

Drug Attitude and Adherence to Anti-Glaucoma Medication

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Purpose: The purpose of this study is to assess patient attitudes towards anti-glaucoma medication and their association with adherence, visual quality of life, and personality traits. **Materials and Methods:** One hundred and forty-seven glaucoma patients were enrolled this study. The participants were divided into 'pharmacophobic' and 'pharmacophilic' groups according to their scores on the Modified Glaucoma Drug Attitude Inventory (MG-DAI). To establish a correlation with patient drug attitude, each group had their subjective drug adherence, visual quality of life, and personality traits examined. For personality traits, the Myers-Briggs Type Indicator (MBTI) was used to sub-classify each group. **Results:** Among the patients analyzed, 91 (72.80%) patients showed a 'pharmacophobic' attitude and 34 (27.20%) patients showed a 'pharmacophilic' attitude. The pharmacophobic group tended to have worse adherence than the pharmacophilic group. Personality dichotomies from the MBTI also showed different patterns for each group. **Conclusion:** In glaucoma patients, pharmacological adherence was influenced by their attitude towards drugs; an association might exist between drug attitude and underlying personality traits.

Key Words: Adherence, drug attitude, glaucoma, personality

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INTRODUCTION

Glaucoma is one of the most common causes of blindness in the industrialized world.¹ The World Health Organization estimates that the global rates of glaucoma and glaucoma-related disability are above 6.4 million,^{1,2} and that by 2020 the number of cases will double to 12 million with an aging population.¹

Glaucoma affects quality of life through visual deterioration as well as through its treatment, which can require a demanding, lifelong multi-drug regimen. However, given the asymptomatic nature of the disease, patients are provided little motivation to maintain this lifelong therapeutic regimen and are at a high risk of non-adherence.³

There have been few reports in the literature examining the reasons for poor adherence with anti-glaucoma medication. None of the common, intuitively determined factors such as age, gender, level of education, severity of the disease, and fear of blindness were found to consistently correlate with non-adherence.⁴⁻⁷ Factors hitherto found to have a correlation with non-adherence include patient's knowledge and poor understanding of the disease, increased regimen complexity, and problems in doctor-patient relationships.⁸⁻¹¹ When it comes to adherence issues and psychiatric profiles in the management of glaucoma, personality structure has been correlated with acceptance of the disease and subsequent cooperation with treatment, while depression has been reported to be associated with glaucoma.^{12,13} Even though there are few studies investigating the association between the personality of glaucoma patients and their adherence,

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they are too complicated to apply directly for the routine clinical setting.

The aim of the present study was to assess patient attitude towards anti-glaucoma medication and its association with adherence, visual quality of life, and personality traits.

MATERIALS AND METHODS

Participants

The study protocol was approved by the Institutional Review Board, Severance Hospital, Yonsei University College of Medicine, Seoul, Korea and adhered to the tenets of the Declaration of Helsinki. This cross-sectional study consecutively enrolled 147 confirmed glaucoma patients who were routinely managed for glaucoma by our department, or who were referred by primary ophthalmologists to confirm the diagnosis. We excluded patients with a previous history of acute angle-closure attack and other ophthalmic conditions that may affect the management of glaucoma. No participants had a history of psychotic illness, current alcohol and/or drug abuse, dementia, or had taken psychoactive drugs prior to the day they were interviewed. Baseline demographic and clinical information were collected for each participant.

Modified Glaucoma Drug Attitude Inventory (MG-DAI) classification

The drug attitude inventory (DAI) scale was originally invented for the purpose of categorizing patients taking anti-psychotic drugs based upon their attitudes towards medication (pharmacophilic vs. pharmacophobic).^{14,15} In this study, each item of the questionnaire was not only translated into Korean but was also modified for patients taking anti-glaucoma medication (Supplement 1). The item and factorial content, validity, and reliability of the DAI are described elsewhere.¹⁴ And all questionnaires were administered by a skilled research assistant.

