Hindawi
Journal of Ophthalmology
Volume 2022, Article ID 8106202, 9 pages
https://doi.org/10.1155/2022/8106202

Research Article

A Multifaceted Strategy to Enhance Glaucoma Knowledge and Reduce Anxiety in the Uyghur Population of Rural China

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Received 24 November 2021; Revised 8 March 2022; Accepted 21 March 2022; Published 18 April 2022

Academic Editor: In s. Contreras

Purpose. The aim of the study is to assess the impact of a multifaceted education strategy for Uyghur patients with glaucoma on their anxiety, satisfaction, and comprehension of disease information in rural China. *Methods*. This study recruited 100 patients who were randomized into two groups: the control group that received a conventional consultation and the intervention group that received a multifaceted education approach. Information comprehension was evaluated using a 15-item questionnaire. A 6-item State-Trait Anxiety Inventory (STAI-6) score was used to assess patient anxiety levels. Satisfaction was evaluated on the day of discharge. *Results*. After education, patients in the intervention group scored significantly higher than those in the control group on their knowledge of glaucoma ($p \leq 0.001$). Education level, family history of glaucoma, and number of glaucoma clinic visits were independently associated with baseline scores ($p = 0.038$, 0.002, and 0.017, respectively). The age was negatively correlated with scores ($p \leq 0.001$) after education. The STAI-6 score of the intervention group was 28.50 ± 5.13, which was significantly lower than that of the control group (32.50 ± 6.47, $p = 0.001$). Income levels were negatively correlated and the duration of glaucoma was positively correlated with STAI-6 scores ($p \leq 0.001$ and $p = 0.003$, respectively). Overall satisfaction was significantly higher in the intervention group ($p \leq 0.001$). The knowledge score was positively correlated with overall satisfaction and follow-up probability (both $p \leq 0.001$). The STAI-6 score was negatively correlated with overall satisfaction and follow-up probability ($p = 0.017$ and 0.006, respectively). *Conclusions*. This new multifaceted educational strategy can enhance patients' knowledge of glaucoma, reduce their anxiety, and improve their satisfaction. ClinicalTrials.gov (No. 2100050926)

1. Introduction

Glaucoma is the leading cause of irreversible blindness [1]. It is estimated that by 2040, the number of people with glaucoma will increase to 111.8 million, disproportionally affecting those residing in Asia and Africa [2]. In China, the incidence of glaucoma varies with age, sex, setting, and the geographic region [3]. In Northwest China in 2010, 0.27 million and 0.46 million people were afflicted with primary open-angle glaucoma (POAG) and primary angle-closure glaucoma (PACG), respectively, and these numbers have been increasing yearly [3]. Glaucoma is the second leading cause of low vision and blindness in this rural area, and Chinese Uyghur individuals who are elderly and have low education levels are important contributors to this public health issue [4]. Because glaucoma is a chronic progressive disorder that requires long-term cooperation between patients and ophthalmologists, it remains a great challenge worldwide [1].

Unfortunately, the general population lacks knowledge of glaucoma, especially in rural China [5]. The reasons for the low level of health literacy in rural populations include an underdeveloped economy, poor living conditions, poor medical and health services, limited access to health information (e.g., from primary care providers, specialists, blogs, and magazines), less use of search engines, and low awareness of what constitutes a healthy lifestyle and behavior [6, 7]. Poor knowledge of glaucoma can lead to late diagnosis, poor acceptance of and adherence to treatment, and limited follow-up, which can lead to progressive disease and even permanent blindness. Therefore, it is recommended that more health education be oriented toward rural Chinese areas.

In addition, rural Chinese patients with multiple chronic conditions might encounter more disease-related worries and physical discomfort, and in turn, more anxiety [8]. They must cope with lagging sociodemographic development, low education levels, few job opportunities, poor health and social infrastructures, environmental hazards, and economic hardships, which could be detrimental to their physical and mental health [8, 9]. Glaucoma, as a chronic condition, can be frustrating and stressful for patients and their families due to the repeated and uncertain visual prognosis during treatment. Research has shown that education about glaucoma might help patients alleviate their stress and anxiety, enhance their vision-related quality of life, raise their adherence to follow-up visits, and improve their prognosis [10, 11].

