Effectiveness of a Self and Family Management Support Program among Older Adults with Glaucoma: A Quasi-Experimental Study

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Abstract: Glaucoma leads to permanent vision loss in older adults. Self- and family-management behavior is crucial to controlling intraocular pressure. However, there is limited intervention research in this population regarding involving and training family caregivers to help with the daily self-management of glaucoma. This two-group quasi-experimental with pre-posttest study aimed to investigate the effects of the self and family-management support program on intraocular pressure control behavior and intraocular pressure in older adults with glaucoma. The participants were a pair of 76 older adults with glaucoma visiting the outpatient ophthalmology clinic of a secondary hospital in western Thailand, and their family caregivers were selected through simple random sampling. The control group (n = 38) that received only usual care was studied first, then the experimental group (n = 38) that received the program combined with usual care for 8 weeks was studied. The program was guided by the Individual and Family Self-Management Theory, which states that older adults and family caregivers are the center of glaucoma self-management. Data were collected using a Demographic Questionnaire for both older adults with glaucoma and caregivers, the Intraocular Pressure Control Behavior Questionnaire, and a tonometer. Data were analyzed using descriptive statistics, a dependent t-test, and an independent t-test.

After immediately completing the 8-week program, the experimental group had a significantly higher mean score of intraocular pressure control behavior and a significantly lower mean score of intraocular pressure than before the program and than the control group. This program has the potential to support appropriate intraocular pressure control behavior, but its effectiveness should be followed up in the long term before it can be widely used.

Keywords: Family caregivers, Glaucoma, Intraocular pressure, Intraocular pressure control behavior, Older adults, Self-management

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Introduction

Glaucoma is a class of degenerative optic neuropathies that alters the optical nerve head by deteriorating the retinal nerve fiber layers and retinal ganglion.[1] Primary open-angle glaucoma (POAG) is usually asymptomatic in its early stage. By the time symptoms manifest, it usually progresses to the intermediate or advanced stages, resulting in varying degrees of visual loss and damage.[1] The global incidence rate of POAG was 23.46 per 10,000 person-years in people aged 40-79 years.[2] Older people are a particular group with a higher incidence of glaucoma, as the global glaucoma prevalence of older adults aged 60 years and over was higher than that of middle-aged populations.[3] As the world's population ages at an accelerated rate, the prevalence of glaucoma is predicted to rise from 76 million in 2020[4] to 112 million by 2040,[3] especially in lower-income regions.[3] In Thailand, glaucoma was present in 21.9% of 22,563 older people seeking eye care services, of whom 85% had POAG.[5] Glaucoma is associated with increased intraocular pressure (IOP) that puts mechanical stress and strain on the lamina cribrosa, the weakest area of the eye, and other posterior components of the eyes.[6] When the lamina cribrosa is compressed, deformed, and remodeled, this condition disrupts axonal transmission, resulting in optic nerve damage and irreversible blindness.[7] On a global scale, glaucoma caused 748,308 disability-adjusted life years (DALYs),[3] 3.61 million cases of blindness, and 4.14 million cases of visual impairment.[8] In Thailand, the glaucoma-related blindness prevalence was 23.8% in 2021, with the highest incidence (35.6%) in those aged 71 to 80 years.[9] Glaucoma and its consequences on visions severely reduce daily life activities[9] and restrict social function, leading to depression, anxiety,[10] and poorer quality of life.[11]

