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CORRELATION BETWEEN VISUAL FIELD LOSS AND PSYCHOLOGICAL WELL-BEING IN GLAUCOMA PATIENTS: A CROSS-SECTIONAL STUDY

Original Research

Iqra Manzoor[1]*, Tahira Batool[2], Ubaidullah Jan[3], Sobia Yousif[4], Hamna Ahmad[4], Aleeza Naeem[4], Rabia Akram[4], Asma Irshad[5], Khalid Mahmood[6]
[1]Optometrist, Department of Allied Health Sciences, Superior University, Lahore, Pakistan.
[2]Faculty of Allied Health Sciences, Superior University, Lahore, Pakistan.
[3]HOD, Department of Optometry and Vision Sciences, Superior University, Lahore, Pakistan.
[4]Department of Allied Health Sciences, Superior University Lahore, Pakistan.
[5]School of Biochemistry and Biotechnology, University of Punjab, Lahore, Pakistan.
[6]Institute of Education and Research, University of Punjab, Lahore, Pakistan.

Corresponding Author: Iqra Manzoor, Optometrist, Department of Allied Health Sciences, Superior University, Lahore, Pakistan. iqraamanzur@gmail.com
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ABSTRACT

Background: Glaucoma is a leading cause of irreversible blindness, primarily affecting visual function, particularly the visual field. While significant attention is given to the physical consequences of the disease, its psychological effects, including anxiety, depression, and diminished quality of life, remain underexplored. The progressive loss of vision impacts daily functioning and mental well-being, emphasizing the need for a holistic approach to patient care that integrates both visual and psychological health management.

Objective: To examine the correlation between visual field loss and psychological well-being in glaucoma patients, focusing on anxiety, depression, and quality of life.

Methods: A cross-sectional study was conducted on 53 glaucoma patients at a tertiary care hospital. Patient history was documented using a structured proforma, and visual field loss was assessed using the Humphrey Visual Field Analyzer. Psychological well-being was evaluated using the Hospital Anxiety and Depression Scale (HADS), while quality of life was measured using the Glaucoma Quality of Life-15 (GQL-15) questionnaire. Pearson correlation analysis was applied to determine the associations between visual field impairment, anxiety, depression, and quality of life.

Results: A significant positive correlation was found between visual field loss and anxiety ($r = 0.647$, $p = 0.000$), as well as between visual field loss and depression ($r = 0.565$, $p = 0.000$). Additionally, a strong inverse correlation was observed between visual field loss and quality of life ($r = -0.798$, $p = 0.000$), indicating that greater visual impairment was associated with lower quality of life scores.

Conclusion: Greater visual field loss in glaucoma patients was significantly associated with increased anxiety and depression, alongside a decline in quality of life. These findings highlight the necessity of comprehensive treatment strategies that address both the functional limitations and psychological burden of glaucoma, ensuring improved overall patient well-being.

Keywords: Anxiety, depression, glaucoma, psychological well-being, quality of life, visual field defect, visual impairment.

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INTRODUCTION

Glaucoma is a progressive optic neuropathy characterized by the degeneration of the retinal nerve fiber layer, loss of retinal ganglion cells, and increased excavation of the optic disc. It remains a leading cause of irreversible blindness worldwide, primarily due to its insidious onset and the absence of symptoms in the early stages. If left untreated, glaucoma leads to permanent damage to the optic nerve, resulting in a progressive loss of visual fields. Various modifiable and non-modifiable risk factors contribute to its development, including elevated intraocular pressure (IOP), advanced age, ethnicity, genetic predisposition, systemic disorders, and certain medications (1,2). Globally, an estimated 3.54% of individuals aged 40 to 80 years are affected by glaucoma (3,4), and in Pakistan, approximately 0.03% of the total population is reported to have the disease (5). Despite its relatively low prevalence, glaucoma is a significant contributor to blindness, comprising 7.1% of all cases in individuals over 30 years of age, as revealed by a nationwide blindness study conducted 15 years ago (6). The most common form of glaucoma in Pakistan is primary open-angle glaucoma, which is often associated with comorbidities such as diabetes and hypertension (7). While central visual acuity remains largely intact until the later stages, peripheral vision is compromised early in the disease process. Additional functional impairments include deficiencies in color perception, contrast sensitivity, and dark adaptation, which can significantly impact daily activities, mobility, and social engagement. These visual limitations may contribute to a diminished quality of life (QOL), affecting aspects such as independence, occupational functioning, and social participation. The psychosocial burden of glaucoma extends beyond visual impairment, as patients frequently experience anxiety, depression, and reduced self-esteem due to their declining vision and perceived loss of autonomy (8).

