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Benson Relaxation and Qur'an Recitation on Intraocular Pressure in Glaucoma Patients

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ABSTRACT

Glaucoma is a leading cause of irreversible blindness, and elevated intraocular pressure (IOP) is its principal modifiable risk factor; non-pharmacological adjuncts such as relaxation-based therapies have been proposed to support pharmacological IOP control. This study aimed to examine the effect of combined Benson relaxation therapy and Qur'an recitation on changes in IOP among glaucoma patients. A quasi-experimental design with a non-randomized intervention and control group (pretest–posttest) was used, involving 32 purposively sampled glaucoma outpatients at Sari Asih Hospital, Karawaci (16 per group), over October–December 2025. The intervention group received combined Benson relaxation and Qur'an recitation (Surah Al-Fatihah and Al-Insyirah) for 10–15 minutes per session; the control group received standard care only. IOP was measured before and after the intervention period using applanation tonometry. Mean IOP decreased from 23.69 to 21.01 mmHg in the intervention group and from 23.65 to 23.29 mmHg in the control group. The paired-sample t-test showed a significantly greater IOP reduction in the intervention group (mean difference –2.28 mmHg, 95% CI –3.38 to –1.18, p = 0.000) compared with the control group. These findings suggest that combined Benson relaxation and Qur'an recitation may serve as a feasible, low-cost adjunct to standard glaucoma care, although confirmation in larger, randomized trials is needed before broader clinical recommendation.

Keyword : Benson relaxation; qur'an recitation; intraocular pressure; glaucoma; non-pharmacological therapy

INTRODUCTION

Glaucoma is the second leading cause of blindness worldwide after cataracts and is characterized by progressive optic nerve damage, with elevated intraocular pressure (IOP) as its principal modifiable risk factor [1]. Additional risk factors include age over 40 years, congenital or family history of glaucoma, thinner corneal thickness, diabetes, and long-term corticosteroid use [2]. Elevated IOP results from impaired aqueous humor outflow through the trabecular meshwork, and sustained elevation progressively damages retinal ganglion cells, underscoring the clinical importance of IOP control beyond pharmacological therapy alone [3].

Pharmacological management (topical medications, laser therapy, or surgery) remains the first-line approach to IOP control, but adherence tends to decline over long disease durations, and patients

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often seek adjunctive strategies to support treatment [4]. Non-pharmacological relaxation-based interventions have therefore drawn growing research interest: a systematic review and meta-analysis of relaxation techniques in glaucoma patients found that methods such as meditation, autogenic relaxation, and breathing-based exercises produced measurable IOP reductions, although the authors emphasized that high-quality randomized trials remain scarce [5]. Complementary evidence indicates that psychological states such as anxiety and stress are themselves associated with IOP fluctuation and glaucoma progression, providing a plausible physiological pathway through which relaxation-based interventions could influence IOP [6].

Benson relaxation therapy, developed by Herbert Benson, uses deep breathing combined with the silent repetition of a meaningful phrase to elicit the relaxation response, and has been associated with reduced anxiety, stress, and physiological arousal in multiple patient populations [7]. Qur'an recitation has separately been studied as a non-pharmacological stress-reduction practice: a scoping review of controlled studies reported consistent reductions in anxiety, stress, and cortisol levels following Qur'an listening or recitation [8], and a randomized trial measuring salivary cortisol found significantly greater stress-biomarker reduction following Qur'an verse audition compared with relaxation music alone [9]. A broader systematic review similarly concluded that Qur'an recitation and listening are associated with measurable improvements in physiological and psychological stress indicators across diverse populations [10]. Together, this literature supports a plausible mechanism in which both interventions act through parasympathetic activation and reduced sympathetic arousal, which may secondarily lower IOP given its sensitivity to autonomic and psychological state [11].

However, existing studies have generally examined Benson relaxation or Qur'an recitation separately, and evidence on their combined effect specifically on IOP in glaucoma patients remains limited, particularly within Indonesian hospital settings where religiously congruent interventions may carry added acceptability and adherence value. This study addresses that gap by evaluating the combined effect of Benson relaxation and Qur'an recitation on IOP, extending prior single-modality evidence to a combined, culturally embedded intervention model.

Therefore, this study aimed to determine the effect of combined Benson relaxation therapy and Qur'an recitation on changes in IOP among glaucoma patients at Sari Asih Hospital, Karawaci, hypothesizing that patients receiving the combined intervention would show a significantly greater reduction in IOP than those receiving standard care alone.

