

Effectiveness of Vision-Related Public Education Conferences

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Abstract

Background: Trustworthy public education is thought to be essential for ensuring that Canadians receive timely, consistent, and comprehensive eye care. Public education conferences are one method for disseminating this information. The purpose of this study was to determine how effective these conferences are for achieving their educational objectives.

Methods: A pre- and post-survey was created and disseminated at a public education conference hosted by the Centre for Sight Enhancement. The survey questions addressed perceived knowledge gained, attitudes regarding the presence of symptoms in eye disease and the importance of eye exams.

Results: Of the 74 conference attendees, 27 completed the pre-survey and 24 completed the post-conference survey. There was a statistically significant increase in perceived knowledge gained in all conference areas. There was no statistically significant improvement in the awareness of the asymptomatic nature of early eye disease or the importance of eye examinations.

Conclusion: Public education conferences are an effective method for disseminating eye care knowledge, however more research will be required to determine if they can help to alter consistent eye care-seeking patterns.

KEY WORDS

eye care, vision, public education, conference

INTRODUCTION

Individuals are underutilizing eye care services¹⁻⁴ and often seek care only when a problem occurs.^{5,6} There are several potential barriers to attending appointments, including cost, test distress,⁷ transportation, and employment flexibility.⁸ Insufficient knowledge is also thought to be a contributing factor.^{5,9} The public is not sufficiently informed about eye care and the significance of maintaining a healthy eye care routine to ensure early detection and treatment, and to maximize and preserve their eye function and health.^{9,10} This occurs for all aspects of eye and vision care. From the consistent use of routine eye assessments, through the appropriateness of additional optometric services such as optometric low-vision rehabilitation. Fewer than 50% of patients diagnosed with low vision in Ontario receive low-vision rehabilitation services when indicated.^{11,12} Similarly, studies have demonstrated that one barrier is the lack of awareness of low-vision rehabilitation.¹³

The George & Judy Woo Centre for Sight Enhancement (CSE) (School of Optometry & Vision Science, University of Waterloo, Waterloo, Ontario, Canada) provides holistic low-vision rehabilitation for individuals with incurable visual impairment. A key component of the team's efforts is public education. In 2018, the CSE established a Patient Forum wherein interested individuals with visual impairment (VI) were invited to meet bi-monthly. The predominant area that this group elected to support was public education and advocacy. Some members communicated that, had they acquired more timely optometric care, their visual impairment

would not have been as advanced, and most indicated that they had struggled to find timely comprehensive optometric low-vision rehabilitation.

The Patient Forum group elected to host a public education conference similar to the previous age-related macular degeneration (AMD)-themed conferences hosted by CSE but for a variety of eye-related topics (structure and function of the eye, AMD, diabetic retinopathy (DR), vision and stroke, and glaucoma). The main objectives of the conference were as follows: 1) Review common eye diseases and management, 2) understand that symptoms are often not present in early eye disease, and 3) understand the importance of routine eye assessments for early detection. The intent of this research was to determine the effectiveness of this public education conference in meeting the objectives outlined.

METHODS

This study received clearance through the University of Waterloo Research Ethics Board and adhered to the principles of the Declaration of Helsinki. Information regarding the conference was disseminated through posters displayed within the Waterloo Optometry Clinics, the members of which also distributed the posters to local community and senior centres, and health care practitioners' offices (including physicians, optometrists and ophthalmologists). The information was also posted on the CSE and UW Bulletin website, and in local newspapers. The target audience was members of the general public and the presentations were designed to cover symptoms and when/if they occur, progression, and management (including any preventive measures, importance of early intervention, and low-vision rehabilitation). All presenters were asked to stress the importance of routine assessments and emphasize the often lack of symptoms in early eye disease. This was verified by the attendance of one of the researchers. The Structure and Function of the Eye and the Q&A panel were presented once. The remaining four presentations were split between two streams to allow for smaller group sizes so that individuals would have a more interactive experience yet still have the option of attending all presentations. The conference concluded with a Question & Answer (Q&A) panel composed of persons with VI.