Traditionally, the management of glaucoma has been centered around clinical markers such as IOP, visual field changes, and visual acuity, with less emphasis on the psychological and emotional well-being of patients. Treatment options, including pharmacological interventions and surgical procedures, primarily aim to preserve vision and slow disease progression, but they often neglect the broader impact of glaucoma on mental health and overall quality of life (9). Studies indicate that individuals with glaucoma may experience increased levels of stress, uncertainty, and distrust in medical professionals, further exacerbating their psychological distress (10). Despite the growing recognition of these issues, there remains a paucity of research addressing the interplay between visual field loss and psychological well-being, particularly within the local population. Given the profound implications of glaucoma beyond its clinical manifestations, this study aims to explore the correlation between visual field loss and psychological well-being in glaucoma patients. By identifying associations between visual impairment and mental health outcomes such as anxiety, depression, and QOL, the findings will contribute to a more holistic approach to patient care. The results may help inform targeted interventions that address both the functional and emotional challenges faced by glaucoma patients, ultimately improving their overall well-being and quality of life.

METHODS

This cross-sectional descriptive study was conducted over one year at the LRBT Hospital, following approval from the Ethics Committee of Superior University, Lahore. Ethical clearance was obtained before the commencement of data collection, and all participants provided informed consent after being fully briefed about the study's purpose and methodology. The sample size was determined using the formula $n = z^2 p(1-p) / d^2$, resulting in a total of 53 participants. Participants were selected based on specific inclusion and exclusion criteria. Eligible individuals were between 35 and 55 years of age, of either gender, diagnosed with any type of glaucoma, and exhibiting varying degrees of visual field loss. Exclusion criteria included individuals with pre-existing psychological disorders, ocular abnormalities such as amblyopia, congenital malformations, or low vision, a history of severe ocular trauma or chemical burns, and any other ocular pathology affecting the cornea, lens, or retina. A detailed medical history review was conducted for each participant to ensure compliance with the eligibility criteria.

Data collection involved a structured assessment of demographic and clinical characteristics. A self-designed proforma was used to record demographic details, including age, gender, history of systemic illnesses, and glaucoma-related clinical information such as type and duration of disease. Visual field assessment was performed using the Humphrey Visual Field Analyzer, classifying visual field loss into mild, moderate, and severe categories (11-14). Psychological well-being was evaluated using the Hospital Anxiety and Depression Scale (HADS), a validated tool developed by Zigmond and Snaith in 1983, designed to assess anxiety (HADS-A) and depression

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(HADS-D) in non-psychiatric healthcare settings (12-14). The impact of glaucoma on quality of life (QOL) was assessed using the Glaucoma Quality of Life-15 (GQL-15) questionnaire, a widely recognized instrument consisting of 15 items that evaluate functional impairment associated with glaucoma. The questionnaire covers six items related to peripheral vision, six concerning glare and dark adaptation, two assessing central and near vision, and one examining movement in the environment (15-16). All data were analyzed using appropriate statistical methods to determine correlations between visual field loss and psychological well-being, ensuring that results were interpreted with precision and rigor. The findings of this study aim to contribute to a more comprehensive understanding of the psychosocial burden of glaucoma, facilitating the development of holistic care strategies for affected individuals.

Statistical analysis was conducted using appropriate methods to evaluate the correlation between visual field loss and psychological well-being in glaucoma patients. Descriptive statistics were used to summarize demographic and clinical characteristics. Pearson correlation analysis was applied to assess the relationship between visual field loss and psychological variables, including anxiety, depression, and quality of life scores. Additionally, regression analysis was performed to determine the predictive impact of visual impairment on psychological outcomes. All statistical tests were conducted using SPSS version 22, with a significance level set at $p < 0.05$ to ensure the reliability of the findings.