METHODS

This study used a quasi-experimental design with a non-randomized intervention and control group, employing a pretest–posttest approach in which IOP was measured before and after the study period in both groups. This design was chosen over a true one-group pretest-posttest design specifically to allow comparison against a concurrent control group not receiving the intervention, thereby strengthening causal inference relative to a single-group design. The study was conducted at the eye

clinic of Sari Asih Hospital, Karawaci, from October to December 2025, among an average monthly outpatient population of 64 glaucoma patients. A total of 32 patients were enrolled using purposive (non-probability) sampling and allocated into an intervention group (n = 16) and a control group (n = 16) based on clinic visit scheduling. Inclusion criteria were adult patients with a confirmed diagnosis of glaucoma, stable on their current pharmacological regimen, willing to participate, and able to follow the intervention instructions; exclusion criteria were patients with acute angle-closure crisis, cognitive or hearing impairment preventing participation in recitation-based intervention, or recent (<1 month) ocular surgery. Sample size was based on the available eligible outpatient population during the study period rather than a formal a priori power calculation, which is acknowledged as a limitation.

The intervention group received combined Benson relaxation therapy and Qur'an recitation (Surah Al-Fatihah, verses 1–7, and Surah Al-Insyirah, verses 1–8) for 10–15 minutes per session in a quiet room, with researchers monitoring adherence through direct observation; the control group continued standard pharmacological care without the relaxation intervention. IOP was measured using a calibrated Goldmann applanation tonometer by a trained examiner before and after the intervention period in both groups, following standard calibration procedures recommended by the device manufacturer. Potential confounders — including glaucoma medication regimen, disease severity, and recent physical activity — were recorded descriptively and considered in the interpretation of findings, though they were not statistically controlled given the limited sample size.

Data were tested for normality using the Shapiro-Wilk test prior to analysis. Differences in IOP within and between groups were analyzed using the paired-sample t-test, with a significance level of 0.05 and 95% confidence intervals reported alongside p-values.

RESULT

Table 1. Characteristics of respondents in Eye Clinics at Sari Asih Karawaci Hospital (n=32)

Characteristics	Frequency	Percentage (%)
Gender		
Male	19	59.4
Female	13	40.6
Aged (years)		
30-40	5	15.6
41-55	15	46.9
56-65	12	37.5
Duration of illness (years)		
1-2	9	28.1
3-5	10	31.3
6-12	13	40.6

Based on Table 1, it shows that the characteristics of respondents based on gender are mostly male, with 19 respondents or 59.4%, while female respondents are 13 respondents or 40.6%. The characteristics of respondents based on age in glaucoma sufferers are mostly aged 41 years to 55 years, as many as 15

respondents (46.9%), aged 56 years to 65 years, as many as 12 respondents (37.5%), and aged 30 years to 40 years, as many as 5 respondents (15.6%). The characteristics of respondents based on the length of time the patient has suffered from glaucoma are 6 years to 12 years as many as 13 respondents (40.6%), the length of time suffering from glaucoma is 3 years to 5 years as many as 10 respondents (31.3%), the length of time suffering from glaucoma is 1 year to 2 years as many as 9 respondents (28.1%).

Table 2. Normality Test of Intraocular Pressure (IOP) in the intervention group and control group (n=32)

Variables	Group	Statistics	Df	Sig.
Pre-test	Intervention	0.976	16	0.929
	Control	0.969	16	0.820
Post test	Intervention	0.976	16	0.929
	Control	0.967	16	0.794

According to Table 2, all data have a significance level greater than 0.05. This indicates that the intraocular pressure data is normal, so future analysis will use parametric statistical tests.

Table 3. Effect of Combined Benson Relaxation and Qur'an Recitation on IOP

Group	n	Pre-test Mean ± SD	Post-test Mean ± SD	Mean Diff. (95% CI)	p value
Intervention	16	23.69 ± 1.02	21.01 ± 0.67	–2.28 (–3.38, –1.18)	0.000
Control	16	23.65 ± 1.10	23.29 ± 1.46	–0.36	0.241*

Based on Table 3, the between-group comparison of post-test IOP showed a statistically significant difference favoring the intervention group (p = 0.000, 95% CI –3.38 to –1.18 mmHg).

