

## Original Article

## Acceptance & Barriers to Trabeculectomy among patients with Glaucoma: A Cross-sectional study

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### Abstract

**Objective:** This study aimed to assess the level of acceptance about trabeculectomy and to determine patient-perceived barriers to trabeculectomy among glaucoma patients attending Ophthalmology clinic at Chakwal. .

**Study Design:** A hospital based cross-sectional study was conducted.

**Place and duration of study:** A hospital-based cross-sectional analytical study was done among 32 glaucoma patients who visited Munawar Memorial Hospital Chakwal Out Patient Department (OPD) during September – November 2023.

**Material and Methods:** A hospital-based cross-sectional analytical study was done among 32 glaucoma patients who visited Munawar Memorial Hospital Chakwal Out Patient Department (OPD) during September – November 2023. Informed consent for this research was formally sought from Hospital administrators and from study participants. The glaucoma cases were 30-80 years old and were recommended by ophthalmologist to undergo trabeculectomy and were enrolled in the study through consecutive non-probability sampling. All study participants were subjected to detailed ophthalmic examination. Visual acuity and intraocular pressure were also gauged. A self-administered structured questionnaire was used to gather responses of the glaucoma patients pertaining to acceptance and barriers to trabeculectomy. Data was analyzed by using Microsoft Excel 2019 software. Descriptive statistics were applied.

**Results:** Mean age of the 32 glaucoma cases who were recommended trabeculectomy was  $62 \pm 4.3$  years and 56.3% of them were females. 66.7% patients were aware about their type of glaucoma and healthcare implications of trabeculectomy. About 54% cases were willing to undergo trabeculectomy while 8.4% were not at all willing for this surgery. Surgery expenditure and fear of becoming blind were the key barriers to trabeculectomy.

**Conclusion:** Most of the recommended glaucoma patients were willing to undergo trabeculectomy for rectification of their visual impairment. Cost of treatment and fear of post-operative blindness were the chief barriers to trabeculectomy.

**Keywords:** barriers, glaucoma, trabeculectomy

### 1. Introduction

Glaucoma is the one of the leading causes of irreversible blindness worldwide. It may result in permanent loss of vision. <sup>(1)</sup> According to World Health Organization (WHO), significant proportion of irreversible blindness cases globally are attributed to glaucoma. <sup>(2)</sup> It has been a great public health concern due to its chronic and degenerative nature. Approximately 76 million people were affected by glaucoma in 2020 and this figure may probably mount to 111.8 million by 2040. <sup>(3)</sup> Glaucoma in Pakistan is frequently

reported by the people who are above 40 years of age. However, its age-standardized prevalence is estimated to be around 0.14 million glaucoma cases. <sup>(4)</sup> It is a substantial public health challenge in Low- and Middle-Income Countries (LMICs) due to inadequate access to eye care services and lack of awareness in general public. <sup>(5)</sup> Many glaucoma patients discontinue their glaucoma medications and found even non-adherent during initial period of treatment that escalates the disease progression. <sup>(6)</sup> Raised intraocular pressure in

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glaucoma not only increases the likelihood of optic nerve damage but also exacerbates visual defects. <sup>(7)</sup> Approximately 3 million Americans were diagnosed with glaucoma during 2020 and about 120,000 of them with untreated glaucoma grieved with impaired vision. <sup>(8)</sup> Although gross difference between the Quality of Life (QoL) of the glaucoma patients undergoing trabeculectomy and instilling eye drops was not observed; yet glaucoma cases undergoing trabeculectomy were found to be less dependent on eye drops. <sup>(9)</sup>

Trabeculectomy is a gold standard for maintenance of intraocular pressure in long run. <sup>(10)</sup> There are numerous barriers to trabeculectomy despite its acknowledged efficacy. Denial among Sub-Saharan African glaucoma patients for trabeculectomy is attributed to fear and cost of surgery. <sup>(11)</sup> The developing world is confronted with diverse barriers to trabeculectomy like infrastructure constraints and inadequate access to follow-up care. <sup>(12)</sup>

The present study is intended to determine the acceptance and barriers to trabeculectomy among glaucoma patients who visited Munawar Memorial Hospital Chakwal for their treatment. Identifying the barriers faced by glaucoma cases residing in a semi-urban district of Chakwal is imperative for tailoring the interventions to improve surgical acceptance and enhance glaucoma management. By determining the patient level or health system factors that seemed to influence the decision making of our patients, our healthcare professionals would better be able to improve the healthcare outcomes by mitigating the propensity of glaucoma-related blindness in the country.

