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COMPARISON OF VISION-RELATED QUALITY OF LIFE AND MENTAL HEALTH IN CONGENITAL VERSUS ACQUIRED LOW VISION PATIENTS

Original Research

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ABSTRACT

Background: Low vision significantly impairs an individual's functional independence and psychosocial well-being. It may present congenitally or be acquired later in life, each influencing quality of life and mental health differently. While visual rehabilitation focuses on functional support, mental health aspects often remain under-addressed. Understanding how the age of onset impacts emotional adjustment and day-to-day functioning is essential to inform more holistic and individualized rehabilitation strategies.

Objective: To evaluate mental health and vision-related quality of life (VR-QOL) in visually impaired patients, and to determine the influence of age at onset by comparing congenital low vision (CLV) and acquired low vision (ALV) groups.

Methods: This comparative cross-sectional analytical study was conducted at the Low Vision Clinic of Mayo Hospital, Lahore, from August to December 2021. A total of 68 patients were enrolled and equally divided into CLV (n=34) and ALV (n=34) groups based on the age of onset. Participants were assessed using a self-structured questionnaire evaluating various dimensions of VR-QOL and mental health. Demographic data, including age and gender, were collected, and group comparisons were conducted using Mann-Whitney U, Chi-square, and Fisher's exact tests, with a significance threshold of $p < 0.05$.

Results: Out of 68 patients, 39 (57.4%) were male and 29 (42.6%) were female. Among the CLV group, 83.3% of participants reported being motivated and 75.0% well-adjusted, whereas sadness was more prevalent in ALV (75.0%). ALV patients also reported more frequent difficulties with reading (67.7%), managing paperwork (66.7%), and seeing medication labels (81.0%) compared to the CLV group. Statistical analysis revealed significant differences between the two groups in mental health parameters and daily functional challenges ($p < 0.05$).

Conclusion: Patients with acquired low vision experience more pronounced mental health disturbances and greater difficulty with daily tasks than those with congenital low vision. Incorporating psychological assessment and considering age of onset in rehabilitation planning is critical for improving patient outcomes.

Keywords: Acquired Low Vision, Congenital Low Vision, Daily Living Activities, Mental Health, Quality of Life, Rehabilitation, Visual Impairment.

INTRODUCTION

Low vision, a condition marked by visual acuity worse than 6/18 to 3/60 and a visual field less than 10 degrees, profoundly limits a person's ability to perform routine daily tasks. It can range in severity from mild to total clinical blindness, with total blindness characterized by complete loss of light perception and projection, leaving the individual without any usable vision (1). Despite corrective measures such as refractive treatment, visual function can continue to deteriorate, leading to significant disruptions in quality of life (QOL) and mental well-being (2). Particularly vulnerable groups include children and the elderly, who are at increased risk of experiencing emotional disturbances and depression due to vision loss (3,4). In Pakistan, the burden of visual impairment remains substantial. A World Health Organization (WHO) survey in 2003 estimated that 1.5 million individuals in the country are blind, and nearly one million children live with some form of visual impairment. These conditions not only impair educational and social development but also carry long-term economic consequences (5). Over the past five decades, the understanding and management of low vision have evolved, moving from individual care to a more structured, multidisciplinary approach involving rehabilitation teams and voluntary organizations (6).

Historically, the term "low vision" was introduced by Faye and Fonda to describe significant, disabling visual loss not classified under legal blindness. Studies assessing the impact of low vision on everyday functioning and mental health reveal the profound psychological and practical consequences for affected individuals. For instance, research conducted in New York on 117 visually impaired individuals aged 9 to 101 highlighted substantial challenges to mental health and life satisfaction, particularly among older patients who reported higher levels of pain and more frequent need for rehabilitative care (7,8). Similar findings have been reported in low-resource settings such as Nepal, where low vision aids improved visual functioning in 90% of users (9), and in Finland, where 91.4% of participants benefited from magnification devices for reading printed information (10). The loss of visual function disproportionately affects the elderly, who may experience occupational setbacks, physical injuries from falls, and increased social isolation. These consequences necessitate greater dependence on healthcare services and can severely diminish confidence and cognitive engagement (11,12). While blindness affects a smaller proportion of those with visual impairment, low vision remains a more widespread issue with serious psychosocial implications. Rehabilitation strategies thus aim to maximize residual vision, incorporating training and environmental modifications to support functional independence (13,14). Despite the known burdens of low vision, there remains a critical gap in understanding how the age of onset—whether congenital or acquired—affects the psychological and functional outcomes in affected individuals. Most existing research focuses broadly on visual impairment, often overlooking the nuanced differences in adaptation and quality of life between those born with vision loss and those who acquire it later in life. Therefore, this study aims to assess the mental health and vision-related quality of life (VR-QOL) in patients with low vision, with a specific focus on comparing outcomes in congenital versus acquired cases to determine the influence of age at onset.