The Modified Glaucoma Drug Attitude Inventory (MG-DAI) assigns scores of either +1 (positive attitude) or -1 (negative attitude) to each of the total 30 items, allowing the score total to range from -30 to +30. For every patient, it was ensured that each item was given a score. Those who had total scores of more than 0 were classified as “pharmacophilic” and those with negative scores were classified as “pharmacophobic”.

We grouped the study population according to their attitude towards medication as presented by the above MG-DAI. Then, associations of pharmacophilia or pharmacophobia with the 3 categories listed below were determined.

Subjective Drug Adherence Score

A subjective adherence score was assessed by asking each participant during the interview to name the number of times per week he/she has missed out on the dosing schedule. A grading system was employed from a scale of 1 for poorest adherence to 5 for best adherence (Supplement 2).

Modified National Eye Institute Visual Functioning Questionnaire-25 (NEIVFQ-25) for Koreans

The 25-item National Eye Institute Visual Functioning Questionnaire (NEIVFQ-25) version 2000 is a questionnaire assessing eleven dimensions of visual function and has been proposed as a means to determine the efficacy of treatment for different ocular conditions.¹⁶⁻¹⁸ The questionnaire has been translated into many languages, but not yet into Korean. We therefore translated the original 25 questions and modified the context into a Korean version (Supplement 3). Due to language constraints and local differences in culture, the questions were slightly modified.

Myers-Briggs Type Indicator (MBTI) Form GS

The Myers-Briggs Type Indicator (MBTI) is a self-report form originally developed by Myers and Briggs and translated into Korean by Sim.¹⁹ It is designed to assess normal personality traits as a psychometric instrument. This indicator was chosen because it assesses differences that result from the way people perceive information and how they prefer to use that information. Individuals fall into four dichotomous personality dimensions based upon their scores. There are eight categorical personality types: Introversion/Extroversion, Sensing/iNtuition, Thinking/Feeling, and Judging/Perceiving. The validity and reliability of the Myers-Briggs Type Indicator (MBTI) have been proven, and the test has been widely used to examine personality profiles in Korea.²⁰ The preference scores of the four dichotomies were used for analysis in the present study.

The patient population was first divided into pharmacophobic or pharmacophilic groups as determined by the MG-DAI as described above. Then, associations between the above drug attitudes and 1) subjective drug adherence scores, 2) each sub-category of the Modified NEIVFQ-25, and 3) each of the 4 personality dichotomies from the MBTI were sequentially determined.

Statistical analysis

Chi-square tests, Student t-tests, and Mann-Whitney U tests were used for univariate analyses. And Spearman's rank correlation coefficient (ρ) was computed to determine the relationship between MG-DAI and subjective drug adherence scores. All statistical analyses were carried out using SPSS 12.0 software (SPSS Inc, Chicago, IL, USA) for Windows.

RESULTS

Initially, 147 consecutive patients were enrolled in this study. Of these, 22 patients refused the interview and were excluded from further analyses. Ten patients declined because they had an aversion to any clinical study and another twelve patients declined because they were pressed for time.

The patients' demographic characteristics are shown in Table 1. Ninety-one (72.80%) patients had a 'pharmacophobic' attitude and thirty-four (27.20%) showed a 'pharmacophilic' attitude to anti-glaucoma medications. Mean MG-DAI scores of the pharmacophobic group were -7.42 ± 4.39 and those of the pharmacophilic group were 1.74 ± 2.96 ($p < 0.001$). There were no significant differences between the two groups for age, gender, number of medications, disease duration, or visual field indices.

Subjective drug adherence scores were compared using the Chi-square test (Table 2). As one would predict, the pharmacophobic group tends to have worse adherence than the pharmacophilic group. In the pharmacophobic group, 46.15% of patients missed their medication fewer than 1 to 2 times per month, while 70.59% of patients in the pharmacophilic group showed the same level of adherence.

