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Feasibility, Patient Acceptability, and Preliminary Efficacy of a Culturally Informed, Health Promotion Program to Improve Glaucoma Medication Adherence Among African Americans: *"Glaucoma Management Optimism for African Americans Living with Glaucoma"* (GOAL)©

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Abstract

Purpose/Aims—To examine the feasibility, patient acceptability, and preliminary effectiveness of a culturally informed, health promotion program designed to improve glaucoma medication adherence among African American's (AA's) with glaucoma.

Materials/Methods—A sample of 11 AA glaucoma patients (mean age 61 years; 73% women and 27% men) completed a culturally informed and individually tailored, health promotion program developed for AAs titled, ***"Glaucoma Management Optimism for African Americans Living with Glaucoma"*** **(GOAL)©**. The aim of the brief 4-week program is to enhance glaucoma medication adherence through a combination of education, motivational interviewing (MI), and problem-solving training (PST). Feasibility was assessed on the basis of patient satisfaction with the program, number of sessions completed, and length of sessions. Preliminary efficacy was evaluated using a pre-post design to determine whether the program improved objective glaucoma medication adherence via an electronic Travalert dosing aid as well as satisfaction with aspects of glaucoma treatment, health beliefs about medications, glaucoma symptoms, emotional well-being, and intraocular pressure.

Results—Overall patient satisfaction and acceptability was high for the program, interactions with the health educator, program materials, and the length of sessions. Feasibility was also supported given the need for the program, success in recruitment/retention, and ease of implementing the program with AA glaucoma patients in clinic and/or over the telephone. In terms of preliminary efficacy, patients showed significant pre-post improvements in objective medication adherence rates by 15% (p = .03), self-efficacy for glaucoma management (p = .02), ease of use in administering eye drops (p = .03), glaucoma treatment satisfaction (p = .05), beliefs

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about the necessity of taking glaucoma medications (p = .05), and functional visual ocular symptoms (p = .03).

Conclusions—GOAL holds great promise toward improving glaucoma medication adherence and beliefs among AA's with glaucoma.

Keywords

Glaucoma; medication adherence; motivational interviewing; problem solving therapy; African Americans; health promotion programs; health beliefs; eye health

Successful management of open-angle glaucoma (OAG) or ocular hypertension (OHT) relies on regular ocular hypotensive eye drop medication adherence. However, many patients do not use glaucoma medications in the manner prescribed by ophthalmologists.[1] Recent findings have documented disproportionate rates of glaucoma non-adherence among African Americans (AA) in comparison to Caucasians.[1,2] While a few health promotion efforts designed to improve medication adherence have been investigated, several limitations exist in that they are either 1) developed and tested among predominantly Caucasian patient populations, 2) have shown significantly higher attrition rates among AA's compared to Caucasians, 3) utilize impersonal approaches (e.g., automated calls, text messages), 4) work to prepare readiness for change or provide education alone versus skill acquisition, 5) rely upon self-report measures of improvements of adherence, 6) utilize poor implementation fidelity, and/or 7) do not take into consideration variation of individual's circumstances influencing glaucoma medication management.[3–6] Thus, in order to reduce the health disparity gap in glaucoma medication adherence, there is a need for culturally and individually tailored health promotion programs that are designed to meet the needs of AA's living with glaucoma.[7,8]