Pre- and post-event questionnaires were developed by the researchers (Appendix A). The pre- and post-event questionnaires were divided into three parts to address the three main objectives. The first part was the self assessment of knowledge of five topic areas: structure and function of the eye, age-related macular degeneration, diabetic retinopathy, stroke-related vision loss, and glaucoma. This is referred to as Section A throughout the article. The responses were obtained using a 5-point Likert scale (1- no knowledge, 2- little knowledge, 3- moderate knowledge, 4- good knowledge, 5- excellent knowledge). The second part (Section B) asked the participant to rate the frequency of the statement: "I will notice symptoms if I have an eye disease". The subject then selected one of the following: 1- never, 2- not often, 3- sometimes, 4- usually, 5- always, and don't know. It concluded with a true/false question regarding the statement "The best prevention of vision loss is regular eye examinations." This is referred to as Section C. The only difference between the questionnaires was that one question on the pre-event questionnaire sought to determine how the participant learned of the conference and one question upon completion of the post-event survey requested ideas for topics of interest for future conferences.

The questionnaire in large-print format was provided to all 74 persons attending the event upon arrival and was disseminated in the final Q&A event to those remaining prior to conference conclusion. Participation was voluntary and anonymous. Individuals placed completed surveys in a box upon exiting the conference rooms.

Data analysis was conducted using JAMOV for Windows (version 1.6.23, The JAMOV project 2021) and Microsoft® Excel® for Microsoft 365 MSO (Version 2211 Build 16.0.15831.20098). Statistical significance was considered to be <0.05 , which was Bonferroni-corrected to <0.01 for Section A.

RESULTS

Although there was a total of 74 conference attendees, the survey was optional and not all attendees elected to complete the survey. Attendance at all presentations was not mandatory. The lower post-conference response rate for the knowledge section may reflect this or that individuals did not stay until the end of the event. The slightly lower response rate overall for Section B may be one indicator of the quality of the question. Questionnaires were counted for each section completed. For example, if an individual completed Section A, but not Section B, the information would be included in Section A, but not Section B. The number of individuals completing each item can be found in Tables 1 and 2. Figure 1 illustrates how attendees learned about the patient education conference.

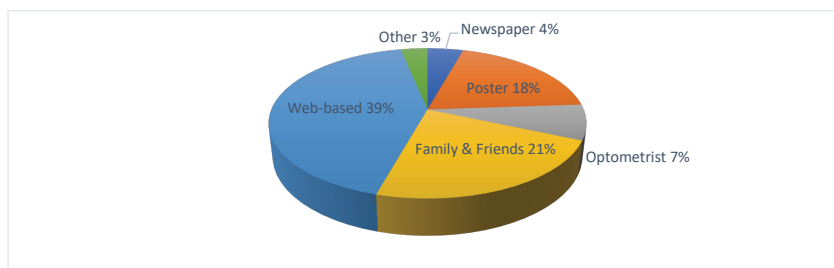
Table 1: Section A; descriptive statistics and pre/post comparisons for perceived knowledge.

	Structure & Function		AMD		DR		Stroke Vision		Glaucoma	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
N	27	23	27	23	27	22	27	20	27	19
Median	3	3	2	3	1	3	1	3	2	3
Mode	2	4	2	3	1	3	1	3	1	3
Min	1	2	1	2	1	2	1	1	1	1
Max	4	5	4	5	3	5	4	4	4	4
Mann-Whitney U p-values	0.006		<0.001		<0.001		<0.001		0.002	

AMD, age-related macular degeneration; DR, diabetic retinopathy

Table 2: Sections B (noticing symptoms in eye disease) and C (eye exams are best prevention) descriptive and statistical analysis.