Glaucoma can be delayed and controlled to prevent vision loss through IOP control behavior, which is achievable with self-management.[12] Unfortunately, for older adults with glaucoma (OAWG), self-management is hindered by insufficient knowledge about glaucoma and how to apply eye drops, difficulty managing daily medication regimens, feeling unconfident in dealing with symptoms, and difficulty keeping track of IOP.[13] They were often unaware of POAG due to its relatively gradual onset and asymptomatic nature.[14] Moreover, the lack of family support poses a significant barrier, as older adults need family members to assist in applying eye drops and maintaining medical appointments[13] due to age-associated physical or functional impairments (e.g., hand-eye coordination, manual dexterity, and inadequate visual acuity).[15] However, family caregivers are inadequately equipped with knowledge and skills in glaucoma care,[16] as the current practice guideline only focuses on advising on how to use eye drops and regular eye monitoring for older adults but does not require the engagement of family caregivers in counselling sessions.[17] Most earlier interventions in Thailand and other countries focused on enhancing knowledge, addressing health beliefs, motivation, and self-management skills of adults and OAWG,[12,16,18,19] but none involved and trained family caregivers in helping with daily self-management of glaucoma. This indicates the need for an intervention that involves both OAWG and their family caregivers in the self-management process to promote self-management behavior for IOP control. Thus, this study intended to promote self- and family-management of IOP control behavior and IOP in OAWG and their family caregivers.

Literature Review and Conceptual Framework

Any changes in a family member affect the entire family system.[20] Thus, self-management often occurs within families because maintaining a healthy lifestyle or living with an illness is complicated and calls for incorporating self-management techniques into individuals' and families' daily routines.[20] Glaucoma

results in a degree of vision impairment that influences how older adults participate in different spheres of daily life, such as work, family life, and social interactions.[21] With age-associated decline,[16] they need family caregiver's involvement in glaucoma self-management.[13] This study was guided by the Individual and Family Self-Management Theory (IFSMT),[20] as it empowers families and individuals to take an active role in managing their health by considering the process of self-management and the acquisition of skills required to accomplish it in addition to the effects of personal and familial settings. Although the Self- and Family Management Framework (SFMF)[22] offers a newer revision of the IFSMT, the SFMF has been used extensively in the literature to explore factors influencing self-management behaviors, with greater emphasis on the individual rather than family self-management.[23]

The IFSMT consists of three dimensions: context, process of self-management, and outcomes. The context refers to risk factors or protective factors, including disease-specific factors (e.g., disease complexity) and individual-specific treatment that affect self-management behavior; physical and environmental factors in accessing the healthcare system, society, culture, and economic status; and personal and family factors, such as attitudes, developmental stages, cognition, and literacy. The process dimension refers to the interaction between three factors: knowledge and beliefs, self-regulation skills (i.e., goal setting, self-monitoring and reflective thinking, decision-making, planning for and carrying out particular actions, and self-evaluation and managing cognitive, emotional, and physical reactions related to changing one's behavior), and social facilitation (i.e., support and cooperation from family, friends, neighbors, coworkers, and community members).[20] Access to these social facilitation sources encourages individuals and families to play a joint role in taking responsibility for changing their health behaviors. This in turn results in health outcomes, which can be proximal outcomes (e.g., individual and family self-management behavior) as well as distal outcomes (e.g., quality of life).[20]

For OAWG, the context factors vary, such as their and their families' attitudes towards glaucoma[13,15] and difficulty applying eye drops caused by aging.[13] These contextual influences can shape the engagement of older adults and families in self-management. The glaucoma self-management process involves adaptation to life, enhancement of bodily functions, and medical treatment of illness,[24] which can include application of eye drops, medication taking, balanced diet (i.e., avoiding high-sodium, sweet, oily food),[25] adequate sleep,[26] and keeping follow-up appointments.[7] During this process, family caregivers encourage older adults to practice self-care by taking medications as prescribed, maintaining good eye care, and following up on appointments.[13] OAWGs with family support can handle stress more proactively and effectively.[27] Moreover, family members play a vital part in assisting to ensure the effective administration of eye medications and reminding older adults to administer their eye drops.[28] This self-management process assisted by family caregivers helps older adults to perform IOP control behavior, ultimately leading to lower IOP.[7,25,26]

In the recent literature, the IFSMT has been used in intervention studies in older adults with various chronic conditions, including chronic kidney disease (CKD),[29] and type 2 diabetes and hypertension,[30] leading to improved clinical outcomes (reduced body mass index, blood pressure, and blood sugar), and better self-management behaviors. In populations with eye disease, IFSMT-based intervention was effective in enhancing self-management behaviors immediately after the program ended[31] and visual-associated quality of life, as well as reducing blood glucose among older adults with diabetic retinopathy and visual impairment.[31] Nevertheless, there is a lack of research to develop and test the effectiveness of IFSMT in guiding a program on IOP control behavior and IOP in OAWG.