To investigate the relationship between the MG-DAI and the subjective drug adherence scores, Spearman's rank correlation coefficient (ρ) was determined (Fig. 1). Little

association was found between them ($\rho = 0.177, p = 0.049$).

Each subscale in the Modified NEIVFQ-25 for Koreans was compared within the two groups and is shown in Table 3. No subscale shows a sharp distinction between the two groups. Although the scores for mental health seem to be slightly different, it was not statistically significant ($p = 0.115$). It revealed that the drug attitude might be not determined by the patient's visual function.

Personality dichotomies from the MBTI are shown in Table 4. In the pharmacophobic group, there were many more patients with an 'Introversion' trait (63.74%) than with an 'Extroversion' trait (36.26%), but the pharmaco-

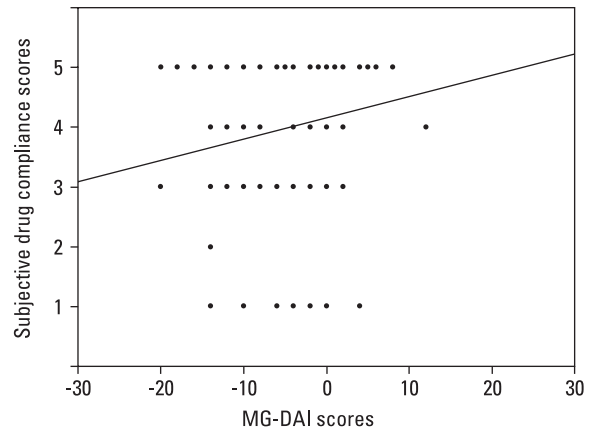


Fig. 1. Relationship between the Modified Glaucoma Drug Attitude Inventory (MG-DAI) scores and the subjective drug adherence scores.

Table 1. Patient Demographics according to Patient Attitude Towards Anti-Glaucoma Medication

	Pharmacophobia (n = 91)	Pharmacophilia (n = 34)	Comparison of the two groups	p value
Age (yrs)	57.08 ± 13.69	61.90 ± 13.60	T	0.104
Gender (M : F)	47 : 44	17 : 17	χ ²	0.870
No. of anti-glaucoma medications	1.67 ± 1.00	2.11 ± 1.71	T	0.305
Disease duration (months)	27.59 ± 28.65	33.41 ± 32.29	T	0.510
MD on VF (dB)	-8.92 ± 8.56	-10.32 ± 18.65	T	0.616
PSD on VF (dB)	6.26 ± 4.20	5.18 ± 3.84	T	0.105
DAI scores	-7.42 ± 4.39	1.74 ± 2.96	Mann-Whitney U	< 0.001*

DAI, drug attitude inventory scale; F, female; M, male; MD, mean deviation; PSD, pattern standard deviation; VF, visual field.
* $p < 0.05$.

Table 2. Subjective Drug Adherence Scores according to Patient Attitude Towards Anti-Glaucoma Medication

Scores	Pharmacophobia (n = 91)	Pharmacophilia (n = 34)	Comparison of the two groups	p value
1 (miss more than 3 - 4 times/wk)	14 (15.38%)	2 (5.88%)		
2 (miss 3 - 4 times/wk)	1 (1.10%)	0 (0.00%)		
3 (miss 1 - 2 times/wk)	17 (18.68%)	3 (8.82%)	χ ²	0.019*
4 (miss 1 - 2 times/month)	17 (18.68%)	5 (14.71%)		
5 (miss less than 1 - 2 times/month)	42 (46.15%)	24 (70.59%)		

* $p < 0.05$.