RESULTS

The study included 53 participants, with a mean age of 48.6 ± 11.83 years. Age distribution revealed that participants were predominantly middle-aged to older adults. Gender distribution showed a higher representation of male participants (37 males) compared to females (16 females). A significant positive correlation was found between visual field loss severity and anxiety levels, with a Pearson correlation coefficient of $r = 0.647$ ($p = 0.000$). This indicates that individuals with more severe visual field loss experienced higher anxiety levels. Similarly, a positive correlation was observed between visual field loss severity and depression, with a Pearson correlation coefficient of $r = 0.565$ ($p = 0.000$), suggesting that increased visual impairment was associated with higher depression scores.

A strong negative correlation was identified between visual field loss severity and Glaucoma Quality of Life (GQL) scores ($r = -0.798$, $p = 0.000$), indicating that individuals with more severe visual impairment reported significantly lower quality of life. The analysis of glaucoma subtypes showed that 77% of the participants (44 out of 53) were diagnosed with primary open-angle glaucoma (POAG), the most prevalent form. The majority of POAG patients exhibited mild visual field loss, whereas those with primary angle-closure glaucoma (PACG) primarily had either very mild or severe visual field loss. Other glaucoma types, including normal-tension glaucoma (NTG), steroid-induced glaucoma (SIG), juvenile open-angle glaucoma (JOAG), and pseudoexfoliative glaucoma (PSX), displayed characteristic patterns of visual field impairment. Notably, NTG cases presented with mild visual field loss, while PSX cases tended to have more advanced impairment. The cross-tabulation of anxiety levels with unilateral and bilateral visual field loss showed that among participants with unilateral visual field loss, 12 out of 18 (67%) had normal anxiety levels, while 6 exhibited borderline anxiety and none had abnormal anxiety scores. In contrast, individuals with bilateral visual field loss had significantly higher anxiety scores, with 17 out of 35 (49%) classified as having abnormal anxiety. Similarly, the analysis of depression scores revealed that among participants with unilateral visual field loss, 15 out of 18 (83%) had normal scores, 2 had borderline depression, and only 1 had abnormal depression. However, among those with bilateral visual field loss, 19 out of 35 (54%) had abnormal depression scores, 9 had borderline depression, and only 8 had normal scores. These findings suggest that bilateral visual field loss is more strongly associated with both anxiety and depression compared to unilateral impairment, highlighting the psychological impact of extensive vision loss.

Table 1: Correlation Between Visual Field Loss, Anxiety, Depression, and Quality of Life

Correlations	Visual Field Loss Severity	Anxiety Score	Depression Score	GQL Score
Visual Field Loss Severity	1	.647**	.565**	-.798**
Sig. (1-tailed)	-	.000	.000	.000
Anxiety Score	.647**	1	-	-
Depression Score	.565**	-	1	-
GQL Score	-.798**	-	-	1

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Table 2: Cross Tabulation: Visual Field Loss Eye, Anxiety, and Depression Scores

VF Loss Eye	1	2	Total
Anxiety Score – Normal	12	7	19
Anxiety Score – Borderline	6	11	17
Anxiety Score - Abnormal	0	17	17
Total Anxiety	18	35	53
Depression Score - Normal	15	8	22
Depression Score - Borderline	2	9	11
Depression Score - Abnormal	1	19	20
Total Depression	18	35	53