METHODS

This comparative cross-sectional analytical study was conducted at the Low Vision Clinic of Mayo Hospital, Lahore, to evaluate vision-related quality of life and mental health in individuals with visual impairment. A total of 68 patients were recruited and categorized equally into two groups: congenital low vision (CLV, n=34) and acquired low vision (ALV, n=34). A non-probability purposive sampling technique was used to select participants. Inclusion criteria comprised individuals clinically diagnosed with low vision, defined by a best-corrected visual acuity of worse than 6/18 to 3/60 in the better-seeing eye, or a visual field constricted to less than 10 degrees, irrespective of age or gender. Exclusion criteria included patients with a history of neurological or psychiatric disorders, systemic illnesses impairing cognitive function, or prior visual rehabilitation in the preceding six months. Data collection was carried out through a structured, self-designed questionnaire administered in a face-to-face format by trained research staff. The instrument comprehensively addressed multiple domains of quality of life, including vocational, educational, recreational, social, and general functioning, as well as mental health indicators. Although the questionnaire was not a standardized or previously validated tool, it was reviewed by subject matter experts to enhance content validity and relevance to the low-vision population.

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All data were coded and entered into the Statistical Package for Social Sciences (SPSS), version 25.0, for analysis. Descriptive statistics such as means and standard deviations were calculated for continuous variables, while frequencies and percentages were computed for categorical data. Group comparisons for quantitative variables were conducted using the non-parametric Mann-Whitney U test, while categorical variables were analyzed using the Chi-square test or Fisher's exact test, based on cell size appropriateness. A p-value less than 0.05 was considered statistically significant. Ethical approval for the study was obtained from the Institutional Review Board (IRB) of King Edward Medical University/Mayo Hospital, Lahore. Informed written consent was obtained from all participants prior to enrollment. In the case of minors, consent was secured from their guardians, ensuring voluntary participation and confidentiality throughout the study.

RESULTS

Out of a total of 68 participants, 39 (57.4%) were male and 29 (42.6%) were female. The mental health assessment revealed that well-adjusted individuals were predominantly from the congenital low vision (CLV) group, with 9 out of 12 (75.0%) reporting this status, while only 3 (25.0%) were from the acquired low vision (ALV) group. A similar trend was observed among motivated individuals, with 10 (83.3%) from the CLV group and 2 (16.7%) from the ALV group. In contrast, sadness was reported more frequently by ALV patients, comprising 21 out of 28 (75.0%), compared to 7 (25.0%) in CLV. Anger was reported by 6 (60.0%) individuals in the CLV group and 4 (40.0%) in the ALV group. Frightened and frustrated emotions were more common in the ALV group, accounting for 66.7% and 50.0%, respectively. Participants experiencing frequent difficulties in daily activities were more commonly from the ALV group across multiple domains. In the task of matching and coordinating clothing, 17 (70.8%) individuals from the ALV group reported frequent difficulty, compared to 7 (29.2%) in the CLV group. Similarly, 17 out of 21 participants (81.0%) who reported frequent difficulty in reading medicine bottle labels were from the ALV group, while only 4 (19.0%) were from the CLV group. In managing paperwork such as bills and finances, 24 out of 36 individuals (66.7%) facing frequent challenges belonged to the ALV group, while 12 (33.3%) were from CLV. With respect to reading and writing letters and notes, 21 of 31 participants (67.7%) who reported frequent difficulty were from the ALV group and 10 (32.3%) were from CLV.

Across all activities, those who reported no difficulty were predominantly from the CLV group, with 75.0% to 81.8% indicating independence in their respective domains. These findings reflect a consistent pattern where patients with acquired low vision reported a higher degree of functional and psychological impairment compared to those with congenital low vision. The statistical analysis revealed significant differences between congenital low vision (CLV) and acquired low vision (ALV) patients in several domains. A highly significant association was observed between sadness and the type of vision loss, with ALV patients showing a markedly higher prevalence of sadness ($p = 0.0014$). Functional difficulties in daily living also differed significantly between the groups. Frequent difficulty in coordinating clothes was significantly more common among ALV individuals ($p = 0.0224$). Similarly, a significantly higher proportion of ALV patients reported frequent difficulty in reading medicine bottle labels and warnings compared to their CLV counterparts ($p = 0.0013$). Management of paperwork including bills, finances, and mail was also more problematic in the ALV group ($p = 0.0075$). Furthermore, the frequency of difficulty in reading and writing letters or notes was significantly higher in ALV patients ($p = 0.0149$). These findings underscore the greater psychological and functional burden faced by individuals with acquired vision loss, emphasizing the need for targeted vision-related quality of life (VR-QOL) assessments and tailored rehabilitative interventions.