Study Aim and Hypotheses

We aimed to determine the effects of the Self and Family Management Support Program (SFMSP) on IOP control behavior and IOP in OAWG. We hypothesized that the participants receiving the SFMSP would have better IOP control behavior and lower IOP than those receiving usual care and prior to receiving the SFMSP.

Methods

Design: Our study was a two-group quasi-experimental with pre-posttest design. This report complied with the Transparent Reporting of Evaluations with Non-randomized Designs (TRENDS).

Participants and Setting: The sample size calculation was done using G*Power Version 3.1.9.2, with a power of 80%, an effect size of 0.631,[32] and the significance level at 0.05. This gave a sample size of 32 participants in each group. To account for dropout, the sample size was increased by another 20%,[33] resulting in 38 participants in each group, totaling 76 participants.

Participants were older adults with POAG visiting the outpatient ophthalmology clinic at a secondary-level hospital in western Thailand and their family caregivers. They were recruited using simple random sampling following the inclusion criteria: 1) aged between 60 and 80 years; 2) diagnosed by an ophthalmologist with primary open-angle glaucoma, with IOP < 30 mmHg; 3) treated with eye drops for at least three months; 4) history of glaucoma medication non-adherence or missing scheduled doctor's appointments; 5) no cognitive impairment indicated by a score of ≥ 24 on the Thai Mental State Examination (TMSE);[34] 6) good functional ability indicated by a score of ≥ 12 on the Barthel Activities of Daily Living Index;[35] 7) able to communicate in the Thai language; 8) living with a family member as a primary caregiver; and 9) willing to participate in the study. Exclusion criteria included hearing limitations and a history of mental illness. For the family caregivers, the inclusion criteria were: 1) aged ≥ 18 years; 2) living with the OAWG and taking primary responsibility for providing daily care for OAWG; and 3) willing to participate in the study. Discontinuation criteria included relocating during the research period for both OAWG and their family caregivers, as well as changes in eye treatment, such as laser surgery for OAWG.

Initially, 85 people OAWG along with their family caregivers were approached and assessed for eligibility, of whom nine were excluded due to not meeting the inclusion criteria (n = 5) and not wishing to participate (n = 4). All 76 participants remained until the study's completion. Participants were randomly assigned to experimental and control groups. To prevent the contamination of the treatment program, the control group (n = 38), who received only usual care, was studied first, and then the experimental group (n = 38), who received the program combined with usual care for 8 weeks, was studied.

Ethical Considerations: This research was approved by the Institutional Review Board of Phrachomklao Hospital (Study number: 1/2567, on January 31, 2024). The participants were given a full explanation of the study details and the right to withdraw from the study at their discretion. All participants were assigned codes to protect confidentiality and anonymity and signed a consent form.

Research Instruments

There were two groups of instruments in addition to the intervention program: those for screening and those for data collection. The screening instruments were as follows.

The Thai Mental State Examination (TMSE) was employed to screen cognitive impairment. It is a publicly available version[34] with six items assessing orientation (6 points), registration (3 points), attention (5 points), calculation (3 points), language (10 points), and recall (3 points). Total scores range between 0 and 30, categorized into cognitive impairment (scores 0-23) and absence of cognitive impairment (scores 24-30).[34]

The Barthel Activities of Daily Living Index is employed to screen the ability to perform activities of daily living (ADLs). It is also publicly available in Thai[35] with ten items representing different ADLs. An example item is grooming. Items are scored from 0 (cannot perform) to 1, 2, or 3 (can perform by oneself), depending on the types of ADL. Total scores range between 0 and 20, categorized into total dependency (scores 0-4), partially independent (scores 5-11), and total independence (scores ≥ 12).[35]

The instruments for data collection were as follows

A Demographic Questionnaire for older adults with glaucoma and caregivers was developed by the research team. For OAWG, it consists of nine items on age, gender, marital status, education, employment status, monthly family income, comorbidity, history of glaucoma medications, and duration since glaucoma diagnosis. For caregivers, it consists of six items on relationship with OAWG, gender, age, marital status, education, and employment status.