Our group recently addressed this gap by using a formative research process to design a culturally informed, health promotion program for AA's to improve glaucoma medication adherence.[9] The first step consisted of conducting several focus groups of AA glaucoma patients and understanding the barriers and facilitators related to glaucoma adherence among this population. Results showed that the top five barriers included problems with 1) forgetfulness, 2) side effects, 3) cost/affordability, 4) eye drop administration, and 5) the eye drop schedule. The most salient top five facilitators were 1) fear or thoughts about the consequences of not taking eye drops, 2) use of memory aids, cues, or strategies, 3) maintaining a regular routine or schedule for eye drop administration, 4) ability to afford eye drops, and 5) keeping eye drops in the same area. The information, along with input from an AA consumer-based advisory board and our research team, was then used to develop program materials consistent with the AA culture, beliefs, values, and language (i.e., health educator manual, patient workbook/worksheets, educational resources) and to guide the selection of a theoretical framework for the development of the program.[9] The resulting health promotion program named **GOAL©**, ***"G****laucoma Management* ***O****ptimism for* ***A****frican Americans* ***L****iving with Glaucoma"*©, was based on a multi-component empowerment framework that included a combination of glaucoma education, motivational interviewing (MI), and problem-solving training (PST) to improve glaucoma medication adherence among AA's.

Building upon our previous work,[1,9] we examined the feasibility and preliminary efficacy of the program (**GOAL©**) on a sample of AA's who were non-adherent with their glaucoma medications. The main hypothesis was that those who underwent the program would experience improvements in objective medication adherence. A secondary hypothesis was to test whether persons who underwent the program also showed improvements in their health beliefs about glaucoma medications, satisfaction with glaucoma treatment, emotional well-being, and intraocular eye pressure (IOP), as well as reductions in glaucoma symptoms.

METHODS

Participants

This study was approved by the university's institutional review board for human use and adhered to the tenants of the Declaration of Helsinki. Participants were recruited from the Glaucoma Service, Department of Ophthalmology, University of Alabama at Birmingham (UAB). Eligibility criteria for study inclusion included: 1) AA, 2) age ≥ 21 years old, 3) diagnosed with open angle glaucoma in one or both eyes for at least 1 year minimum, 4) using, prescribed, or could be switched to a prostaglandin analog, 5) able to be prescribed Travatan, 6) English speaking; 7) cognitively oriented and able to communicate, and 8) adherent for only 75% or fewer administered doses of Travatan as measured by the Alcon Travalert electronic dosing aid (TDA; Travalert, Alcon, Fort Worth, TX). We decided upon 75% or fewer because in health behavior research, typically greater than 75 to 80% adherence rates are widely recognized as "acceptable" for many systematic medications.[10]

In terms of recruitment, we asked eye care providers to identify patients they considered as potentially non-adherent based on their previous interactions with patients. Once identified, a letter was mailed describing the study and was followed up by a telephone screening to identify patient interest in participating and eligibility.

Measures

Objective Medication Adherence—Participant adherence to Travaprost was measured using the TDA device. A dose was considered taken (adherence) if the lever of the electronic TDA was depressed at least once or more and recorded anytime within a 24-hour period (as determined from the TDA data). Non-adherence was defined as no recording of drops taken within a 24-hour period. Similar procedures have also been used when measuring adherence.[5,6] Information regarding amount of dose delivered and time was recorded, transferred, and then analyzed with Travalert software. The adherence rate was calculated as the ratio of the recorded number of adherent days to the total number of study days which served as the primary outcome for the study.

Sociodemographic and Medical History—Patient demographic data and self-reported medical history were collected. While we did not expect adherence to directly impact intraocular pressure (IOP) based on the conflicting findings in the literature,[11] we also collected IOP for OD and OS at each data collection visit using Goldman's applantation tonometry as part of this exploratory study.

Satisfaction with Glaucoma Treatment—Because patient satisfaction with glaucoma therapy affects adequate adherence to glaucoma management, we used the 22-item *Glaustat*[12] to assess patient satisfaction with aspects of glaucoma treatment. The questionnaire consists of seven domains: expectations and beliefs about treatment (Ex), ease of use (EU), efficacy (Ef), undesired effects (UE), impact on health-related quality of life (IH), medical care (MC), and general satisfaction with treatment (GS). Items are measured using a 5-point Likert scale with the following anchor points: "*strongly agree"* vs. "*strongly disagree"* and "*not at all*" vs. "*very much."* Resulting scores were rescaled to the metric 0 to 100 in such a way that a higher score reflects greater satisfaction with associated aspects related to glaucoma treatment. The *Glaustat* has been found to be reliable and structurally valid.[12]