Table 1: Gender Statistics

	Frequency	Percent
Male	39	57.4
Female	29	42.6
Total	68	100.0

Table 2: Mental health (CLV &ALV)

	6-12	Above 12	Total
Well-adjusted	9(75.0%)	3(25.0%)	12(100.0%)
Motivated	10(83.3%)	2(16.7%)	12(100.0%)
Sad	7(25.0%)	21(75.0%)	28(100.0%)

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	6-12	Above 12	Total
Angry	6(60.0%)	4(40.0%)	10(100.0%)
Frightened	1(33.3%)	2(66.7%)	3(100.0%)
Frustrated	1(33.3%)	2(50.0%)	3(100.0%)
Total	34(50.0%)	34(50.0%)	68(100.0%)

Table 3: Difficulties in matching and coordinating your clothes (grouping)

	6-12	Above 12	Total
Frequently	7(29.2%)	17(70.8%)	24(100.0%)
Sometimes	18(56.3%)	14(43.8%)	32(100.0%)
No	9(75.0%)	3(25.0%)	12(100.0%)
Total	34(50.0%)	34(50.0%)	68(100.0%)

Table 4: Difficulties in seeing the medicine bottle or warning labels (grouping)

	6-12	Above 12	Total
Frequently	4(19.0%)	17(81.0%)	21(100.0%)
Sometimes	14(53.8%)	12(46.2%)	26(100.0%)
No	16(76.2%)	5(23.8%)	21(100.0%)
Total	34(50.0%)	34(50.0%)	68(100.0%)

Table 5: Difficulties in managing your paper works including bills, finances, and mail

	6-12	Above 12	Total
Frequently	12(33.3%)	24(66.7%)	36(100.0%)
Sometimes	13(61.9%)	8(38.1%)	21(100.0%)
No	9(81.8%)	2(18.2%)	11(100.0%)
Total	34(50.0%)	34(50.0%)	68(100.0%)

Table 6: Difficulties in reading writing letters and notes

	6-12	Above 12	Total
Frequently	10(32.3%)	21(67.7%)	31(100.0%)
Sometimes	15(60.0%)	10(40.0%)	25(100.0%)
No	9(75.0%)	3(25.0%)	12(100.0%)
Total	34(50.0%)	34(50.0%)	68(100.0%)

Table 7: The Comparison Between Congenital Low Vision (CLV) and a Acquired Low Vision (ALV) groups:

Comparison	p-value	Significance
Mental Health - Sad	0.0014	Significant
Clothing Coordination - Frequent	0.0224	Significant
Medicine Label - Frequent	0.0013	Significant
Paperwork - Frequent	0.0075	Significant
Reading/Writing - Frequent	0.0149	Significant