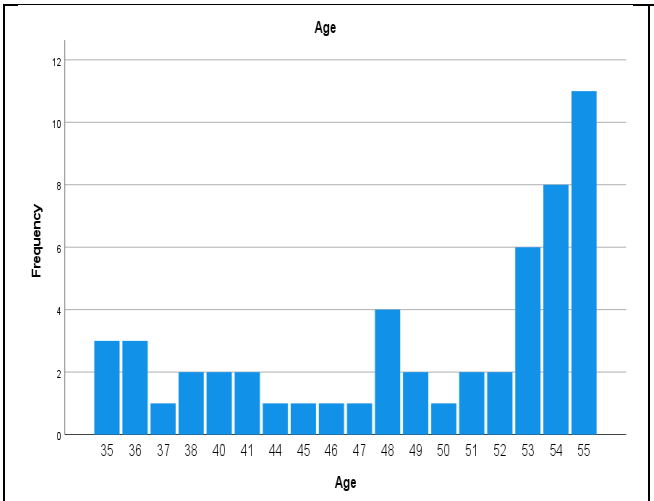


Figure 1 Age Distribution among Patients

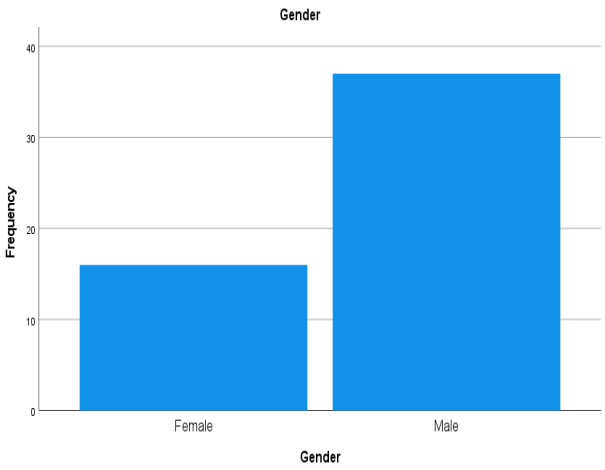
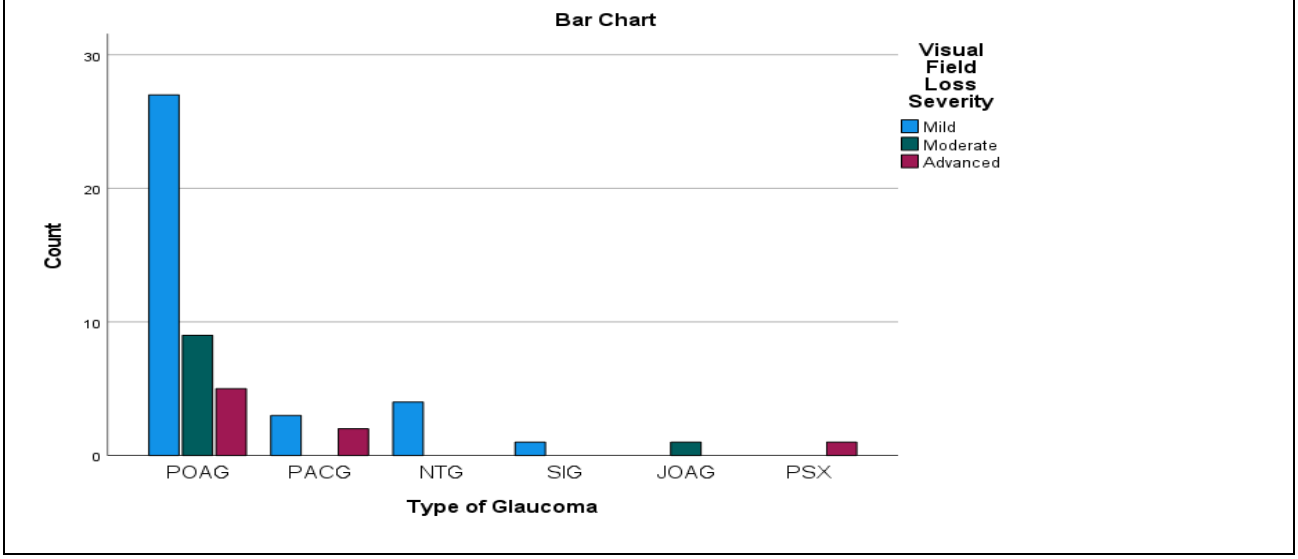


Figure 2 Gender Distribution Among Participants



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DISCUSSION

The findings of this study demonstrated a strong correlation between visual field loss and psychological well-being in patients with glaucoma. Increased severity of visual field impairment was significantly associated with higher levels of anxiety and depression, while quality of life showed a substantial decline with worsening visual loss. The correlation between visual field loss and anxiety was positive and statistically significant, indicating that individuals with greater visual impairment experienced heightened anxiety. Similarly, a moderate positive relationship was observed between depression levels and the extent of visual field loss, suggesting that worsening glaucoma contributes to deteriorating mental health. The strong negative correlation between visual field loss and quality of life further confirmed that functional limitations imposed by glaucoma significantly impair overall well-being. These findings align with existing literature emphasizing the psychological burden of visual impairment, reinforcing the need to integrate mental health assessments into glaucoma care (17). Comparative studies have consistently demonstrated that both visual acuity and visual field loss negatively impact psychosocial functioning. Previous research has highlighted that early and severe glaucoma not only affects vision but also diminishes self-esteem, trust in medical professionals, and overall psychological well-being. The present study expands on these findings by establishing a direct association between the severity of visual field impairment and increased anxiety and depression scores. The strong negative correlation between visual field loss and quality of life is consistent with prior evidence suggesting that reduced peripheral vision affects mobility, independence, and engagement in social and occupational activities. Given that anxiety and depression are common among individuals with glaucoma, these findings emphasize the necessity of addressing psychological distress alongside visual rehabilitation (18).