Table 3. Modified National Eye Institute Functioning Questionnaire-25 (NEIVFG-25) Shown for Each Category according to Patient Attitude Towards Anti-Glaucoma Medication

	No. of items	Pharmacophobia (n = 91)	Pharmacophilia (n = 34)	Comparison of the two groups	p value
General health	1	49.15 ± 22.25	48.28 ± 19.97	Mann-Whitney U	0.806
General vision	2, 3	43.93 ± 25.42	38.36 ± 24.87	Mann-Whitney U	0.280
Ocular pain	4	63.10 ± 26.74	58.33 ± 30.32	Mann-Whitney U	0.441
Near activities	5 - 7	65.04 ± 31.72	59.30 ± 28.96	Mann-Whitney U	0.287
Distance activities	8, 9, 14	64.86 ± 30.91	60.06 ± 31.31	Mann-Whitney U	0.331
Social functioning	11, 13	79.24 ± 25.59	77.16 ± 25.34	Mann-Whitney U	0.660
Mental health	22, 23, 25	84.74 ± 61.59	76.15 ± 29.75	Mann-Whitney U	0.115
Role difficulties	19, 20	66.67 ± 28.74	63.39 ± 27.37	Mann-Whitney U	0.298
Dependency	21, 24	87.93 ± 22.45	89.29 ± 21.24	Mann-Whitney U	0.871
Driving	16 - 18	75.38 ± 28.14	75.00 ± 25.35	Mann-Whitney U	0.649
Color vision	12	83.93 ± 24.12	82.76 ± 23.25	Mann-Whitney U	0.642
Peripheral vision	10	71.88 ± 29.56	65.52 ± 29.44	Mann-Whitney U	0.259

Table 4. Myers-Briggs Type Indicator (MBTI) Profile Shown according to Patient Attitude Towards Anti-Glaucoma Medication

	Pharmacophobia (n = 91)	Pharmacophilia (n = 34)	Comparison of the two groups	p value
Extroversion : Introversion	33 : 58 (36.26% : 63.74%)	23 : 11 (67.65% : 32.35%)	χ^2	< 0.001*
Sensing : iNtuition	75 : 16 (82.42% : 17.58%)	24 : 10 (70.59% : 29.41%)	χ^2	< 0.001*
Thinking : Feeling	72 : 19 (79.12% : 20.88%)	18 : 16 (52.94% : 47.06%)	χ^2	0.007*
Judging : Perceiving	59 : 32 (64.84% : 35.16%)	29 : 5 (85.29% : 14.71%)	χ^2	0.029*

*p<0.05.

Table 5. Selected Items of Modified Glaucoma Drug Attitude Inventory (MG-DAI) to Distinguish between Pharmacophobic and Pharmacophilic Groups

No. of item	Question	Answer
2	I feel that the benefits of anti-glaucoma medication outweigh the disadvantages.	T F
6	I am fully aware of the pharmacological effects of all of my prescribed medication(s).	T F
9	Medication(s) make me feel more relaxed.	T F
12	Medication(s) makes me feel tired and sluggish.	T F
14	Medications are slow-acting poisons.	T F
15	I get along better with people when I am on my medication(s).	T F
16	I cannot seem to concentrate on anything when I am taking my medication(s).	T F
18	I feel that my eyes are getting better when I am on my medication(s).	T F
21	My thoughts are clearer on medication(s).	T F
26	I am happier and feel better when I am taking my medication(s).	T F
29	I am in better control of myself when I am taking my medication(s).	T F
30	By staying on medication(s) I will prevent my eyes from being further damage.	T F

F, false; T, true.

philic group showed results that were the exact opposite (Introversion, 32.35%; Extroversion, 67.65%) ($p < 0.001$). For both groups, patients tended to be more in the 'Sensing', 'Thinking', and 'Judging' dichotomies than the 'iNtuition', 'Feeling', and 'Perceiving' dichotomies, respectively. However, component ratios were significantly different. In the pharmacophobic group, there was a relatively higher proportion of patients who were Sensing and Thinking and a relatively lower proportion of patients who were Judging when compared with the pharmacophilic group. It meant that the drug attitude might be influenced by the patient's personal character.