Glaucoma Symptoms—We used the *Glaucoma Symptom Scale* (GSS)[13] to quantify visual and nonvisual symptoms which was developed from a modified version of a checklist used in the Ocular Hypertension Treatment Study. The GSS has 10-items that ask respondents whether they have experienced certain glaucoma symptoms in the prior 4 weeks and to what extent they were bothered by these symptoms. The questionnaire comprises 10 ocular complaints and consists of 2 subscales, one that identifies nonvisual ocular symptoms (6-items: burning/stinging, tearing, dryness, itching, soreness/tiredness, and feeling of something in the eye) and one that identifies visual ocular symptoms (4-items: blurry/dim vision, hard to see in daylight, hard to see in dark places, and halos around lights). For each eye, a 5-level score is generated, ranging from 0 (*complaint present and very bothersome"*) to 4 (*complaint absent*). Scores are then transformed to a 0 to 100 scale, with 0 representing presences of a very bothersome problem and 100 representing absence of a problem. The GSS subscale scores are an unweighted average of all items that comprise the particular subscale, averaged between the 2 eyes. Research has demonstrated support for the psychometric properties of the GSS.[13,14]

Health Beliefs and Illness Perception—The 18-item *Beliefs about Medicines Questionnaire (BMQ)*[15,16] was used to assess patients' beliefs about medications in general (*BMQ General*), and specific beliefs about a patient's own medications for specific diseases (*BMQ Specific*). The *Specific-Necessity* subscale measures beliefs about the necessity of prescribed medication (i.e., glaucoma), and the *Specific-Concerns* subscale measures concerns about prescribed medication based on beliefs abut the danger of dependence and long-term toxicity and disruptive effects on medication. The *General-Harm* assesses beliefs that medications are harmful, addictive, poisons that should not be taken continuously, and the *General-Overuse* subscale assesses the extent to which patients believe medications are overused by doctors. All items are rated on a 5-point Likert scale. Support for the reliability and criterion-related and discriminant validity among various populations with different diseases has been well-documented.[15,17,18]

Emotional Well-Being—We used the nine items of the *Patient Health Questionnaire-9* (PHQ-9) scale to assess depressive symptomatology.[19] The total score is calculated by summing each of the PHQ-9 items (range 0–27) with higher scores indicating the presence

of greater depressive symptomatology. The criterion, construct and external validity of the PHQ-9 have been well established using large medical samples.[20,21]

Satisfaction with Health Promotion Program—The Client Satisfaction Questionnaire (CSQ) [22] is an 10-item, 4 point, Likert-type scale, used to measure patient satisfaction with health care programs/interventions. Additionally, the measure includes a section in which respondents are asked to describe general feedback (positive or negative) regarding their experience in the program. This established measure of satisfaction with health care programs has internal consistency reliability coefficients of .80 with older adults[23] and studies have yielded internal consistency and test-retest reliability coefficients of .71 and . 89, respectively.

Procedure

Part 1 (run in phase)—For patients who were interested in enrolling, the study coordinator scheduled an in-clinic visit and obtained written informed consent. At the time of the visit, Travoprost bottles were supplied, free of charge to determine feasibility, to those already taking prostaglandin medications or those newly prescribed this class of drug, and the TDA was provided to patients. Similar to our other studies using the TDA, patients were instructed in using the electronic dosing aid to administer the drops as intended. The instructions were delivered by the study coordinator using a standardized protocol. This also allows the study coordinator to check for understanding and to observe and supervise actual patient administration of eye drops to enhance delivery accuracy. Instructions consisted of how to place a bottle of Travoprost in the electronic TDA and how to depress the lever to deliver a drop. All patients practiced using the electronic TDA under supervision of the project coordinator prior to starting the study. Each patient received 1 electronic TDA device and was instructed to administer the drops in either 1 or both eyes, depending on his or her ocular diagnosis. The lever on the electronic TDA squeezes the drop from the bottle and records the time and date of delivery on an internal battery-operated chip. Each device, prior to being handed out, contained a brand new battery. Patients were made aware that the device would record their drop-taking behavior. An acceptable level of accuracy for this device (75% or greater) monitoring drop-taking behavior has already been documented in the literature.[24] The study coordinator instructed subjects to bring their TDA device to the 1-month in-clinic follow-up visit.