DISCUSSION

The intervention group showed a significantly greater reduction in IOP compared with the control group, which showed only a small, non-significant change. This finding is consistent with a recent systematic review and meta-analysis reporting that relaxation-based techniques — including breathing-based and meditative approaches produce measurable IOP reductions in glaucoma patients, although the same review cautioned that the evidence base remains limited by small trial sizes and heterogeneous methods [12]. The direction and approximate magnitude of the effect observed here is broadly comparable to breathing-based relaxation effects reported in a recent meta-analysis of relaxation exercises on IOP [13], lending external support to the plausibility of this finding despite the present study's modest sample size.

Beyond statistical significance, the observed reduction (approximately 2.3 mmHg) also carries potential clinical relevance: prior glaucoma epidemiological evidence indicates that even modest, sustained IOP reductions are associated with meaningfully slower rates of optic nerve damage progression over time, suggesting that combined relaxation-based adjuncts, if sustained, could contribute to meaningful long-term risk reduction alongside pharmacological therapy [14].

The IOP reduction observed in the intervention group is plausibly explained through autonomic and psychological pathways rather than a direct pharmacological mechanism [15]. Benson relaxation is theorized to elicit a relaxation response characterized by reduced sympathetic arousal and parasympathetic activation [16], a mechanism supported by reviews linking psychological stress and anxiety to IOP elevation and glaucoma progression risk [17]. Qur'an recitation has independently been associated with reduced physiological stress markers, including salivary cortisol, in controlled studies [18], and a broader systematic review concluded that Qur'an listening and recitation are consistently associated with improved psychophysiological stress indicators across diverse populations [12]. The combination of both modalities in this study may therefore have produced an additive calming effect, though this study cannot disentangle the individual contribution of each component given its combined-intervention design.

A placebo or expectancy effect cannot be excluded as a contributing explanation, particularly given the absence of blinding; patients aware of receiving a religiously and culturally meaningful intervention may have experienced psychological reassurance independent of the intervention's specific physiological mechanism. This possibility should be explicitly considered when interpreting the magnitude of the observed effect, and future trials incorporating an active comparator (e.g., non-religious relaxation audio) would help isolate the specific contribution of Qur'an recitation from generalized relaxation and expectancy effects.

Most participants were male, aged 41–55 years, and had lived with glaucoma for 6–12 years, consistent with established epidemiological patterns showing increased glaucoma risk with age beyond 40 years [19]. Longer disease duration has previously been associated with declining adherence to chronic eye-drop regimens [20], which may explain why a substantial proportion of participants in this study had a long-standing diagnosis and may have been motivated to engage with an adjunctive, non-pharmacological approach.

LIMITATIONS

This study has several limitations that should be considered when interpreting the findings. First, the small sample size (n = 32) limits statistical power and generalizability. Second, this was a single-center study conducted at one hospital, which may limit external validity to other settings or populations. Third, the non-random, purposive allocation of participants to intervention and control groups introduces a risk of selection bias and unmeasured baseline differences between groups. Fourth, the absence of blinding for participants and outcome assessors raises the possibility of expectancy or

placebo effects influencing the observed IOP reduction. Fifth, the short intervention duration (10–15 minutes per session over a limited study period) precludes conclusions about the long-term stability of IOP reduction. Sixth, environmental noise within the hospital setting and uncontrolled confounders including medication regimen, physical activity, and psychosocial stress outside intervention hours may have influenced IOP independent of the intervention. Collectively, these limitations indicate that the findings should be considered preliminary and hypothesis-generating rather than confirmatory, warranting replication in larger, randomized, multi-center trials with blinded outcome assessment.

CONCLUSION

This study found that combined Benson relaxation therapy and Qur'an recitation was associated with a significantly greater reduction in intraocular pressure compared with standard care alone among glaucoma patients at Sari Asih Hospital, Karawaci. Given the quasi-experimental design, non-random sampling, and small sample size, these findings should be interpreted as preliminary evidence rather than definitive proof of efficacy. Future research using randomized, blinded, multi-center designs with longer follow-up is needed to confirm these findings and clarify the relative contribution of each intervention component before broader clinical recommendations can be made. Nurses may be able to teach it to patients as a self-administered practice; however, this implication is offered cautiously and is limited to the specific population and short-term outcome examined in this study, and should not be generalized to long-term IOP management or to replacing pharmacological therapy without further confirmatory research.

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