To select the proper items that help distinguish the two groups, each item of the MG-DAI was analyzed (Supplement 4). Twelve items (Item No. 2, 6, 9, 12, 14, 15, 16, 18, 21, 26, 29, and 30) showed a clear difference between the two groups. These selected items are shown in Table 5.

DISCUSSION

A high rate of non-adherence is prevalent amongst patients with various chronic medical disorders for which the benefits of treatment are not immediately apparent.²¹⁻²⁷ Several reports have mentioned that there is no identifiable type of patient based on demographic or clinical characteristics that is predictive of compliant behaviour.³⁻¹¹ Several reports have remarked on the influence personality traits may have on drug adherence issues in chronic medical conditions.²⁸⁻³⁰ Therefore, the purpose of the present study was to expand on the variables that may possibly be linked with adherence, with a focus on psychological features that could lead to better identification of the noncompliant glaucoma patient.

In a recent study, Pappa, et al.³¹ reported on personality traits and psychiatric profiles of non-compliant glaucoma patients. They found that a significant proportion of non-compliant patients with glaucoma (59.5%) were at risk for psychiatric morbidity and recommended a formal psychiatric evaluation. Moreover, they found that depression was a significant risk factor for non-adherence with glaucoma treatment. In another report, designed to identify factors that influence attitudes towards psychopharmacological treatment in patients diagnosed with schizophrenia, the authors divided the patients according to their attitude and attempted to correlate it with adherence issues.¹⁵ This study was designed, with the aforementioned reports in mind, specifically for patients with glaucoma.

This report is based on the underlying assumption that a negative attitude towards pharmacological treatment will result in decreased adherence. Patients were divided into two groups based upon their attitude towards pharmacolo-

gical treatment and were given a subjective adherence test. According to the present study, MG-DAI scores did not significantly correlate with subjective drug adherence scores; however, there was a significantly higher proportion of glaucoma patients who had a negative attitude towards drugs rather than positive and the greater the patient's phobia, the more non-compliant he/she was. The discordance between drug attitude and subjective adherence implies that at least some patients, even though they had a negative pharmacological attitude, were still compliant and vice versa. The rates of non-adherence, however, may actually be higher because patients are likely to underreport the times they failed to take their medication when questioned.³²⁻³⁵ And, we should pay attention to the twenty-two (14.97%) patients who refused any interview because their personal traits seems to somewhat influence their decision.

The impact of daily visual function on adherence was measured with the Modified NEIVFQ-25. Each of the subscales quantified by the questionnaire did not show any significant correlation with pharmacological adherence. Only mental health showed potential as a possible distinguishing factor between the two groups.

The possible influence of individual personality traits on MG-DAI was assessed with the MBTI. There appeared to be more introverts in the pharmacophobic group. Both groups had fewer patients who fit into the iNtuition dichotomy than into Sensing, but the phobic group had an even smaller percentage. Also, there were more patients in the Thinking dichotomy for both groups, but the phobic group had a larger percentage than the philic group in this dichotomy. Conversely, although both groups had more patients in the Judging category, the phobic group had fewer patients belonging to this category. The question of interpreting these results by comparing MG-DAI with MBTI needs to be answered at a later date.

Also, this report attempted to modify the original DAI questionnaire to suit glaucoma patients, and thus the original questionnaire was not only interpreted but simplified to meet these criteria. The authors hereby propose a new, modified version of the MG-DAI with 12 items (Table 5).

By introducing a concept of drug attitude, we tried to make a different approach to adherence in glaucoma patients. We excluded the patients who had previous ocular trauma history or received any ocular surgeries to remove any unexpected impact, but there is a chance that we have natural selection bias. It is possible that some patients who were hateful or afraid of medications might already undergo a certain surgical procedure. This is one limitation of our study. In addition, many other factors, such as doctor-patient relationship and patient's understanding of the disease, may influence drug attitude and/or adherence. Clinicians should be concerned with all these things.