Thus far, an increasing number of studies have shown that in developed areas, multimedia education has a more positive impact on the awareness and knowledge of glaucoma than traditional education [12–14]. These advanced modes of education can involve informational videos, mobile applications, and online consultations. However, for the reasons given above, the efficacy of these modes has not been studied in rural China. Individuals in this region may require a more active-learning approach with the use of, for example, face-to-face education, conversations among patients, animated educational videos, and written brochures with pictures.

Based on the abovementioned findings, we attempted to carry out an interactive, multifaceted educational approach in Northwest China to determine its applicability in rural areas.

2. Materials and Methods

This hospital-based, randomized controlled study was conducted between February and August 2021. It was carried out at the Ophthalmology Department of the First People's Hospital of Kashi Prefecture, one of the largest ophthalmology facilities in Northwest China. The patients in the hospital were from Kashi and the surrounding countries. This study adhered to the tenets of the Declaration of Helsinki, was approved by the Human Research Ethics Committee of the First People's Hospital of Kashi Prefecture (ethics No. 2021ksyd-24), and was registered with ClinicalTrials.gov (No. 2100050926). All the participants provided written informed consent.

2.1. Participants. We included 100 Uyghur patients with glaucoma who were hospitalized for surgery. The inclusion criterion was a diagnosis of glaucoma based on an elevated intraocular pressure (IOP, >21 mmHg) without medication, glaucomatous optic nerve head changes, and visual field defects. All individuals were 18–80 years of age. The exclusion criteria were patient's refusal to participate, incomplete or poorly completed questionnaires, patients with mental illnesses or cognitive dysfunction, and best-corrected visual acuity (BCVA) < 0.1 in the better eye. Patients with non-glaucoma conditions, such as corneal disease, uveitis, and retinal disease, were also excluded.

2.2. Control and Intervention Groups. The participants were randomized into two groups using an online random turntable program (Figure 1). The control group received conventional consultation, including basic health education provided by ward nurses and clinical ophthalmologists, using only oral communication. The intervention group received disease information provided through an interactive, multifaceted approach, apart from standardized routine care. This approach was designed using social group activities, video vignettes, and written documents to improve the patients' knowledge. The module consisted of a one-hour lecture, followed by a half hour workshop. Images, plain language, and a comprehensive PowerPoint presentation (see Appendix A; PowerPoint version 2019, Microsoft Corporation, Redmond, Washington) were used to present a lecture to define glaucoma, explain its causes and manifestations, and show treatment options. Following this lecture, the patients were asked to watch a 5-min animated video vignette (see Appendix B) and read the study materials (see Appendix C). During the procedure, the patients were encouraged to ask questions in the workshop and communicate with each other.

2.3. Questionnaire Design. A marked trained interviewer conducted face-to-face interviews in the ward, using a standard questionnaire. The questionnaire was written in Uyghur. Considering the low education level of the patients, there was no restriction on inquiry time. The questionnaire consisted of four sections (see Appendix D).

Section one comprised sociodemographic questions, such as "What is your age?," "What is your gender?," and "What is your highest level of education?". Section two was based on the published literature regarding glaucoma knowledge and awareness assessments [12, 13, 15] and contained 15 true or false questions regarding glaucoma risk factors (questions 1–5), symptoms (questions 6–10), and treatments (questions 11–15). Each question was presented with three answer choices (yes, no, or unclear). Two points were given for the correct answer and zero points were given for incorrect or unclear answers. We