Part 2—At the 1-month in-clinic visit (pre-program), the information from the electronic TDA was downloaded onto computer-based software, the battery was changed, and self-report questionnaires were administered to evaluate health beliefs regarding medications, glaucoma treatment satisfaction, glaucoma symptoms, and emotional well-being (pre-program assessment protocol). Additionally, patient's current IOP was assessed. The same measures were re-administered at the end of the completion in the health promotion program described in the next section (post-program assessment protocol).

The study coordinator invited subjects with 75% or fewer administered doses from part 1 to participate in part 2 of the study to determine the feasibility and preliminary efficacy of the health promotion program (N = 14; 93%). The data used for this determination included

values obtained during the 4 weeks starting 1 week after enrollment and ending 1 week before the 1-month in-clinic visit. Only these data were used because we wanted to minimize the chance of detecting significantly greater adherence rates just after a visit and just before a visit. This approach to assessing data 1 week after and prior to follow-up was used as patients have been found to improve their medication-taking behavior in the 5 days before or after an appointment with a health care provider, as compared with 30 days after, is a common phenomenon referred to as "white-coat adherence."[25,26]

Health Promotion Program

Following enrollment in part 2, all 14 participants were assigned to receive the culturally informed, health promotion-based program (Project **GOAL**) in order to determine the feasibility and preliminary efficacy of the program. The multi-component program is based on a combination of MI and PST developed by Dr. Dreer with additional content informed by a community-based advisory board.[9] The health educator (licensed clinical psychologist) met in person with patient in the glaucoma clinic for session 1. The sessions were individually tailored to each participant's unique barriers and facilitators to glaucoma medication adherence. Session 1 was conducted in-clinic and the remaining 3 sessions were conducted over the telephone. For an overview of the content covered session-by-session and development of **GOAL**©, see Dreer et al. (2013).

Statistical Analyses

To evaluate pre-post changes in objective medication adherence rates as well as other continuous study measures, paired samples *t*-tests were conducted. Frequencies were counted for patient satisfaction data and qualitative data were summarized.

RESULTS

Fourteen of the 15 AA patients who underwent the run-in phase (Part 1) met the definition for poor objective medication adherence. Of the 14 patients, 1 withdrew from the study due to other time commitments and family hospitalization, 1 did not complete the intervention within the time frame, and 1 completed all parts of the study including the program but inadvertently removed the battery during phase 2 from the TDA and thus had missing data at the post-intervention in-clinic follow-up. There was an 86% retention rate. Thus, the final sample (See Table 1) consisted of 11 AA's with glaucoma (*M* age = 61, *SD* = 7.02) who completed the entire study. Seventy-three percent were women (N = 8) and 27% were men (N = 3) and average years of education was 14 years (*SD* = 2.02). On average, most participants reported they had been diagnosed by a doctor with an average of 6 chronic health conditions including glaucoma. The most frequently occurring health conditions aside from glaucoma were hypertension (N = 10, 91%), digestive problems (N = 6, 55%), diabetes (N = 5, 45%), chronic pulmonary problems (N = 4, 36%), heart problems (N = 3, 27%), urinary problems (N = 3, 27 %) arthritis (N = 2, 18%), neurological problems (N = 2, 18%), and circulation problems (N = 2, 18%). Less frequent chronic health conditions included osteoporosis, kidney problems, and hearing impairment (N = 1, 9% respectively