## 2. Materials & Methods

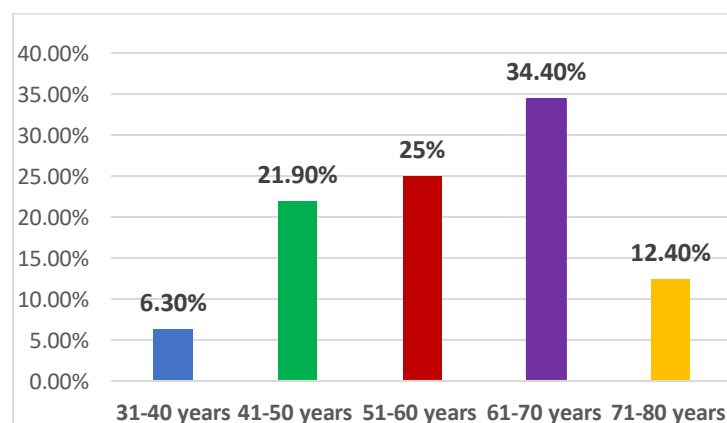
A hospital-based cross-sectional analytical study was carried out among 32 glaucoma patients who visited Munawar Memorial Hospital Chakwal Out Patient Department (OPD) from September – November 2023. Informed consent for this research was formally sought from Hospital

administrators and from study participants. The glaucoma cases who were 30-80 years old and were recommended by ophthalmologist to undergo trabeculectomy were enrolled in the study through consecutive non-probability sampling. The glaucoma cases who were not suggested to undergo trabeculectomy were excluded. All study participants were subjected to detailed ophthalmic examination. Visual acuity was tested by means of Snellen's visual acuity chart. After that intraocular pressure was measured by using tonometer. Anterior and posterior eye segments were thoroughly examined by using slit lamp. A self-administered structured questionnaire was used to gather responses of the glaucoma patients pertaining to barriers or obstacles in undergoing trabeculectomy. Data was analyzed by using Microsoft Excel 2019 software. Descriptive statistics were applied.

## 3. Results

Total 175 glaucoma patients visited Munawar Memorial Hospital Chakwal during September-November 2023 but only 32 cases were recommended to undergo trabeculectomy and their mean age was  $62 \pm 4.3$  years. Most (34.4%) of the glaucoma cases belonged to 61-70 years age group as depicted below in Figure 1.

Fig 1: Age group of the glaucoma cases (n = 32)



Of the 32 glaucoma cases in present study, there were 14 (43.8%) males and 18 (56.3%) females. Visual acuity of the glaucoma patients graded is shown below in Table 1.

Table 1: Visual acuity grading (n = 32)

Visual acuity grading	OD (Oculus Dexter) Right eye	OS (Oculus Sinister) Left eye
>6/18	8 (25%)	4 (12.5%)
6/18 – 6/60	11 (34.4%)	16 (50%)
<6/60- 3/60	3 (9.4%)	2 (6.3%)
<3/60 – PL+	9 (28.1%)	9 (28.1%)
NPL	1 (3.1%)	1 (3.1%)
Total	32 (100%)	32 (100%)

The intraocular pressure gauged separately for both left and right eye of the glaucoma patients is presented below in Table 2.

Table 2: Intraocular pressure (IOP)of Glaucoma cases (n = 32)

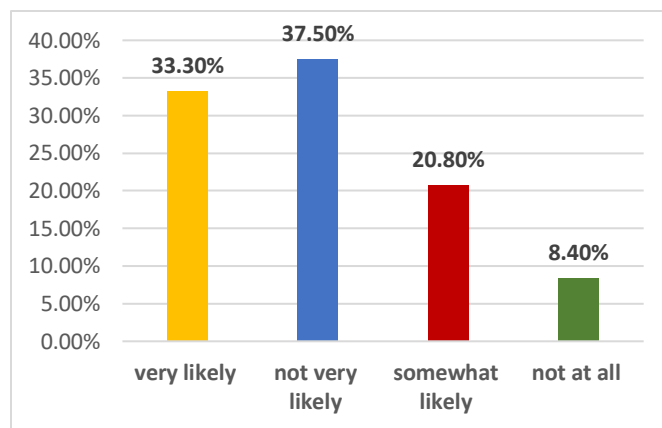
Intraocular pressure grading	IOP OD (Right eye)	IOP OS (Left eye)
< 18 mm Hg	11 (34.4%)	11 (34.4%)
< 22 mm Hg	3 (9.4%)	1 (3.1%)
> 22 mm Hg	18 (56.3%)	20 (62.5%)
Total	32 (100%)	32 (100%)

Only 16 (66.7%) of the cases knew the type of glaucoma they were suffering from. 24 patients confessed that they have not only been prescribed the treatment for glaucoma but also have heard about trabeculectomy as their treatment option. About 66.7% acknowledged the merits of trabeculectomy over other glaucoma treatments. Only 29.2% admitted encountering barriers to trabeculectomy.

33.3% patients confessed that they were more likely to have trabeculectomy to preserve their

vision by reducing intraocular pressure. Most (37.5%) of the patients opined that they were not likely to consider trabeculectomy as their treatment option as shown below in Figure 2.

Fig 2: Probability of considering trabeculectomy as treatment option



Of the 8 glaucoma patients, 3 (42.8%) perceived high cost of trabeculectomy procedure as the main barrier that contributes to increased refusal of glaucoma cases. However, 4(57.2%) were anxious about the poor post-operative visual prognosis like they were afraid of becoming blind.