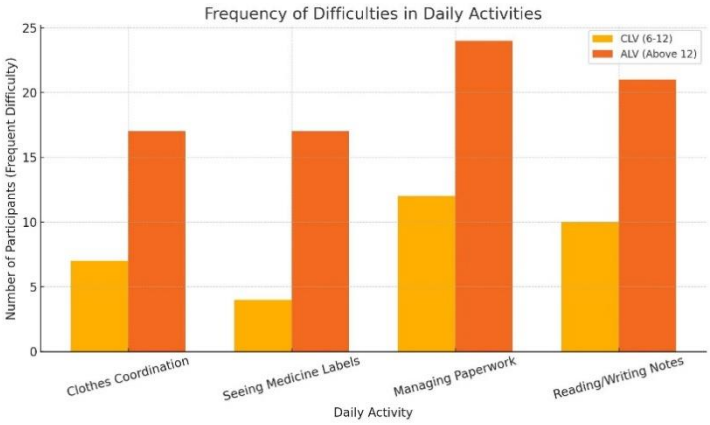

Figure 1 Frequency of Difficulties in Daily Activities

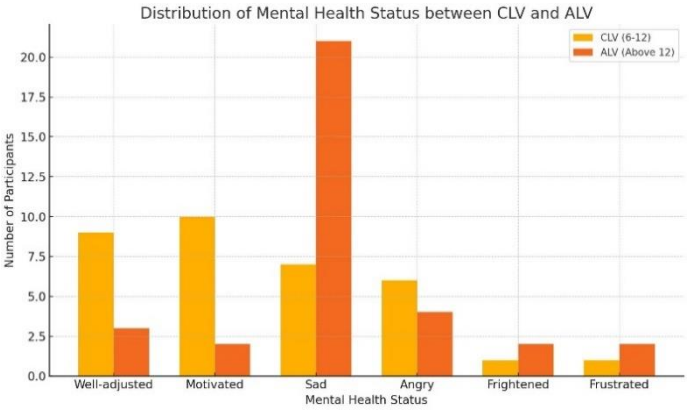

Figure 2 Distribution of Mental Health Status between CLV and ALV

DISCUSSION

The findings of this study highlight a considerable disparity in mental health status and daily functioning between individuals with congenital low vision (CLV) and those with acquired low vision (ALV). The acquired group experienced more pronounced emotional disturbances, particularly in terms of sadness, fear, and frustration. Functional limitations, such as difficulties in reading medicine labels, managing finances, and coordinating clothing, were also more prevalent among ALV individuals (15,16). These findings suggest that those who acquire vision loss later in life may face greater psychological and functional challenges, likely due to the abrupt disruption of previously established routines and visual independence. In comparison to previous literature, the current results align with reports demonstrating that ALV patients tend to have poorer mental health outcomes (17-19). One study reported significantly higher depression and anxiety scores in ALV individuals, with a greater proportion requiring expert psychological consultation, consistent with the trends observed in the present analysis (20). Another investigation conducted at a regional eye clinic found that adults with low vision experienced reduced quality of life, poor psychological well-being, and increased limitations in daily tasks, emphasizing the need for targeted support services for this population (21). The convergence of findings from different populations reinforces the global relevance of this issue.

A strength of the present study is its direct comparison between congenital and acquired low vision using real-world clinical data, with structured measurement of both mental health indicators and daily functional limitations. Furthermore, the use of statistical analysis to confirm significant differences enhances the credibility of the observed patterns. However, several limitations must be acknowledged. The reliance on a self-developed questionnaire, rather than standardized vision-related quality of life tools such as the NEI-VFQ-25, may affect the generalizability of the findings. Additionally, the cross-sectional nature of the study restricts any conclusions regarding causality or progression of impairment over time. Recall bias and social desirability may have influenced participants' self-reported data. The relatively small sample size also limits the power to detect subtle associations or subgroup effects. Despite these limitations, the findings provide valuable insights for clinical practice and public health planning. Establishing low vision services at the district level, especially in district headquarters (DHQ) hospitals, would facilitate early identification and management. Counseling and psychological support should be integrated into routine care, with trained instructors guiding both patients and caregivers. Environmental modifications at home and school, along with continuous follow-up and motivation, are critical to improving functional independence (22). Future research should include longitudinal designs, utilize validated assessment tools, and explore the impact of targeted interventions on psychosocial outcomes in both congenital and acquired vision loss populations. A more nuanced understanding of coping mechanisms and rehabilitation outcomes can inform comprehensive care models that address the unique needs of each subgroup within the low-vision community.

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CONCLUSION

This study concluded that individuals with acquired low vision are more vulnerable to mental health disturbances compared to those with congenital low vision. While both groups experience a compromised quality of life, the psychological impact appears more profound in those who lose vision later in life. These findings emphasize the importance of early assessment of mental health and consideration of the age at onset in the rehabilitation process. Tailoring support strategies based on these factors can significantly enhance the effectiveness of low vision care and improve overall well-being.

AUTHOR CONTRIBUTION

Author	Contribution
Muhammad Sheeraz Bashir*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Tahir Shaukat	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Sammad Sunny	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Syed Zeeshan Kaxmi	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Ghulam Shabeer Khokhar	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Tanzeela Javeed	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published