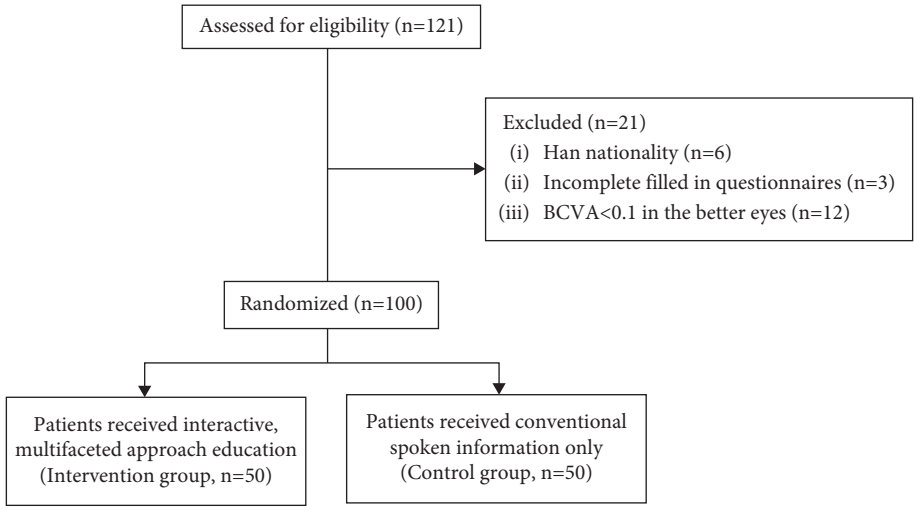

Figure 1: Randomized controlled trial design and flowchart.

summed the scores for each question to calculate the total score of overall glaucoma knowledge. Section three was an anxiety assessment using a six-item State-Trait Anxiety Inventory (STAI-6) score [16]. The scale consisted of six "1–4" scoring questions regarding calm, tense, upset, relaxation, content, and worry. The total score was obtained by adding the scores of each item; those scores over 40 were considered to indicate significant patient anxiety. Section four included three questions that assessed the quality of hospitalization. Question one was "How would you rate the quality of your hospitalization?" and the options were "Very good," "Good," "Medium," and "Poor." Question two was "Was the knowledge of glaucoma easy to understand?" which was followed by three options, "Strongly agree," "Agree," and "Disagree." Question three was "Would you like to come for follow-up?" and there were four options: 100%, 75%, 50%, and <50%.

Section one was completed on the first day of admission, while section three and four were completed on the day of discharge. Section two was completed on the first day of admission and repeated on the day of discharge. The questionnaires were finally sorted and input into the computer by a doctor for further analysis.

2.4. Statistical Analyses. The Statistical Package for Social Science version 23.0 software (SPSS, Chicago, USA) was used for statistical analyses. Continuous variables are presented as mean ± SD or median (interquartile range) and categorical variables as frequency. Comparisons between groups were performed using the Student's t-test, one-way analysis of variance (ANOVA), or Mann–Whitney U test, as appropriate. Categorical variables were compared using the χ^2 test. Multiple linear regression was used to determine independent potential factors affecting the knowledge level of glaucoma. Relationships between variables were explored using Spearman's correlation analysis. All reported p values are two-tailed, and those <0.05 are considered statistically significant.

3. Results

3.1. Sociodemographic Characteristics between Groups. One hundred valid questionnaires were obtained. Of these, 50 were in the intervention group and 50 were in the control group. A comparison of the sociodemographic characteristics between the two groups is shown in Table 1. There were no significant differences in sex, age, residence, education, occupational status, income, family history of glaucoma, duration of glaucoma, number of eyes, glaucoma clinic visits, hospitalizations, surgeries, or days of hospitalization.

3.2. Comparison of Glaucoma Knowledge. The total scores across the 15 questions represented the overall knowledge of glaucoma in the two groups and are shown in Table 2. On the day of discharge, the patients in the intervention group scored significantly higher than those in the control group ($p \leq 0.001$). Although the scores of the two groups increased significantly between before and after hospitalization (both $p \leq 0.001$), the improvement was greater in the intervention group (11.36 points) than in the control group (3.96 points).

We further divided the overall knowledge of glaucoma into three parts, including risk factors (questions 1–5), symptoms (questions 6–10), and treatments (questions 11–15). It showed that knowledge about symptoms scored higher than knowledge about risk factors and treatment. As shown in Figure 2, the score for symptoms was the highest at baseline in the two groups (both $p < 0.05$). After education, although the three aspects were significantly improved compared to the baseline scores (all $p \leq 0.001$), the score for symptoms remained the highest in the two groups.

Multiple linear regression (Table 3) showed that education level, family history of glaucoma, and the number of glaucoma clinic visits were independently associated with baseline scores ($p = 0.038$, 0.002, and 0.017, respectively). However, sex, age, residence, occupational status, income, duration of glaucoma, number of eyes, hospitalizations, and surgeries were not related (all $p > 0.05$). After education during hospitalization, the patients with a longer duration of

Table 1: Comparison of sociodemographic characteristics between the intervention and control groups ($n = 100$).