Comparison of pre-post program measures are summarized in Table 2. The preliminary results revealed a significant improvement in objective medication adherence rates, $t(10) = -2.55$, $p < .03$, between baseline and post-intervention. The proportion of days adherent improved by 15% ($M = .46$ [$SD = .29$] at pre-program and $M = .62$ [$SD = .30$] at post-program). Significant improvements in secondary outcome measures were observed for self-efficacy for glaucoma management ($p = .03$), ease of use in administering eye drops ($p = .02$), glaucoma treatment satisfaction ($p = .05$), beliefs about the necessity of glaucoma medications ($p = .05$), and functional visual ocular symptoms. Perception of undesired medication side effects and expectancy and beliefs about treatment improved following the intervention but did not reach statistical significance ($p = .06$ and .08). No significant differences were found for changes in emotional well-being or IOP.

Patient acceptability with the program was also evaluated (See Table 3). Results showed that all patients (100%) were very satisfied with the amount of help they received and felt that the sessions helped them deal more effectively with the management of their glaucoma medications. The majority of participants responded that the *quality of the services* were "good" (N = 3, 27%) to "excellent" (N = 8, 73%), were "very satisfied" with *the amount of help received* during the weekly program sessions (N = 11, 100%), that they *received the kinds of services* they wanted (N = 10, 91% "definitely"; N = 1, 9% "yes, generally"), would *recommend the program to a friend* managing glaucoma (N = 10, 91% "yes, definitely"; N = 1, 9%), would *return to the program if needed in the future* (N = 9, 82% "yes, definitely"; N = 2, 18% "yes, generally"), were *satisfied, in general, with weekly calls* (N = 9, 82% "very satisfied"; N = 2, 18% "mostly satisfied"), *satisfied with program materials/ workbooks* (N = 10, 91% "yes, definitely"; N = 1, 9% "yes, generally"), and *recommended that glaucoma eye care providers distribute materials* in their clinics (N = 10, 91% "yes, definitely"; N = 1, 9% "yes, generally"). Lastly, while the majority of participants reported that their *needs/problems had been met* (N = 9, 82% "almost all of my needs have been met"), two participants reported "only a few of my needs have been met" (18%).

The majority of participants made positive qualitative comments about the program. See last row of Table 3 for specific comments which are bulleted and in quotation marks. In summary, patients made comments in that they felt their knowledge regarding glaucoma and medication management was enhanced, they appeared to enjoy the program and interactions with the health educator, felt the materials were informative, indicated that eye care providers should be sharing the program materials with patients, particularly earlier in the disease process. Only one patient made a statement indicating the materials were not helpful or relevant to them. However, this patient did show improvement on medication adherence (43% adherence to 64% post-program).

DISCUSSION

In this study, we demonstrated preliminary feasibility, patient acceptability, and efficacy for the culturally informed, health promotion program (**GOAL©)** for improving glaucoma medication adherence rates among a pilot group of AA's patients with POAG with a history of suspected poor adherence. In terms of feasibility, a clinical psychologist health educator was able to successfully deliver the program in a busy glaucoma clinic and over the

telephone. Recruitment and data collection, which occurred in a small room of the glaucoma clinic that was dedicated to the study, did not interfere with the patient flow of the clinic. A good rapport was established beforehand between clinic staff and the researchers by briefly meeting together one time during clinic down time to discuss the purpose of the project, the study protocol, and coordination of efforts for data collection conducted by clinic staff (e.g., IOP) and research personnel (e.g., self-report questionnaires, objective medication adherence data). Successful recruitment, retention, ease of data collection, and positive interactions with staff within the context of a busy glaucoma clinic further supports the feasibility for this protocol. Preliminary patient acceptability was also demonstrated in that AA patients who were non-adherent were interested in enrolling in such a program, and were very satisfied with the program materials and content, quality of services, interactions with a clinical psychologist health educator, length of the sessions, and would recommend to others in similar circumstances. In terms of preliminary efficacy, AA patients who were poor adherers showed significant improvements in objective glaucoma medication adherence rates by 15%. This improvement is encouraging as such a program might help reduce health disparities for glaucoma medication adherence among this vulnerable population. There were also improvements with self-reported ease of administration, glaucoma treatment satisfaction, beliefs about the necessity of glaucoma medications, and reductions in functional glaucoma symptoms. An important requirement for chronic health conditions is that patients must be empowered and motivated to take an active role in their care.[9,27] Thus, the parallel improvements in actual behavior (objective adherence) and attitudes/beliefs were encouraging. The next step extending upon this work is to further evaluate the impact of the program using a more rigorous randomized control trial (RCT) with a larger sample size and greater follow-up duration.

