difficulty at all" has the highest score and for "Role limitation" with the answer "all of the time" has the lowest score. The maximum magnitude of the impact of VI on VRQOL was found for the activity of "difficulty in driving"; most of the participants replied with the answer "stopped doing this because of my eyesight" with VRQOL score 45±8.5, followed by participants with answer "moderate difficulty" in subscale "Social function limitation" with a score 53.8±5.4 and few participants were found in the subscale "Near vision difficulty" with answer "no difficulty at all." The findings suggest that VI has a direct impact on general functioning; individuals with VI have problems carrying out routine activities. These findings can be related to findings from other studies.[36] This study demonstrates that people with visual impairment have difficulty accomplishing daily activities such as independent walking, recognizing faces and colors, reading small print or distant objects, driving and participating in gatherings, leading to decreased motivation and hence efficiency. The implications of reduced quality of life are felt at the community level as decreased literacy and socioeconomic crises. The findings are valuable and interesting to ophthalmology clinicians and rehabilitation workers, health service managers and policymakers to plan service provision and rehabilitative programs in Pakistan and improve the VRQOL.

Though our findings are related to the previous research work, there are a few limitations; first, the cross-sectional design could not assess the VRQOL score over time. There is a possibility of interviewer bias in the understanding or interpretation of participants' responses. Secondly, we classified VI based on BCVA alone, and due to the unavailability of equipment, other aspects of VI, such as visual field, contrast sensitivity, color vision, stereo-acuity and glare were not assessed, which can create inconsistency in results regarding the diagnosis of VI. The effects of VI are seen in all aspects of life, ranging from personal life in the form of self-care, performing activities independently and mental well-being to more generalized effects such as social isolation, loss of self-esteem, rise in unemployment ratio and poor socioeconomic conditions. The visually impaired have a useful residual vision, which needs to be capitalized and enhanced by low-vision devices and some adjustments to accomplish their routine activities, helping improve independence, self-motivation, economic status and living a dignified life.

CONCLUSION

A significant impact on VRQOL was observed in people with VI. The findings can be helpful for patients and clinicians in understanding the effects of VI and devising a suitable and culturally acceptable rehabilitative strategy to improve VRQOL and, hence, the standard of living.

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CONFLICT OF INTEREST

Author declared no conflict of interest

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AUTHORS CONTRIBUTIONS

SAK: Conception, Design of the work, Data collection, and Drafting, Reviewed, Final approval, Agreement to be accountable

SSA: Conception, Design of the work, Acquistion, Data Analysis, and Drafting, Reviewed, Final approval, Agreement to be accountable.

AN: Conception, Design of the work, Interpretation of data for the work, and Drafting, Reviewed, Final approval, Agreement to be accountable.

MIK: Conception, Design of the work, Data collection, and Drafting, Reviewed, Final approval, Agreement to be accountable .

DATA SHARING POLICY

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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