In conclusion, according to the results of this study, pharmacological adherence was influenced by the attitude towards drugs in general, which was possibly mediated by an underlying personality trait as revealed by the MBTI. However, because the present study is limited due to its usage of a subjective adherence test,³²⁻³⁵ which can also be influenced by personality traits, another study needs to be done using methods that objectively quantify adherence to

drugs. The assessment of those patients who refused to participate in an interview will be addressed in the future.

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SUPPLEMENT

Supplement 1. Modified Glaucoma Drug Attitude Inventory (MG-DAI) Classification

Name: ID:

This questionnaire has been prepared for glaucoma patients taking anti-glaucoma medication. The purpose of this questionnaire is to gather information on your thoughts and experiences with anti-glaucoma medication. The results will remain within the boundaries of doctor-patient privileges and confidentiality and shall be used only for research purposes and will not affect the course of your treatment in any way. Please listen to the interviewer and read each question carefully and circle the answer you feel best represents you. If you feel in any way that you do not wish to partake in this questionnaire please notify your interviewer now. Thank you for your cooperation.

1.	I do not feel the need for additional medication once I feel my condition has improved.	T F
2.	I feel that the benefits of anti-glaucoma medication outweigh the disadvantages.	T F
3.	If I am feeling strange, I do not use my prescribed medication(s).	T F
4.	I stick to a regular medical routine, even though I am months away from my next visit.	T F
5.	If I take the medication, it's only because of peer pressure.	T F
6.	I am fully aware of the pharmacological effects of all of my prescribed medication(s).	T F
7.	Taking medication will do me no harm.	T F
8.	I take medications of my own accord.	T F
9.	Medication(s) make me feel more relaxed.	T F
10.	I am no different on or off medication(s).	T F
11.	The unpleasant effect(s) of medication(s) are always present.	T F
12.	Medication(s) makes me feel tired and sluggish.	T F
13.	I take medication only when I feel ill.	T F
14.	Medications are slow-acting poisons.	T F
15.	I get along better with people when I am on my medication(s).	T F
16.	I cannot seem to concentrate on anything when I am taking my medication(s).	T F
17.	I know better than the doctors when to stop taking my medication(s).	T F
18.	I feel that my eyes are getting better when I am on my medication(s).	T F
19.	I would rather let my eyes suffer than take my medication(s).	T F
20.	Taking medication(s) is an unnatural act.	T F
21.	My thoughts are clearer on medication(s).	T F
22.	I should keep taking medication(s) even when my eyes feel well.	T F
23.	Taking medication(s) will ultimately be beneficial for my eyes.	T F
24.	It is up to the doctor to decide when I should stop taking my medication(s).	T F
25.	Things that I could do easily are much more difficult when I am on medication(s).	T F
26.	I am happier and feel better when I am taking my medication(s).	T F
27.	I take my medication(s) because other people dislike it if I do not.	T F
28.	I cannot relax on my medication(s).	T F
29.	I am in better control of myself when I am taking my medication(s).	T F
30.	By staying on medication(s) I will prevent my eyes from being further damaged.	T F

Supplement 2. Grading System of Subjective Drug Adherence Scores

Score	Frequency of missed drug schedule(s)
1	More than 3 - 4 times per wk
2	3 - 4 times per wk
3	1 - 2 times per wk
4	1 - 2 times per month
5	Less than 1-2 times per month

Supplement 3. Modified National Eye Institute Visual Functioning Questionnaire-25 (NEIVFQ-25) for Koreans

Name:

ID :