These results highlight the importance of integrating clinical psychologist health educators into busy glaucoma clinical practices and routine eye care services. Information obtained from the qualitative comments reinforce the value of clinical psychologists in preparing patients for change (e.g., adherence to routine glaucoma medication management), delivering glaucoma health education, challenging health beliefs, training patients in the application of coping strategies, and developing positive therapeutic alliance to help empower among AA's to manage glaucoma. This effort may be particularly useful early on during the disease process as recommended in the comments reported by AA patients. Clinical psychologists with a behavioral health background play an important role in helping patients, in general, to prepare patients for changing health behaviors, learning strategies to manage chronic health conditions (i.e., medications), and overcoming barriers related to living with a chronic condition. Furthermore, they are well positioned to serve as critical members of multidisciplinary approaches to eye care services and are well trained to deliver such programs given their training in behavioral health, health behaviors, and psychological and cognitive functioning. Integrating such educators into multidisciplinary health care services has been widely adopted into other contemporary clinics treating a wide variety of chronic diseases (i.e., diabetes, obesity, hypertension, AIDS, prostate cancer) with much success and have been found to be well accepted when interventions are culturally tailored.[28,29] Health and behavioral CPT codes exist to categorize patient education and

psychological treatment for disease self-management strategies and is a reimbursable service providing a feasible pathway for implementation of the system.

Delivering health promotion interventions takes time to adequately and effectively implement with patients and for patients to practice new skills needed for meaningful changes in behavior. Given that glaucoma patients typically return for follow-up visits over a 6-month period and that the focus of eye care provider interactions is typically centered around medical treatment (medication management, surgery), eye care providers may not have the time to adequately implement these strategies on a regular and consistent basis. This may represent an even greater concern among patients with numerous barriers and/or other health or psychiatric complications (i.e., depression, diabetes).

While the study findings were promising, the study included several limitations. First, we used a small sample size and requirement that patients had to be prescribed Travatan given the electronic TDA only works with that particular medication were both limitations to the generalizability of findings. However, it should be noted that Travatan is commonly prescribed for glaucoma medication management. Future studies with larger samples and different regions will help build upon these initial findings. Second, all patients received glaucoma medication samples at no cost, thus cost was not a factor. Future studies are warranted to evaluate the impact of the program when cost is not temporarily removed as a barrier in order to further examine the impact of the program on overcoming this salient obstacle. Third, in order to determine the true effectiveness, an RCT is needed with a control group to build upon this formative research. Despite these limitations, the preliminary results supporting **GOAL©** are very promising and warrant future work in this area.

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Table 1

Demographic Characteristics of Non-Adherent, African American Glaucoma Patients.