Characteristics	Intervention	Control	t/χ^2	p value
n	50	50		
Sex				
Male	20 (40%)	21 (42%)	0.041	0.839
Female	30 (60%)	29 (58%)		
Age (years, mean ± SD)	60.04 ± 13.55	61.38 ± 13.28	0.499	0.619
Range (years)	27–80	25–80		
Residence				
Kashi	12 (24%)	11 (22%)	0.056	0.812
Surrounding countries	38 (76%)	39 (78%)		
Education				
Illiterate	13 (26%)	15 (30%)		
Primary school	17 (34%)	18 (36%)		
Middle school	16 (32%)	13 (26%)	1.625	0.804
High school	4 (8%)	3 (6%)		
College or higher	0	1 (2%)		
Occupational status				
Unemployed	5 (10%)	3 (6%)		
Peasant	32 (64%)	37 (74%)		
Worker	3 (6%)	2 (4%)	1.462	0.833
Staff member	4 (8%)	4 (8%)		
Retire	6 (12%)	4 (8%)		
Income (yearly, thousands)				
<10	11 (22%)	16 (32%)		
10–30	30 (60%)	27 (54%)	2.15	0.542
30–80	8 (16%)	7 (14%)		
>80	1 (2%)	0		
Family history of glaucoma				
None	42 (84%)	43 (86%)		
Parents, children	3 (6%)	3 (6%)	0.212	0.976
Collateral relatives	2 (4%)	2 (4%)		
Spouse, friends, others	3 (6%)	2 (4%)		
No. of eyes				
Monocular	22 (44%)	18 (36%)	0.667	0.541
Bilateral	28 (56%)	32 (64%)		
Duration of glaucoma (months)	12 (19.50)	12 (20.25)		0.858
No. of glaucoma clinic visits	2 (2)	2 (2)		0.181
No. of hospitalizations	0 (1)	0 (1)		0.360
No. of glaucoma surgeries	0 (1)	0 (1)		0.226
Days of hospitalizations	9.6 ± 3.65	8.9 ± 4.15	−0.896	0.373

Data are expressed as mean ± SD, number of cases (%), or median (interquartile range (IQR)), as appropriate. p values were calculated using the independent samples t-test (age and days of hospitalization), χ^2-test (sex, residence, education, occupation status, income, family history of glaucoma, and number of eyes), and Mann–Whitney U test (duration of glaucoma, number of glaucoma clinici visits, hospitalizations, and surgeries). *n*, number of patients; SD, standard deviation; and No., number.

Table 2: Overall mean scores across the knowledge of glaucoma questionnaire at baseline and the day of discharge for the intervention and control groups.

	Intervention	Control	t	p-value[a]
Baseline	10.12 ± 4.28	10.32 ± 4.70	0.222	0.825
After education	21.48 ± 3.49	14.28 ± 3.70	−9.998	**≤0.001**
t	−21.507	−11.633		
p-value[b]	**≤0.001**	**≤0.001**		

Data are expressed as mean ± SD. p values were calculated using the independent samples t-test (a) and paired samples t-test (b). The p values in bold represent statistically significant results ($p < 0.05$).

glaucoma or those in the intervention group had higher scores ($p = 0.006$ and $p \leq 0.001$, respectively). Meanwhile, age was the main factor affecting awareness and knowledge ($p \leq 0.001$). The scores of elderly patients were lower than those of younger ones.

3.3. Effects of Education on Anxiety and Satisfaction. Regarding anxiety, the STAI-6 score of the intervention group was 28.50 ± 5.13, which was significantly lower than that of the control group (32.50 ± 6.47, $t = 3.421$, $p = 0.001$).

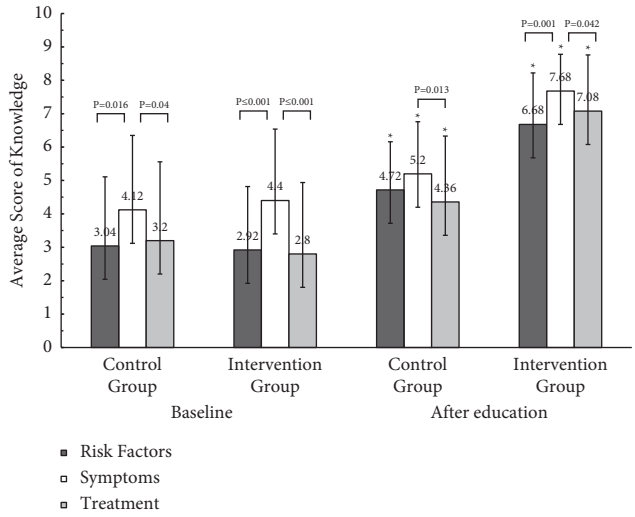

Figure 2: Average score to three aspects of risk factors, symptoms, and treatment about glaucoma by groups. p values of three aspects at the same time point in the same group were calculated using ANOVA and LSD. Paired samples t-test was used to compare the same aspect from the same group before and after education, and the symbol "*" indicates the statistical difference (all $p \leq 0.001$).

