

Background

- Glaucoma is an age-related ocular disease that can lead to blindness.
- More specifically, it affects the optic nerve (Fig. 1), the “cable” that transmit visual stimuli to the brain.



Figure 1. A photograph of the optic nerve head

- Primary open-angle glaucoma (POAG) is the most common type of glaucoma. Over time, the optic nerve tissue is lost, which translates into characteristic glaucomatous vision loss (Fig. 2).

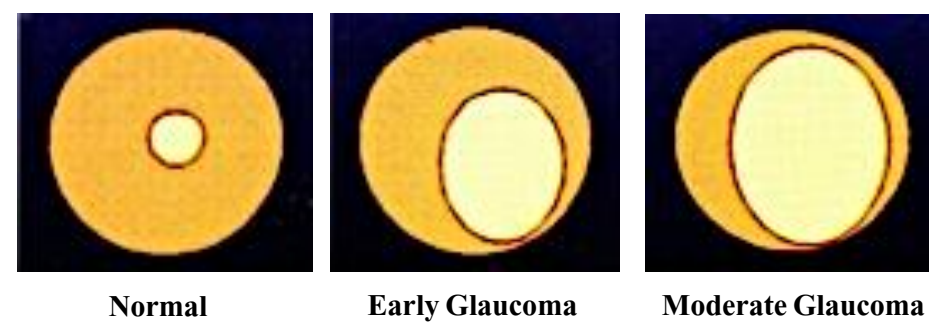


Figure 2. Depiction of characteristic structural and functional losses associated with glaucoma

Aim

- In this study, we assessed whether the accuracy of perceived cause of glaucoma was associated with medication adherence.

Methods

Participants

- Patients with POAG were selected from an NIH-funded longitudinal study.

Illness Perception (Fig. 3)

- Illness perception was measured using the Brief Illness Perception Questionnaires (BIPQ).¹ 1-8 BIPQ subscales are *Consequences, Timeline, Personal Control, Treatment Control, Identity, Concern, Coherence, and Emotional Representation*. The 9th question has never been analyzed in POAG.²

Causality Rank-order the three most important factors that you believe caused your glaucoma.

Figure 3. Causal question 9 on Brief Illness Perception Questionnaire

POAG Risk Factors (Fig. 4)

- The accuracy of causes identified as being responsible for glaucoma was based on guidelines from the American Academy of Ophthalmology.³
- The associations between accuracy & subscale of the BIPQ were based on the 1st rank.

- When no causes were reported, we considered the response as inaccurate.

Risk factors	Description
Intraocular Pressure	IOP with 21 mm Hg or greater is considered abnormal & an important risk factor for glaucoma.
Older Age	Ages above 60 are at an increased risk for POAG.
Race	In the US, people with African & Hispanic descent are 3-4 times higher at risk for blindness.
Thin Central Corneal Thickness	A thin cornea will be when thickness falls below less than 555 μm .
Family History	Siblings with POAG are approx. 3x more at risk.
Myopia	"nearsightedness" myopia is significantly associated with glaucoma.
Associated Disorders	Diabetes, Hypertension, LOPP, Retinal Vein Occlusion, & other associated conditions.

Figure 4. American Academy of Ophthalmology Risk Factors

Medication Adherence (Fig 5.)

- Medication event monitoring systems (MEMS) can be used measure eye drops adherence in patients.
- The adherence of ocular hypotensive medication was measured during the implementation phase using MEMS.⁴



Figure 5. MEMS Cap

Statistical Analysis

- Two coders independently categorized the causality responses provided in the first rank of the 9th BIPQ question.
- The chi-square test was used to assess differences in accuracy among patients.
- The Mann-Whitney U test was used to compare accuracy and adherence
- All analyses were performed in SPSS.

Conclusions

- Majority of patients identified an accurate cause for their glaucoma. This was associated with a better self-reported understanding of the disease.
- However, an accurate response/glaucoma knowledge didn't indicate better adherence.
- More attention and support should be brought to all patients even those who seem to be knowledgeable about their disease. This can support more adherence to medication which could mean potential for better outcomes.