Demographic Variables	***M*(*SD*) or n (%)**
Age (*M/SD)*	61 years (7.02)
Gender, *n(%)*	
Women	8 (73%)
Men	3 (27%)
Total Years of Education (*M/SD*)	13.91 (2.02)
Marital Status	
Single/never married	2 (18%)
Married	6 (55%)
Divorced	1 (9%)
Widowed	2 (18%)
Employment Status, *n(%)*	
Retired	5 (45%)
Disability	1 (9%)
Employed Full-Time	3 (27%)
Employed Part-Time	1 (9%)
Unemployed	1 (9%)
Annual Household Income, *n(%)*	
Less than $15,000	2 (18%)
$15,000 to less than $25,000	1 (9.09%)
$25,000 to less than $35,000	2 (18.18%)
$35,000 to less than $50,000	3 (27.27%)
$50,000 to less than $75,000	2 (18.18%)
$100,000 or more	
Unknown or not reported	
Total number of chronic health conditions	6 conditions (*SD* = 1.97)
Heart problems (e.g., heart attack, pacemaker, open heart surgery)	3 (27%)
Circulation problems (e.g. arteriosclerosis, atherosclerosis)	2 (18%)
High blood pressure	10 (91%)
Low blood pressure	0 (0%)
Neurological problems (e.g. stroke, Parkinson's)	2 (18%)
Diabetes	5 (45%)
Arthritis	2 (18%)
Osteoporosis	1 (9%)
Cancer	1 (9%)
Chronic Pulmonary problems (e.g. emphysema, asthma)	4 (36%)
Digestive problems (e.g. stomach ulcer, gastrointestinal problems)	6 (55%)

Demographic Variables	***M*(*SD*) or n (%)**
Urinary problems (e.g. urinary tract infections, incontinence)	3 (27%)
Kidney problems	1 (9%)
Hearing impairment	1 (9%)
Visual impairment (e.g., glaucoma and/or other eye diseases)	11 (100%)

Table 2

Pre-Post Program Changes in Outcome Measures (N = 11).

Variables	*Baseline M(SD)*	*Post-treatment M(SD)*	*Mean Difference*	*p value*
Objective medication adherence rate	0.46 (.29)	0.62 (.30)	−0.15	0.03*
Satisfaction with glaucoma treatment (Glaustat)				
Undesired Medications	69.89 (21.98)	86.93 (13.24)	−17.05	0.06
General Satisfaction	90.91 (12.61)	98.48 (5.03)	−7.58	0.05*
Expectations and Beliefs about Treatment	86.36 (17.59)	96.21 (7.78)	−9.85	0.08
Ease of Use	66.67 (25.00)	85.61(26.90)	−18.94	0.03*
Efficacy	79.55 (24.26)	94.70 (13.06)	−15.15	0.02*
Impact on Health-Related Qualify of Life	78.03 (19.82)	86.36 (20.50)	−8.33	0.33
Medical Care	90.91 (12.61)	94.70 (11.94)	−3.79	0.27
Total Score	79.86 (11.02)	91.63 (9.94)	−11.78	0.01*
Beliefs about medications (BMQ)				
Specific-Necessity	19.09 (5.49)	22.45 (4.34)	−3.36	0.05*
Specific-Concerns	11.09 (4.81)	8.00 (4.47)	3.09	0.13
General-Overuse	11.00 (3.66)	8.73 (4.71)	2.27	0.14
General-Harm	9.27 (5.44)	8.09 (5.50)	1.18	0.61
Glaucoma symptoms (GSS)				
Symp-6	71.21 (20.54)	75.00 (26.15)	−3.79	0.60
Func-4	75.00 (23.72)	84.66 (17.98)	−9.66	0.03*
GSS Total score	72.73 (16.90)	78.86 (21.72)	−6.14	0.14
Emotional well-being (PHQ-9)	3.27 (4.22)	2.18 (2.27)	1.09	0.27
IOP				
OS	15.82 (3.84)	16.09 (4.43)	−0.27	0.76
OD	15.82 (4.42)	15.91 (4.21)	−0.09	0.93

Note. GSS = Glaucoma Symptom Scale; Symp-6 = Nonvisual Ocular Symptoms; GSS Func-4 = Visual Ocular Symptoms; PHQ-9 = Patient Health Questionnaire 9-Item; IOP = Intraocular pressure.

Table 3

Patient Acceptability of the Health Promotion Program (GOAL).