The Behavior to Control IOP Questionnaire was used to measure IOP control behavior. We developed this questionnaire based on the IFSMT[15] and literature review. There are 20 items in three aspects: eye drop application (10 items, e.g., you apply eye drops as prescribed every day), diet (six items, e.g., you eat less salty food), and sleep and follow-up appointments (four items, e.g., you sleep with your head appropriately elevated). Participants were asked to rate on a 4-point Likert-like scale from 0 (never practice) to 3 (regularly practice). Raw scores are calculated into a mean score, with a higher mean score representing better IOP control behavior. The questionnaire was examined for content validity by a panel of three experts in diabetic retinopathy, yielding a content validity index (CVI) of 0.93. Cronbach's alpha was 0.87 in a pilot test with 30 OAWG and 0.91 in the actual sample.

A tonometer was used to measure IOP by blowing air into the cornea to observe fluid flow in the eye. A specialist calibrated the tonometer every three months, with accuracy within +/-2 mmHg.

The Intervention Program: The research team developed the Self and Family Management Support Program (SFMSP) based on three constructs of the IFSMT, including the context dimension to understand personal and family context in glaucoma self-management, the process dimension to promote knowledge, beliefs, self-regulation skills, and social facilitation, and outcome dimension to improve IOP control behavior as a proximal outcome, leading to lower IOP as a distal outcome.[15] The SFMSP consists of five sessions over eight weeks, each provided individually. Sessions 1-3 were conducted on the same day in week 1 when the participants visited the hospital for their medical appointments. Session 4 was conducted in weeks 2-7 via telephone. Session 5 was conducted at the hospital after a medical appointment. The SFMSP was reviewed by five experts (an ophthalmologist specializing in glaucoma, two nursing instructors specializing in glaucoma, and two nurses having experience in caring for OAWG) who recommended clarifying the roles of family members. The program was revised accordingly. The program's details and implementation are shown in **Appendix, Table A1.**

Usual Care: This included eye examination and counseling by ophthalmologists, advice on eye drop application by nurses, medications, and side effects by pharmacists. Regular eye checkups were also conducted to monitor any unusual symptoms that might require seeing an ophthalmologist, such as worsening vision and increased eye pain. These services were provided for those with OAWG. Family involvement was not required.

Data Collection: Data collection was conducted by the principal investigator (PI) after IRB approval. The PI approached the participants to inform them of the research objectives, their contribution as participants, and their rights to withdraw at any time and to obtain written consent. A single-blind method prevented the participants from knowing which group they belonged to. To prevent contamination, data collection began in the control group between February and April 2024

before data collection in the experimental group between May and September 2024. For the control group, the PI collected data on demographics, self-management behavior for IOP control, and IOP at the pretest and eight weeks after receiving usual care (post-test). The PI collected these data for the experimental group at the pretest and immediately after the program ended (post-test).

Data Analysis: We analyzed data using Statistical Package for the Social Sciences, Version 20.0. Before analyzing the data, we tested the statistical assumptions for independence and normal distribution using histogram, Q-Q plot, and Shapiro-Wilk Test, yielding a p-value > 0.05, indicating that all assumptions were met. The demographic data were described with descriptive statistics, namely, frequency, percentages, means, and standard deviations, and compared using Chi-square test and independent t-test. The IOP control behavior and IOP were compared within and between groups by employing paired t-tests and independent t-tests, respectively.