#### 4. Discussion

Mean age of glaucoma patients in our study was 62 ± 4.3 years and majority of them were in age bracket of 61-70 years. A systematic review by Tham Y et al elucidated that number of glaucoma cases 40-80 years older in 2013 was 64.3 million that further elevated to 76 million in 2020 and significant escalation to 111.8 million is anticipated in 2040. (13) Likewise, another review revealed 5.2% prevalence of open angle glaucoma in Black population aged 60 years that later up surged to 12.2% by 80 years of age. (14) According to national statistics, the highest prevalence of glaucoma has been reported after 50 years of age of 50 that also directed the attention of all strategic planners towards targeted intervention among elders to curb this menace. Of the 175 glaucoma cases examined by optometrist in our study, trabeculectomy was

recommended to only 32 patients and most (56.3%) of them were females. Likewise, a data retrieved from Eye surveillance health system of New York explicated that more women with glaucoma underwent surgical treatment as compared to men and were less adherent to drug therapy.<sup>(15)</sup> Contrary to our findings, a study among glaucoma cases of Egypt illustrated that surgery was comparatively preferred more by males than those of female cases.<sup>(16)</sup> The gender or racial difference in surgical management of glaucoma is another contemporary issue that merit further in-depth and methodologically sound research. Such studies could prove beneficial in equitable access to healthcare and adherence to surgical intervention for glaucoma among diverse populations.

Of the 32 glaucoma cases in the present study who were suggested to undergo trabeculectomy, 66.7% not only knew the type of their glaucoma but were also adequately aware regarding the benefits of surgical intervention. A cross-sectional study done by Alqahtani SM et al among the patients visiting eye clinic of Jeddah revealed minimal or low level of awareness among patients about this disease. Even majority was unacquainted about their family history pertaining to glaucoma and had numerous misconceptions about this disease.<sup>(17)</sup> Such fallacies may drastically impair the vision of the patients and hence substantially impair their quality of life in long run. A similar study among Indians revealed that even late presentation to eye clinics of the glaucoma cases was attributed to their ignorance about this ailment and its complications.<sup>(18)</sup> Early diagnosis of glaucoma and its timely management is imperative to get rid of blindness. But, unfortunately most of the glaucoma cases come late for diagnosis and hence face its grave consequences.<sup>(19)</sup> Another study among inhabitants of an Indian state elucidated adequate knowledge about the clinical presentation and its resultant outcomes but they were not well-aware about its prevention and risk factors.<sup>(20)</sup> The perceived knowledge and communication gaps in glaucoma management can considerably be filled by strengthening health education in the community and

capacity building of healthcare workforce for counseling the patients.

Of the 32 glaucoma patients suggested to undergo trabeculectomy, 37.5% were not likely to consider surgical intervention for managing the raised intraocular pressure and impaired visual acuity as evident from Figure 2. They were deferring surgery primarily due to financial constraints. A similar study by Hamza SA et al among glaucoma cases of Mardan medical complex emphasized financial limitations as the main obstacle for surgical treatment followed by their inadequate awareness.<sup>(21)</sup> Undoubtedly, out of pocket expenditure is the main hindrance in access to healthcare as it accounts for approximately 58-70% of total health expenditure specifically in Low Middle Income Countries (LMICs) where general public is unable to afford optimum health care due to inflation and lack of health insurance coverage.<sup>(22)</sup> Even after introducing Sehat Sahulat Program (SSP) in Pakistan, patients were found reluctant in accessing eye care services due to long travelling time, old age and illiteracy.<sup>(23)</sup> About 57.2% of our glaucoma patients were afraid of getting blind postoperatively. Consistent with our findings, a Nigerian study depicted the fear of blindness following surgery among 29.2% of the refusing patients while cost of surgery was the barrier only among 12.3% of the glaucoma patients.<sup>(24)</sup> Another study among Nigerian hospital cases revealed the anxiety regarding potential vision loss after eye surgery was the predominant reason for refusal.<sup>(25)</sup> Such postoperative apprehensions should prudently be dealt with proper counseling by trained healthcare workers. There is need to enhance the utilization of social media in disseminating healthcare information to the community about glaucoma, usefulness of its prompt management and adversities to be faced in case of negligence. Addressing the financial barriers to healthcare by incorporating policies tailored to patients' needs can substantially reduce the economic burden of the patients.

#### **Conclusion:**

Most of the glaucoma cases were willing to undergo trabeculectomy as per recommendations of ophthalmologist. Fear of getting blind following surgery and treatment cost were the key barriers to trabeculectomy. These barriers can efficiently be overcome by disseminating awareness pertaining to glaucoma disease, its clinical presentation, susceptible age group, adverse outcomes in case of delaying treatment. Rigorous training of healthcare providers for medical and psychological counseling is of paramount significance to get rid of adverse outcomes. Moreover, hospital administrators should devise strategies to make trabeculectomy cost-effective for non-affording patients.

#### Disclosure /Conflict of interest:

Authors declare no conflict of interest.

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