Satisfaction with Health Promotion Program Ratings	
Have the sessions you received helped you to deal more effectively with your management of glaucoma medications?	
No, they seemed to make things worse	0 (0%)
No, they really didn't help	0 (0%)
Yes, they helped somewhat	0 (0%)
Yes, they helped a great deal	11 (100%)
How would you rate the quality of the program sessions you received?	
Poor	0 (0%)
Fair	0 (0%)
Good	3 (27%)
Excellent	8 (73%)
How satisfied are you with the amount of help you received during the weekly program sessions?	
Quite dissatisfied	0 (0%)
Indifferent or mildly dissatisfied	0 (0%)
Mostly satisfied	0 (0%)
Very satisfied	11 (100%)
Did you receive the kind of services you wanted?	
No, definitely not	0 (0%)
No, not really	0 (0%)
Yes, generally	1 (9%)
Yes, definitely	10 (91%)
If a friend were in need of similar help, would you recommend this program to him or her?	
No, definitely not	0 (0%)
No, not really	0 (0%)
Yes, generally	1 (9%)
Yes, definitely	10 (91%)
In an overall, general sense, how satisfied are you with the weekly, glaucoma health telephone calls you received?	
Quite dissatisfied	0 (0%)
Indifferent or mildly dissatisfied	0 (0%)
Mostly satisfied	2 (18%)
Very satisfied	9 (82%)
How satisfied are you with the materials/workbooks you received?	
No, definitely not	0 (0%)
No, not really	0 (0%)

Satisfaction with Health Promotion Program Ratings	
Yes, generally	1 (9%)
Yes, definitely	10 (91%)
Would you recommend our eye care providers distribute the materials you received to patients in our glaucoma clinic?	
No, definitely not	0 (0%)
No, not really	0 (0%)
Yes, generally	1 (9%)
Yes, definitely	10 (91%)
If you were able to seek help again, would you come back to this program?	
No, definitely not	0 (0%)
No, not really	0 (0%)
Yes, generally	2 (18%)
Yes, definitely	9 (82%)
Extent to which the sessions met your needs?	
None of my needs have been met	0 (0%)
Only a few of my needs have been met	2 (18%)
Most of my needs have been met	0 (0%)
Almost all of my needs have been met	9 (82%)

Satisfaction with Health Promotion Program Ratings

Do you have any comments or feedback about the program or your experience in the program?

- "Doctors should encourage patients to read this information. This is a missing link between diagnosis from doctor and taking information home, actual education. This health information would be very beneficial to patients to help them understand their glaucoma and how best to help themselves with their eye impairment."
- "Can I buy one of those dosing aids? The audible reminder really helped me remember to take my drops. I enjoyed talking with the health educator. She was a good listener and made good suggestions related to what I was talking about. Very helpful."
- "It was a good program."
- "I enjoyed pamphlets about medications available for glaucoma and the side effects of medications. I didn't know they were available to patients."
- "I was forgetting to take 2nd drop of Travatan. I thought I had to wait 1 hour before taking 2nd drop and by then, I would have forgotten."
- "I've learned that I need to be organized, and I need to accept my vision impairment, and plan each day-have a schedule."
- "I enjoyed talking with the health educator. If patients would read this information up front, they would know how important it is to do what the doctor said. Even a video or CD of this information would be great. I was not taking my medications correctly."
- "I liked it all. Some things I wasn't aware of."
- "They were very informative and the health educator was nice to talk with."
- "They were very helpful to me, and the discussions were very helpful."
- "The conversations gave me insight into my glaucoma. The health educator was very patient with me and answered my questions. I learned a lot about managing my glaucoma and my eyes."
- "They were good. I enjoyed talking with the health educator."
- "The calls were very helpful. I couldn't wait to talk to the health educator. I didn't realize how individual glaucoma is for each person."
- "I didn't find the materials helpful. It wasn't me."
- "I have researched my glaucoma before. The workbook was excellent and reinforced my knowledge. I learned more than I knew already."
- "I got to look forward to these calls. I hate that they ended."