Results

A large percentage of participants in both groups were male, with a mean age of 69.47 years in the experimental group and 68.52 years in the control group. Most were married. They had primary education and were unemployed, with a mean monthly family income of 11,473.68 Thai baht (332.76 USD) for the experimental group and 13,026 Thai baht (377.78 USD) for the control group. They had at least one comorbidity and took glaucoma medications. The mean duration for the experimental and control groups since glaucoma diagnosis was 7.32 and 8.08 years, respectively. Regarding the family caregivers, about two-thirds were the husband or wife of the spouse with OAWG, and most were female. The family caregivers' mean age was 53.92 years in the experimental group and 49.47 years in the control group. Most were married and employed. Their education was lower than a bachelor's degree. We noted no significant differences in all demographic data between both groups (**Table 1**).

Table 1. Characteristics of older adults with glaucoma and family caregivers

Characteristics	Experimental group (n = 38)		Control group (n = 38)		Statistical value	p-value
	n	%	n	%		
Older adults with glaucoma						
Gender					0.935	0.469[a]
Male	23	60.50	27	71.10		
Female	15	39.50	11	28.90		
Age (years)						
Mean (SD)	69.47(0.89)		68.52(0.92)		0.737	0.464[b]
Marital status						
Married	35	92.10	36	94.74	0.215	0.898[a]
Separated	3	7.90	2	5.26		
Education level					9.458	0.149[a]
No formal education	4	10.53	2	5.26		
Primary	22	57.89	25	65.79		
Secondary	4	10.53	5	13.16		
Bachelor's degree	8	21.05	6	15.79		
Employment status					5.764	0.330[a]
Employed	7	18.42	5	13.16		
Unemployed	31	81.58	33	86.84		

Table 1. Characteristics of older adults with glaucoma and family caregivers (Cont.)

Characteristics	Experimental group (n = 38)		Control group (n = 38)		Statistical value	p-value
	n	%	n	%		
Monthly family income (Thai baht/USD)						
Mean (SD)	11,473.68/332.76 (45.53)		13,026/377.78 (86.42)		2.199	0.031[b]
Comorbidity					1.395	0.707[a]
1	18	47.37	21	55.26		
2	14	36.84	14	36.84		
3	6	15.79	3	7.90		
History of glaucoma medications					-	1.000[a]
Yes	38	100.00	38	100.00		
Duration since glaucoma diagnosis (years)						
Mean (SD)	7.32 (1.15)		8.08 (1.20)		0.458	0.648[b]
Family caregivers						
Relationship with older adults with glaucoma					9.836	0.043[a]
Husband or wife	25	65.79	24	63.16		
Child or grandchild	13	34.21	14	36.84		
Gender					0.164	0.595[a]
Male	13	34.21	12	31.58		
Female	25	65.79	26	68.42		
Age (years)						
Mean (SD)	53.92(12.91)		49.47 (20.26)		0.430	0.965[b]
Marital status					0.094	0.954[a]
Married	28	73.68	29	76.32		
Separated	10	26.32	9	23.68		
Education level					8.104	0.231[a]
No formal education	1	2.63	2	5.26		
Lower than bachelor's degree	35	92.11	33	86.84		
Bachelor's degree	2	5.56	3	7.90		
Employment status					6.895	0.331[a]
Employed	33	86.84	34	89.47		
Unemployed	5	13.16	4	10.57		

Note. [a]Chi-square test, [b]Independent t-test

The mean score of IOP control behavior and IOP did not differ significantly between groups at baseline. However, in the post-test, the IOP control behavior score in the experimental group was significantly higher than that in the control group ($t = 14.074$, $p < 0.001$) (**Table 2**). Moreover, the IOP in the experimental group was significantly lower than in the control group ($t = -2.355$, $p = 0.021$ for the right eye; $t = -3.367$, $p = 0.001$ for the left eye) (**Table 2**).