Table 3: Multiple linear regression between scores of knowledges and sociodemographic information.

Status	Models	Unstandardized Coefficients		Standard Coefficients	t	p value
		B	Standard error			
At baseline	Constant	6.617	1.061		6.236	**≤0.001**
	Education	0.888	0.421	0.190	2.109	**0.038**
	Family history of glaucoma	1.767	0.544	0.304	3.249	**0.002**
	No. of glaucoma clinic visits	0.372	0.154	0.225	2.424	**0.017**
After education	Constant	21.156	1.542		13.719	**≤0.001**
	Age	−0.125	0.025	−0.327	−5.070	**≤0.001**
	Duration of glaucoma	0.037	0.013	0.182	2.825	**0.006**
	Grouping	7.157	0.640	0.706	11.188	**≤0.001**

This table shows the linear regression of scores of knowledges about glaucoma. Patients with higher education level, more family history of glaucoma, and more visits to the clinic have higher scores of knowledges about glaucoma. However, older patients, patients with shorter duration of glaucoma, and patients grouping in conventional consultation have lower scores after education. The p values in bold represent statistically significant results ($p < 0.05$).

Multiple linear regression (Table 4) showed that patients with lower income levels, longer glaucoma duration, or those in the control group had higher STAI-6 scores ($p \leq 0.001$, 0.003, and 0.001, respectively).

Table 5 presents the satisfaction with the quality of overall hospitalization between the intervention and control groups. In the former group, 92% of the participants rated the program as very good, 82% believed that knowledge of glaucoma was easy to understand, and 70% were sure they would return for follow-up, which was significantly higher than that of the control group (all $p \leq 0.001$). The relationships between variables were explored using Spearman's correlation analysis (Table 6). Total knowledge scores were positively correlated with overall satisfaction and follow-up probability ($\rho = 0.636$ and 0.679, respectively; both $p \leq 0.001$) but were negatively correlated with the STAI-6 score ($\rho = -0.318$, $p = 0.001$). Meanwhile, the STAI-6 score had a negative correlation with overall satisfaction and follow-up probability ($\rho = -0.239$ and -0.272, respectively, both $p < 0.05$). Overall satisfaction with hospitalization had a positive impact on follow-up probability ($\rho = 0.565$, $p \leq 0.001$).

4. Discussion

This hospital-based study was based on the Uyghur population in Kashi area. Kashi is a county-level city in Northwest China, surrounded by 11 countries, with more than 80% of the population engaged in agricultural production. In our study, the education level and annual income of the enrolled patients were lower than those in other areas of China. 87% of their occupations were farmers or unemployed. In this rural area, we found that both groups achieved good knowledge retention and that the intervention group was superior to the control group. Moreover, patients who participated in the interactive program acquired greater knowledge, exhibited less stress, and reported better satisfaction.

The communication of information during hospitalization is a major issue in the general management of

Table 4: Multiple linear regression between STAI-6 score and sociodemographic information.

Models	Unstandardized Coefficients		Standard Coefficients	t	p value
	B	Standard error			
Constant	39.942	1.514		26.380	**≤0.001**
Income	−4.744	0.696	−0.520	−6.819	**≤0.001**
Duration of glaucoma	0.057	0.018	0.234	3.087	**0.003**
Grouping	−3.044	0.928	−0.249	−3.280	**0.001**

This table shows linear regression of STAI-6 score. Patients with higher income level, shorter duration of glaucoma, and grouping in interactive, multifaceted education have lower scores of STAI-6. The p values in bold represent statistically significant results ($p < 0.05$).

Table 5: Satisfaction with the quality of the overall hospitalization.