References

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- The authors have no disclosures to report

Results

- There were 113 patients in the study (61 Females & 52 Males).
- Significantly more patients identified an accurate cause (n = 77) compared to those who identified an inaccurate cause (n = 36) ($\chi^2 = 15.22, p < 0.0001$). Fig. 6 & 7
- Patients who reported an accurate cause had a better understanding of glaucoma (median BIPQ subscale 7 score = 9, Interquartile range = 2) compared to patients who reported an inaccurate cause (median BIPQ dimension 7 score = 8, Interquartile range = 2.75) (p = 0.046).

Accurate Responses	Inaccurate Responses
Old Age	Using kerosene lamp
Genetics	Bright lights
Diabetes	Depressiveness
DNA	Karma
Hereditary	Gulf War experience

Figure 6. Examples of Accurate and Inaccurate Responses

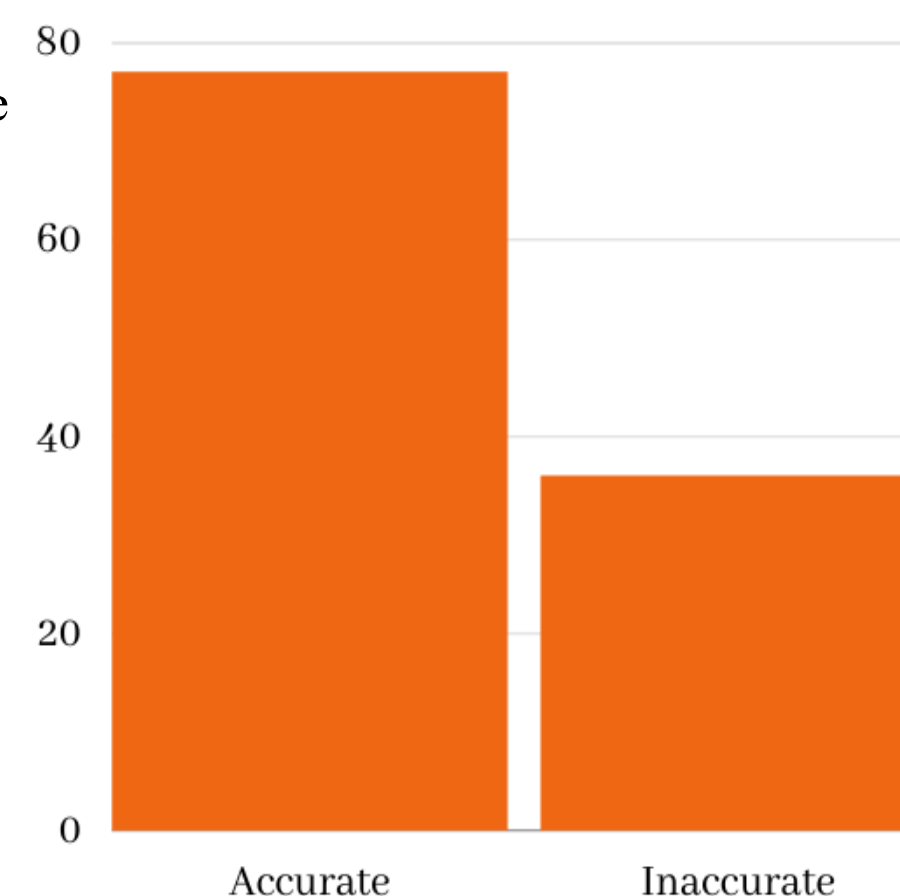


Figure 7. Accuracy Response Distribution

Adherence and Accuracy of Perceived Cause

		Ranks			
		Accuracy	N	Mean Rank	Sum of Ranks
Adherence Mean	1	49	34.12	1672.00	
	2	27	46.44	1254.00	
	Total	76			

Figure 8. Analysis between Adherence & Accuracy of Perceived Cause

- Group 1 is the accurate cause and group 2 is inaccurate cause.
- Significantly lower mean adherence (87.06% \pm 16.9) was observed in patient who reported accurate causes (p = 0.02).
- Patients responded with accurate cause showed to have a lower level of adherence to their medication.