The within-group comparison revealed a significant increase in the IOP control behavior mean score at post-test in the experimental group ($t = -14.172$, $p < 0.001$), while the control group showed a non-significant decrease in IOP control behavior ($t = 2.224$, $p = 0.060$) (**Table 2**). Additionally, we noted a significant decrease in the IOP of both eyes in the experimental group ($t = 7.195$, $p < 0.001$ for the right eye; $t = 1.934$, $p < 0.001$ for the left eye). Although the control group also had a decrease in IOP in both eyes at post-test, their decrease was non-significant ($t = 1.934$, $p = 0.061$ for the right eye; $t = 1.747$, $p = 0.089$ for the left eye) (**Table 2**).

Table 2. Within-group and between-group comparison of the mean score of IOP control behavior and IOP (n = 76)

Variable	Baseline		Posttest		t[a]	p-value[b]
	Mean	SD	Mean	SD		
IOP control behavior						
Experimental group (n = 38)	2.38	0.27	2.99	0.02	-14.172	< 0.001
Control group (n = 38)	2.39	0.26	2.38	0.27	2.224	0.060
t[c]	-0.043		14.074			
p-value[d]	0.966		< 0.001			
IOP						
Right eye						
Experimental group (n = 38)	19.74	3.29	17.61	3.05	7.195	< 0.001
Control group (n = 38)	19.78	3.66	19.42	3.65	1.934	0.061
t[c]	-0.046		-2.355			
p-value[d]	0.963		0.021			
Left eye						
Experimental group (n = 38)	18.69	4.49	14.80	2.99	1.934	< 0.001
Control group (n = 38)	18.67	4.92	17.99	5.01	1.747	0.089
t[c]	0.021		-3.367			
p-value[d]	0.983		0.001			

Note. [a,b] = Paired t-test, [c,d] = Independent t-test; IOP = Intraocular pressure

Discussion

Our findings indicated the effectiveness of the SFMSP in increasing IOP control behavior and lowering IOP. The increase in IOP control behavior may be because the SFMSP helps to address the complex self-management process, as the OAWG and their family caregivers jointly navigated the risk and protective factors in their context. As a result, they could identify which issues hindered their engagement in glaucoma self-management, such as the attitudes towards glaucoma of older adults and their family caregivers,[13,15] and age-related difficulty in eye drop application.[15] Addressing these issues can improve their desire and capacity to participate in self-management.[20] Moreover, education on glaucoma and reflection on beliefs related to glaucoma self-management enhanced participants' understanding of glaucoma. It allowed them to embrace more positive beliefs towards glaucoma self-management, which are important factors contributing to glaucoma self-management behavior.[27] Both older adults and family caregivers were trained in self-regulation skills that were useful in enabling the process of health behavior change.[20] Additionally, family caregivers engaged in health education and skill training that helped improve their understanding of glaucoma self-management for IOP control behavior. Engagement in self-management interventions allowed family caregivers to better understand the illnesses,

and the information received during training triggered their motivation to support their older relatives.[31] Therefore, family caregivers could facilitate older adults by assisting with a self-management process in performing IOP control behavior through encouragement and daily support. Constant support from family when dealing with glaucoma-related difficulties enabled older adults to face these challenges with a good attitude and lessened the distress brought on by glaucoma.[27] Therefore, the OAWG were more capable of managing their condition, feeling more proactive and confident in glaucoma self-management. Prior studies support our findings that IFSMT interventions effectively improved self-management behaviors of older adults with CKD[29] and diabetes.[30]

We discovered that the experimental group achieved significantly lower IOP. Participation in the SFMSP allowed older adults to have better IOP control behavior through glaucoma self-management by adhering to eye drop application, taking medication, avoiding high-sodium, sweet, oily food, caffeine, having adequate sleep, and maintaining follow-up appointments. These behaviors are essential in reducing IOP.[7,25,26] Importantly, this program incorporated family caregivers as a crucial social support system. Family caregivers who played many roles in assisting older adults with tasks were also given health education and skill training. Involvement in the program could equip family caregivers with a better understanding and skills to assist OAWG. Having family caregivers to continuously support preparing appropriate food, applying eye drops, and maintaining follow-up appointments is necessary for OAWG.[13,27] Previous studies support our findings that IFSMT interventions led to significant reductions in blood pressure in CKD,[29] and non-IFSMT intervention with family support that resulted in lower IOP in the glaucoma population.[36]

Our study, grounded by the IFSMT on IOP control behavior and IOP in OAWG, adds new evidence to the prior research guided by the IFSMT in other chronic illnesses such as diabetes, CKD, and stroke. These findings contribute to the validity of the IFSMT.