	Intervention ($n = 50$)	Control ($n = 50$)	χ^2	p value
Overall satisfaction				
Very good	46 (92%)	12 (24%)	47.996	**≤0.001**
Good	4 (8%)	27 (54%)		
Median	0	11 (22%)		
Poor	0	0		
The knowledge of glaucoma was easy to understand				
Strongly agree	41 (82%)	21 (42%)	17.452	**≤0.001**
Agree	9 (18%)	27 (54%)		
Disagree	0	2 (4%)		
Follow-up probability				
100%	35 (70%)	5 (10%)	43.863	**≤0.001**
75%	14 (28%)	23 (46%)		
50%	1 (2%)	22 (44%)		
<50%	0	0		

Data are expressed as number of cases (%). P values between intervention group and control group were calculated using χ^2-test. The p values in bold represent statistically significant results ($p < 0.05$).

Table 6: Correlation analysis between knowledge score, STAI-6 score, satisfaction, and follow-up probability after education.

Variables	Knowledge score	STAI-6 score	Overall satisfaction
STAI-6 score	−0.318 (**0.001**)		
Overall satisfaction	0.636 (**≤0.001**)	−0.239 (**0.017**)	
Follow-up probability	0.679 (**≤0.001**)	−0.272 (**0.006**)	0.565 (**≤0.001**)

Variables were analyzed using Spearman's correlation coefficient. The data in the table represent correlation coefficients ρ. The value in brackets is p. The p values in bold represent statistically significant results ($p < 0.05$).

glaucoma. The challenge is how ophthalmologists can help patients to understand and remember effectively. In health science education, students who participated in flipped classroom instructions agreed that social group activities motivated them to learn and improve their understanding of the course materials [17]. A previous study clearly demonstrated that the patients' ability to recall facts differed in the manner in which the material was presented, and the use of visual aids improved their ability to remember facts and risks beyond verbal presentation alone [18]. A population-based study in rural areas showed that the main way to acquire health knowledge is the traditional way, and different means of education should be adopted for different groups to achieve optimal results [19]. In consideration of the abovementioned findings, we integrated social group activities, video vignettes, and written documents to improve patient knowledge of glaucoma according to the characteristics of the rural Uyghur area in Northwest China. Although there was no significant difference in glaucoma knowledge between the two groups at admission, the score of the intervention group was significantly higher than that of the control group after teaching. This suggests that these interactive, multifaceted approaches are effective and applicable.

In our study, the knowledge of symptoms scored higher than that of risk factors and treatments in the two groups, whether there was interactive, multifaceted education or not. Our findings are consistent with those of previous studies. A study explored knowledge of stroke risk factors, symptoms, and treatment options and found that the level of stroke treatment knowledge in stroke patients seems to be poor [20]. Similarly, a study from Zhongshan Ophthalmic Center showed that knowledge of risk factors and treatments was more limited than knowledge-regarding symptoms [13]. We suspect that the symptoms of glaucoma include redness, eye pain, and decreased vision, which can be recognized by patients early in the disease progression. Knowledge of risk factors and

treatment options is highly profession-dependent and requires special education. Therefore, public campaigns should focus on information regarding risk factors and treatment options, which may contribute to identifying risk factors, reducing delayed diagnosis, and eliciting timely medical treatment.

Multiple linear regression analyses revealed the factors affecting the difference in awareness and knowledge, including educational level, family history of glaucoma, and number of glaucoma clinic visits. Participants with higher educational attainment, more family history, and more frequent clinic visits tended to score higher on our questionnaires at baseline. One study explored health knowledge awareness and its impact factors in western rural China and suggested that age, educational level, distance from home to the nearest medical institution, and annual disposable household income have a significant impact on the awareness and knowledge of illness [19]. In another study of the Uyghur population in southern Xinjiang, age, education level, and body mass index were significantly associated with low vision and blindness [4]. These studies have some similarities to our study. Patients with a higher level of education can acquire disease-related knowledge in a variety of ways, including traditional paper materials such as books, newspapers, and brochures, and new media such as websites, WeChat, and blogs. However, the education level of more than half of our enrolled patients was no higher than primary school. Hence, owing to the limited updating of media in Chinese rural areas, the design and promotion of personalized and suitable education methods for medical science are critical. Moreover, patients can learn more about glaucoma from family, friends, and doctors if they have a positive family history and more clinical visits. However, the majority of subjects in our study had no family history or clinical visits, and thus lacked knowledge of glaucoma. Fortunately, we found that after education during hospitalization, these influencing factors were eliminated, and age became the main factor affecting awareness and knowledge. Specifically, the scores of the elderly patients were lower than those of the young patients at discharge. There are several reasons for this finding. During hospitalization, a large amount of glaucoma education was provided. Owing to their low acceptance of the material and poor ability of understanding and memory, the elderly patients retained only limited knowledge, and their scores were lower than those of the young patients after education. Therefore, interactive, multifaceted education during hospitalization would be helpful in balancing the influence of education level, family history, and other factors in the rural districts of southwestern China.