The prevalence of primary open-angle glaucoma (POAG) in the current study was consistent with global estimates, with the majority of participants diagnosed with this type. POAG patients predominantly exhibited mild visual field loss, whereas those with primary angle-closure glaucoma (PACG) showed a more bimodal distribution, presenting either with very mild or severe impairment. Other glaucoma subtypes, such as normal-tension glaucoma, steroid-induced glaucoma, and pseudoexfoliative glaucoma, demonstrated characteristic patterns of visual field deterioration. These findings are in agreement with epidemiological studies reporting that POAG is the most common form of glaucoma and is more prevalent among males, a trend observed in the current study as well. The relationship between POAG and increased psychological distress underscores the need for early intervention, particularly in patients at risk of progressive visual decline (19). An additional finding from this study was the differential impact of unilateral versus bilateral visual field loss on psychological well-being. Participants with bilateral impairment exhibited significantly higher anxiety and depression scores compared to those with unilateral loss. This suggests that the extent of visual field loss plays a crucial role in determining the psychological burden experienced by glaucoma patients. Given that bilateral impairment restricts spatial awareness, depth perception, and mobility, these findings highlight the compounded impact of extensive vision loss on mental health (20).

While this study provides valuable insights into the association between visual field loss and psychological well-being, certain limitations should be acknowledged. The relatively small sample size limits the generalizability of the findings, and the cross-sectional design prevents causal conclusions. A single-center study further reduces the diversity of the sample, which may not fully represent the broader glaucoma population. Additionally, while significant correlations were established, potential confounding factors such as socioeconomic status, access to healthcare, and pre-existing mental health conditions were not controlled for, which may have influenced the results. Future studies with larger, more diverse samples and longitudinal designs are warranted to further explore the long-term psychological impact of visual field loss in glaucoma patients (21). Given the significant correlation between visual field impairment and increased anxiety, depression, and decreased quality of life, healthcare providers should integrate psychological assessments into routine glaucoma care. A holistic approach that addresses both visual and psychological well-being is essential, incorporating counseling, psychological screening, and coping strategies to improve the quality of life in glaucoma patients. Regular mental health evaluations, particularly for individuals with severe visual impairment, could facilitate early identification of psychological distress and allow for timely intervention. Further research should focus on evaluating targeted interventions aimed at mitigating the psychological burden of glaucoma and improving overall patient outcomes (19). The findings of this study underscore the importance of considering both visual and psychological health in glaucoma management. By recognizing the broader implications of visual field loss on mental well-being, a more comprehensive approach to patient care can be developed, ultimately enhancing both functional and emotional well-being in individuals affected by glaucoma.

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CONCLUSION

The findings of this study underscore the significant impact of visual field loss on psychological well-being and quality of life in individuals with glaucoma. A strong association was observed between the severity of visual impairment and increased levels of anxiety and depression, while quality of life was notably diminished with greater visual field loss. These results emphasize the broader implications of glaucoma beyond its physical effects, highlighting the necessity of a more comprehensive approach to patient care. Addressing both the functional and psychological challenges faced by individuals with significant vision loss can lead to improved overall well-being. Integrating mental health support into routine glaucoma management may enhance coping strategies and help mitigate the emotional burden associated with progressive vision impairment, ultimately contributing to better patient outcomes.

Author Contribution

Author	Contribution
Iqra Manzoor*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Tahira Batool	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
Ubaidullah Jan	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Sobia Yousif	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Hamna Ahmad	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Aleeza Naeem	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Rabia Akram	Contributed to study concept and Data collection Has given Final Approval of the version to be published
Asma Irshad	Writing - Review & Editing, Assistance with Data Curation
Khalid Mahmood	Writing - Review & Editing, Assistance with Data Curation
Ayesha Saleem	Writing - Review & Editing, Assistance with Data Curation

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REFERENCES

1. Schuster AK, Erb C, Hoffmann EM, Dietlein T, Pfeiffer N. The diagnosis and treatment of glaucoma. Deutsches Ärzteblatt International. 2020 Mar;117(13):225.