Limitations

Some limitations are noted. This study was conducted in older adults with primary open-angle glaucoma at a secondary-level hospital in western Thailand, which may limit the generalizability to other samples. We completed data collection in the control group first then ran the experiment. This can be a threat to internal validity since the surrounding events that affected the outcomes between the two groups might be different. The PI collected the data and provided the intervention, which can contribute to bias. Also, our study had a short study time and no repeated measurements, so the findings need cautious interpretation. Longer follow-up is necessary. Further randomized controlled trials are needed to explore the program's applicability to other types of glaucoma, its cost-effectiveness, and its scalability in diverse settings.

Conclusions and Implications for Nursing Practice

The SFMSP has potential benefits for OAWG in improving their IOP control behavior by developing knowledge, confidence, and self-regulation skills for glaucoma self-management, eventually leading to clinical change (i.e., reduced IOP). Nurses should be appropriately trained to implement the program activities, including both OAWG and their family caregivers, to improve the families' capacity to watch over and support older adults in their glaucoma self-management process.

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Appendix

Table A1. Summary of the SFMSP sessions

Week/Duration/ Method	Theoretical dimension	Session	Activity/Training
Week 1 (30 minutes) Face-to-face	Context dimension	Session 1: Understanding personal and family context	- Build rapport - Analyze personal factors, family factors, risks and protective factors related to IOP control behavior - Have older adults and family caregivers share their personal and family context related to glaucoma self-management - Advise family caregivers to arrange appropriate living conditions inside and outside the house (e.g. sufficient lighting, enough living space, and free from obstacles in the walkway) - Advise family caregivers to take care of older adults closely
Week 1 (45 minutes) Face-to-face	Process dimension	Session 2: Enhancing knowledge, beliefs, and social facilitation	- Assess the knowledge and beliefs of older adults and family caregivers about glaucoma self-management - Give education on glaucoma, causes, symptoms, treatments, and appropriate self-management behaviors for controlling IOP using a booklet (e.g. avoid drinking tea, coffee, and carbonated drinks; avoid rolling the eyes quickly; avoid coughing, sneezing hard; avoid bending the head lower than the waist; avoid lifting heavy objects; avoid chewing betel nuts; avoid straining to have a bowel movement; get enough sleep) - Advise older adults and family caregivers on 1) the importance of using eye drops to control IOP, even if there is no eye pain, and 2) the adverse effects of not using eye drops or using them incorrectly - Provide information on the severity of the disease to change attitudes and self-care behaviors, leading to cooperation in treatment - Encourage reflection on the beliefs of older adults and family caregivers that are appropriate for glaucoma and give feedback on these beliefs - Recommend social facilitation sources, such as doctors, nurses, families, neighbors, community members, and media such as television, newspapers, magazines, or online media that are beneficial for glaucoma care - Provide opportunities for older adults and family caregivers to ask questions and address concerns

Table A1. Summary of the SFMSP sessions (Cont.)