Moreover, compared to the control group, the intervention group had less anxiety and higher satisfaction. A significant negative correlation was observed between anxiety and satisfaction. A previous study suggested that anxiety increases the risk of glaucoma progression and is associated with IOP profile and disc hemorrhage [21]. Therefore, we should strive to improve patient satisfaction, reduce anxiety, and refine glaucoma prognosis. Although our study also showed no significant correlation between knowledge and anxiety, the satisfaction of patients was obviously enhanced after interactive, multifaceted education, which indicated that a suitable education approach might be a good choice for them. According to another study, exogenous anxiogenic factors and internal factors, such as caffeine overuse, sleep deprivation, alcohol use, income level, family stress, and disease diagnosis, could also affect anxiety [22]. Clinical workers should also consider these factors to reduce anxiety and improve therapeutic outcomes. Incorporating an interactive, multifaceted educational approach to glaucoma care may promote effective communication between clinicians and patients and promote treatment adherence.

Our study had some limitations. First, it was based in a healthcare facility serving a limited region in southern Xinjiang and thus may not represent the general public in Northwest China. Second, the sample size was small and all enrolled patients were Uyghur; therefore, selection bias was inevitable. Third, as glaucoma is a lifelong and chronic disease, further studies are needed to investigate the applicability of our findings outside the hospital setting, including low vision rehabilitation, health self-management, and care for family members.

5. Conclusions

In conclusion, the interactive-learning module using a multifaceted approach with the integration of group activities, lectures, and workshops was an effective and applicable method to enhance Uyghur patients' awareness and knowledge of glaucoma in rural Northwest China. Delivering health information and decreasing anxiety levels can improve treatment adherence and patient satisfaction during hospitalization.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Ethical Approval

The study was approved by the Human Research Ethics Committee of the First People's Hospital of Kashi Prefecture (ethics No. 2021ksyd-24) and was registered with ClinicalTrials.gov (No. 2100050926). It adhered to the tenets of the Declaration of Helsinki.

Disclosure

The funding organizations played no role in the design or conduct of this research.

Conflicts of Interest

The authors have read and understood *Journal of Ophthalmology* policy on declaration of interest and declare that the authors have no conflicts of interest.

Authors' Contributions

JG, YZ, YM, and LX contributed to the conception of the study and took responsibility for and coordinated the study. JG and YZ contributed to the design of the study and took part in the data analysis. WH, JK, and ZL were involved in the data collection and took part in the data analysis. HW and RC took part in the interpretation of the results and contributed to the writing of the manuscript. JG, YZ, and AW took part in the abstraction and the writeup of the study. YZ supervised the whole study. All the authors read and approved the final manuscript. JG and YZ have contributed equally to this work.

Acknowledgments

This research was supported by the National Key Research and Development Project of China (2020YFA0112701) and the Science and Technology Program of Guangzhou, China (202206080005).

Supplementary Materials

Appendix A. This appendix is a comprehensive PowerPoint in English (PowerPoint version 2019, Microsoft Corporation, Redmond, Washington). It was used to present a lecture to define glaucoma, explain its causes and manifestations, and show treatment options for the patients in the intervention groups. Appendix B. This appendix is a 5-minute animated video vignette. Its format is ".mov" and its size is 82.4 MB. The content of the video is the same as that of the PPT and brochure, including the definition, manifestation, treatment, and other information of glaucoma. We use animation to make it easier for patients to obtain glaucoma information. Appendix C. This is a brochure, which includes the definition, manifestation, treatment, and other information of glaucoma. Because it was for Uyghur, it uses Uyghur. We have translated it into English accordingly. Appendix D. This is the questionnaire used in the study. The original questionnaire was in Chinese, and we have translated it into English and uploaded it. (*Supplementary Materials*)

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