- In general, would you say your overall health is:
A. Excellent B. Very Good C. Good D. Fair E. Poor
- At the present time, would you say your eyesight using both eyes (with glasses or contact lenses, if you wear them) is:
A. Excellent B. Very Good C. Good D. Fair E. Poor
- How much of the time do you worry about your eyesight?
A. None of the time B. A little of the time C. Some of the time D. Most of the time E. All of the time
- How much pain or discomfort have you had in and around your eyes (for example, burning, itching, or aching)?
A. None B. Mild C. Moderate D. Severe E. Very severe
- How much difficulty do you have reading ordinary print in newspapers?
A. None B. Mild C. Moderate D. Severe E. Very severe
- How much difficulty do you have doing work or hobbies that require you to see well up close, such as cooking, sewing, fixing things around the house, or using hand tools?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have finding something on a crowded shelf?
A. None B. Mild C. Moderate D. Sever E. Very severe
- How much difficulty do you have reading street signs or the names of stores?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have going down steps, stairs, or curbs in dim light or at night?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have noticing objects off to the side while you are walking along?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have seeing how people react to things you say?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have picking out and matching your own clothes?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have visiting with people in their homes, at parties, or in restaurants?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Because of your eyesight, how much difficulty do you have going out to see movies, plays, or sports events?
A. None B. Mild C. Moderate D. Severe E. Very severe
- Now, I'd like to ask about driving a car.
A. I have never driven a car. (→ Skip To Q 19)
B. I have given up driving. Was that mainly because of your eyesight, mainly for some other reason, or because of both your eyesight and other reasons? (→ Skip To Q 19)
i. Mainly eyesight ii. Mainly other reasons iii. Both eyesight and other reasons
C. I am currently driving.
- How much difficulty do you have driving during the daytime in familiar places?
A. None B. Mild C. Moderate D. Severe E. Very severe
- How much difficulty do you have driving at night?
A. None B. Mild C. Moderate D. Severe E. Very severe
- How much difficulty do you have driving in difficult conditions, such as in bad weather, during rush hour, on the

- freeway, or in city traffic?
 A. None B. Mild C. Moderate D. Severe E. Very severe
19. Do you accomplish less than you would like because of your vision?
 A. None of the time B. A little of the time C. Some of the time D. Most of the time E. All of the time
20. Are you limited in how long you can work or do other activities because of your vision?
 A. None of the time B. A little of the time C. Some of the time D. Most of the time E. All of the time
21. I stay home most of the time because of my eyesight.
 A. Definitely false B. Mostly false C. Not sure D. Mostly true E. Definitely true
22. I feel frustrated a lot of the time because of my eyesight.
 A. Definitely false B. Mostly false C. Not sure D. Mostly true E. Definitely true
23. Because of my eyesight, I have to rely too much on what other people tell me.
 A. Definitely false B. Mostly false C. Not sure D. Mostly true E. Definitely true
24. I need a lot of help from others because of my eyesight.
 A. Definitely false B. Mostly false C. Not sure D. Mostly true E. Definitely true
25. I worry about doing things that will embarrass myself or others, because of my eyesight.
 A. Definitely false B. Mostly false C. Not sure D. Mostly true E. Definitely true

Supplement 4. Difference of Each Items of Modified Glaucoma Drug Attitude Inventory (MG-DAI) between Pharmacophobic and Pharmacophilic Groups

No. of MG-DAI	χ^2	df	<i>p</i> value
1	0.240	1	0.624
2	11.520	1	0.001*
3	0.002	1	0.967
4	0.537	1	0.464
5	0.642	1	0.423
6	5.204	1	0.023*
7	2.494	1	0.114
8	0.284	1	0.594
9	15.629	1	< 0.001*
10	2.067	1	0.150
11	3.180	1	0.075
12	6.089	1	0.014*
13	1.800	1	0.180
14	5.140	1	0.023*
15	24.359	1	< 0.001*
16	4.064	1	0.044*
17	0.059	1	0.808
18	16.962	1	< 0.001*
19	0.086	1	0.769
20	0.039	1	0.844
21	33.107	1	< 0.001*
22	0.589	1	0.443
23	0.086	1	0.769
24	1.094	1	0.296
25	3.400	1	0.065
26	21.448	1	< 0.001*
27	1.290	1	0.256
28	0.059	1	0.808
29	25.973	1	< 0.001*
30	7.902	1	0.005*

**p*<0.05.

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