2. Stein JD, Khawaja AP, Weizer JS. Glaucoma in adults—screening, diagnosis, and management: a review. Jama. 2021 Jan 12;325(2):164-74.

3. Thakur S, Srivastava N, Patle D. Glaucoma: a review. Current Trends in Biotechnology and Pharmacy. 2020;14(2):217-28.

4. Allison K, Patel D, Alabi O. Epidemiology of glaucoma: the past, present, and predictions for the future. Cureus. 2020 Nov 24;12(11).

5. Majerníková Ľ, Hudáková A, Obročníková A, Grešš Halász B, Kaščáková M. Quality of life of patients with glaucoma in Slovakia. International Journal of Environmental Research and Public Health. 2021 Jan;18(2):485.

6. Huang W, Gao K, Liu Y, Liang M, Zhang X. The adverse impact of glaucoma on psychological function and daily physical activity. Journal of Ophthalmology. 2020 Apr 21;2020.

7. Jatoi SM. Clinical ophthalmology. 4th ed. McGraw-Hill Education; 2020. p. 142-145.

8. Skapinakis P. Hospital anxiety and depression scale (HADS). InEncyclopedia of quality of life and well-being research 2024 Feb 11 (pp. 3194-3197). Cham: Springer International Publishing.

9. Kumar M, Parveen S, Chauhan L. Quality of life in patients with glaucoma using the Glaucoma Quality of Life-15 Questionnaire. Journal of Clinical Ophthalmology and Research. 2023 Jan 1;11(1):3-9.

10. Khatib W. Quality of Life among Patients with Glaucoma in the West Bank, Palestine: A Cross-Sectional Study. Ethiopian Journal of Health Sciences. 2023 Aug 17;33(4).

11. Zhang N, Wang J, Li Y, Jiang B. Prevalence of primary open-angle glaucoma in the last 20 years: a meta-analysis and systematic review. Scientific reports. 2021 Jul 2;11(1):13762.

12. Qureshi R, Azuara-Blanco A, Micheli M, Virgili G, Breda JB, Cutolo CA, Pazos M, Katsanos A, Garhöfer G, Kolko M, Prokosch-Willing V. What do we know about the effectiveness of glaucoma interventions?: an overview of systematic reviews. Ophthalmology Glaucoma. 2021 Sep 1;4(5):454-62.

13. Khachatryan N, Pistilli M, Maguire MG, Chang AY, Samuels MR, Mulvihill K, Salowe RJ, O'Brien JM. A review of studies of the association of vision-related quality of life with measures of visual function and structure in patients with glaucoma in the United States. Ophthalmic epidemiology. 2021 May 4;28(3):265-76.

14. Ma P, Liu Y, Su Y, Yang Y. Vision-related quality of life in primary angle-closure glaucoma patients with or without visual field dysfunction. J Ophthalmol. 2023;2023:9981060.

15. Azoulay-Sebban L, Zhao Z, Zenouda A, Lombardi M, Gutman E, Brasnu E, et al. Correlations between subjective evaluation of quality of life, visual field loss, and performance in simulated activities of daily living in glaucoma patients. J Glaucoma. 2020;29(9):970-974.

16. Zahra M, Wildan A, Prihatiningtyas R, Rahmi FL. Correlations between severity of disease with anxiety levels in glaucoma patients. Dimj. 2020;1(1):16-20.

17. Peters D, Molander S, Lomo T, Singh A. Charles Bonnet Syndrome in patients with open-angle glaucoma - prevalence and correlation to visual field loss. Ophthalmol Glaucoma. 2021

18. Raghu N, Menon MG, Murali K, Ratakonda G. Psychological impact of glaucoma: Does it affect compliance and disease progression? Int J Res Innov Soc Sci. 2024.

19. Kopilaš V, Kopilaš M. Quality of life and mental health status of glaucoma patients. Front Med. 2024;11.

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20. Wu N, Kong X, Sun X. Anxiety and depression in Chinese patients with glaucoma and its correlations with vision-related quality of life and visual function indices: a cross-sectional study. BMJ Open. 2022;12.

21. Rossi G, Milano G, De Silvestri A, Savini L, Bosi C, Gambini G, et al. Correlation between visual field index and quality of life in glaucoma patients: a new tool to screen quality of life perception? Front Med. 2023;10.

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