REFERENCES

1. Wang C, Wang X, Khumalo A, Jiang F, Lv J. A new classification algorithm for low concentration slurry based on machine vision. Sci Rep. 2024;14(1):32100.
2. Nesemann JM, Kandel RP, Byanju R, Poudyal B, Bhandari G, Bhandari S, et al. Association of visual impairment with disability: a population-based study. Eye. 2022;36(3):540-546.
3. Garzón-Rodríguez M, Reyes-Figueredo L, Velandia-Rodríguez L, Méndez-Ruiz O, Gómez-Rodríguez M, Esguerra-Ochoa L, et al. Causes of low vision in children: A systematic review. Archivos de la Sociedad Española de Oftalmología (English Edition). 2023;98(2):83-97.
4. Tang M, Manduchi R, Chung S, Prado R. Screen Magnification for Readers with Low Vision: A Study on Usability and Performance. ASSETS. 2023;2023.
5. Yekta A, Hooshmand E, Saatchi M, Ostadimoghaddam H, Asharlous A, Taheri A, et al. Global prevalence and causes of visual impairment and blindness in children: a systematic review and meta-analysis. Journal of current ophthalmology. 2022;34(1):1-15.
6. Kwarteng MA, Mashige KP, Naidoo KS, Boadi-Kusi SB, Govender-Poonsamy P. The prevalence and causes of low vision and blindness amongst learners at the Akropong School for the Blind in Ghana. African Vision and Eye Health. 2021;80(1):7.
7. Killeen OJ, De Lott LB, Zhou Y, Hu M, Rein D, Reed N, et al. Population prevalence of vision impairment in US adults 71 years and older: the National Health and Aging Trends Study. JAMA ophthalmology. 2023;141(2):197-204.
8. Bittner AK, Yoshinaga PD, Rittiphairoj T, Li T. Telerehabilitation for people with low vision. Cochrane Database of Systematic Reviews. 2023(1).
9. Adhikari S, van Nispen RMA, Elsman EBM, van Rens F, van Rens G. Causes of moderate to severe visual impairment and blindness among children in integrated schools for the blind and visiting a tertiary eye hospital in Nepal: the Nepal Pediatric Visual Impairment (NPVI) Study. Clinical Ophthalmology. 2023:1025-1034.
10. Ehrlich JR, Ramke J, Macleod D, Burn H, Lee CN, Zhang JH, et al. Association between vision impairment and mortality: a systematic review and meta-analysis. The Lancet Global Health. 2021;9(4):e418-e430.

11. Vélez CM, Ramírez PB, Oviedo-Cáceres MDP, Lugo Agudelo LH, Posada AM, Hernández-Padilla ML, et al. Psychometric properties of scales for assessing the vision-related quality of life of people with low vision: a systematic review. Ophthalmic Epidemiology. 2023;30(3):239-248.
12. Liu J, Dong J, Chen Y, Zhang W, Tong S, Guo J. Low vision rehabilitation in improving the quality of life for patients with impaired vision: Retraction: A systematic review and meta-analysis of 52 randomized clinical trials. Medicine. 2021;100(19):e25736.
13. Partow S, Cook R, McDonald R. Coping with stigmatization and discrimination related to blindness and low vision. Rehabilitation Psychology. 2021;66(4):576.
14. Ahrenfeldt LJ, Möller S, Nielsen DL, Kjær NK, Søndergaard J, Lykkegaard J. Sensory impairments and depressive symptoms in Europe: a cross-national cohort study. Aging Ment Health. 2024;28(12):1591-9.
15. Choi S, Harrison T. The Roles of Stress, Sleep, and Fatigue on Depression in People with Visual Impairments. Biol Res Nurs. 2023;25(4):550-8.
16. Huang A, Zhang D, Zhang L, Zhou Z. Predictors and consequences of visual trajectories in Chinese older population: A growth mixture model. J Glob Health. 2024;14:04080.
17. Fonteh CN, Mathias MT, Mandava N, Manoharan N, Lynch AM, Navo R, et al. Mental health and visual acuity in patients with age-related macular degeneration. BMC Ophthalmol. 2022;22(1):391.
18. Barber C, Gould C, Guillermo G, Dupree J, McLeer M, Benevides T, et al. Interventions in the Scope of Occupational Therapy to Improve Psychosocial Well-Being in Older Adults with Low Vision and Mental Health Concerns: A Systematic Review. Occup Ther Health Care. 2021;35(4):397-423.
19. Moon KA, Sol K, Simone SM, Zaheed AB, Krasnova A, Andrews RM, et al. Depression, loneliness, and lower social activity as partial mediators of the association between visual impairment and cognitive decline. Int J Geriatr Psychiatry. 2024;39(7):e6123.
20. Ruiz-Lozano RE, de la Rosa-Pacheco S, Hernández-Camarena JC, Garza-Garza LA, Davila-Cavazos O, Dominguez-Varela IA, et al. Burden and depression among informal caregivers of visually impaired patients in Mexico. Disabil Health J. 2022;15(3):101284.
21. Magdalene D, Bhattacharjee H, Deshmukh S, Mohapatra SD, Ali A, Paidi RR, et al. Assessment of quality of life, mental health and ocular morbidity in children from schools for the blind in North-East India. Indian J Ophthalmol. 2021;69(8):2040-4.
22. Choo CH, Gonzales J, Shantha JG. Anxiety and depression in patients with uveitis: a comprehensive review of observational studies. Curr Opin Ophthalmol. 2023;34(6):543-9.