Week/Duration/ Method	Theoretical dimension	Session	Activity/Training
Week 1 (30 minutes) Face-to-face	Process dimension	Session 3: Developing self-management ability along with family member	- Provide self-regulation skills training (i.e., goal setting, self-monitoring, reflective thinking, decision making, planning, and action) along with family caregivers - Have older adults, and family caregivers set goals for self-management behaviors for controlling IOP
Weeks 2-7 (20-30 minutes) Telephone	Process dimension	Session 4: Monitoring self-management in family	- Conduct follow-up telephone calls with the family regarding knowledge, changes in self-management behaviors for controlling IOP, and progress in self-regulation skills (e.g., self-evaluation and reflective thinking) - Discuss the possible solutions in case the goals are not achieved. Have older adults and family caregivers identify the best and most appropriate way to manage and evaluate themselves
Week 8 (45 minutes) Face-to-face	Outcome dimension	Session 5: Monitoring self-management in family	- Discuss the progress of IOP behaviors against the established goal - Address questions and concerns regarding IOP control behaviors

ผลของโปรแกรมส่งเสริมการจัดการตนเองของบุคคลและครอบครัวในผู้สูงอายุโรคต้อหิน : การวิจัยกึ่งทดลอง

ปาณิสรา ส่งวัฒนายุทธ ผกามาศ พีธรากร จินต์ทิพา ศิริกุลวิวัฒน์*

บทคัดย่อ: โรคต้อหินส่งผลต่อความบกพร่องในการมองเห็นจนเกิดการสูญเสียการมองเห็นอย่างถาวรในผู้สูงอายุ พฤติกรรมการจัดการตนเองและครอบครัวมีความสำคัญต่อการควบคุมความดันลูกตา อย่างไรก็ตาม ยังมีการวิจัยเชิงทดลองจำกัดในประชากรกลุ่มนี้ การวิจัยกึ่งทดลองแบบสองกลุ่มวัดผลก่อนหลังนี้มีวัตถุประสงค์เพื่อศึกษาผลของโปรแกรมส่งเสริมการจัดการตนเองและครอบครัวต่อพฤติกรรมการควบคุมความดันลูกตาและความดันลูกตาในผู้สูงอายุโรคต้อหิน ผู้เข้าร่วมวิจัยประกอบด้วยผู้สูงอายุโรคต้อหินและผู้ดูแลในครอบครัว 76 คู่ที่มารับบริการที่แผนกจักษุผู้ป่วยนอกของโรงพยาบาลระดับทุติยภูมิแห่งหนึ่งในภาคตะวันตกของประเทศไทย คัดเลือกโดยใช้การสุ่มอย่างง่าย ศึกษากลุ่มควบคุม (n = 38) ที่ได้รับการดูแลตามปกติเท่านั้นก่อน จากนั้นจึงศึกษากลุ่มทดลอง (n = 38) ที่ได้รับโปรแกรมร่วมกับการดูแลตามปกติเป็นเวลา 8 สัปดาห์ โปรแกรมพัฒนาตามทฤษฎีการจัดการตนเองของบุคคลและครอบครัว ซึ่งทั้งผู้สูงอายุและผู้ดูแลในครอบครัวเป็นศูนย์กลางของการจัดการตนเองโรคต้อหิน เก็บรวบรวมข้อมูลโดยใช้แบบสอบถามข้อมูลทั่วไปของผู้สูงอายุโรคต้อหิน แบบสอบถามข้อมูลทั่วไปของญาติผู้ดูแล แบบสอบถามพฤติกรรมการควบคุมความดันลูกตา และเครื่องตรวจความดันลูกตา วิเคราะห์ข้อมูลโดยสถิติเชิงพรรณนา การทดสอบทีแบบคู่ และการทดสอบทีแบบอิสระ

หลังจากเสร็จสิ้นโปรแกรมที่มีระยะเวลา 8 สัปดาห์ทันที กลุ่มทดลองมีคะแนนเฉลี่ยพฤติกรรมการควบคุมความดันลูกตาสูงกว่าก่อนเข้าโปรแกรมและสูงกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ และมีคะแนนเฉลี่ยความดันลูกตาต่ำกว่าก่อนเข้าโปรแกรมและต่ำกว่ากลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ โปรแกรมนี้มีศักยภาพในการส่งเสริมการควบคุมความดันลูกตาที่เหมาะสม แต่ควรมีการติดตามผลของโปรแกรมในระยะยาวก่อนนำไปใช้จริงอย่างแพร่หลาย

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