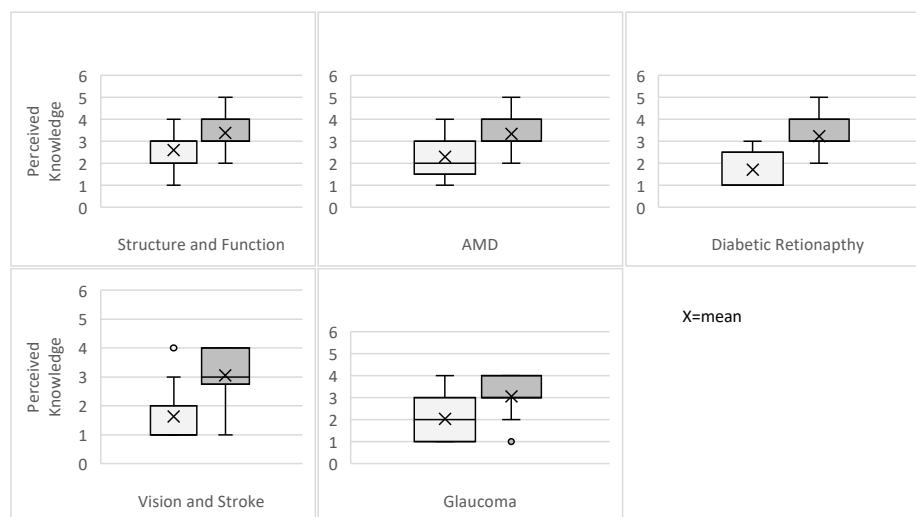
	Section B		Section C	
	Pre-conference	Post-conference	Pre-conference	Post-conference
N	23	24	27	24
Median	3	4	—	—
Mode	3	3	1	1
Min	1	2	0	1
Max	5	5	1	1
Mann-Whitney U p-values	0.196		0.187	

Figure 1: How attendees learned about the conference.

Descriptive information is presented in Tables 1 and 2, representing Sections A, and B and C respectively. In Section B, the response 'don't know' was never selected and was not assigned a value. For the true/false question in Section C, true was assigned a value of 1 and false was assigned a value of 0.

Since the data did not follow a normal distribution, a non-parametric analysis was completed. For Section A, the Mann-Whitney U independent sample T-test was conducted. The p-values for each comparison can be found in Table 1. There was a statistically significant change in self-assessed knowledge for all five presentations. This is further demonstrated in the box-and-whisker plots with inclusive medians in Figure 2.

Figure 2: Section A - Participant pre- and post-conference perceived knowledge for a) ocular structure and function, b) age-related macular degeneration (AMD), c) diabetic retinopathy, d) vision and stroke, and e) glaucoma.



The Mann-Whitney U independent sample T-test was also conducted for the analysis of Sections B and C. The change in values was not statistically significant for either section (Table 2).

DISCUSSION

Consider the following scenario that is all too familiar to optometrists:

Mr. Q, a transport truck driver presents for an eye exam for the first time at age 57 years, attributing his reduced vision to aging. Best-corrected visual acuities are reduced, and there is advanced optic nerve head cupping with associated visual field defects. Mr. Q has advanced glaucoma and his livelihood is in jeopardy...

The social, emotional, and economic consequences of poor visual function are significant. They include less gainful employment, greater likelihood of falling, and increased risk of depression¹⁴⁻¹⁷. Had Mr. Q received regular eye exams, life-altering consequences could have been prevented, because his condition would have been diagnosed and treated earlier. Furthermore, treatments for glaucoma are more effective in the early stages.¹⁸ It is important that the public understands the asymptomatic nature of early eye disease to avoid outcomes such as these.

Public education conferences are one method of disseminating this critical information. The first hurdle is determining the best method to raise awareness of the conference. Most of the attendees were made aware of the conference through web-based sources followed by family and friends. Very few learned of the conference through newspaper advertisements. Future conferences should focus on more wide-spread web-based platforms for distribution of this information. A second problem is the potential bias for individuals who already have an eye condition. Individuals who are completely unaware or unconcerned about eyes and eye care may be less interested in attending. Attendees were not asked if they or someone they knew had an eye condition.

It is evident from the results that the conference met its first objective. Most attendees felt that the conference elevated their understanding of the five main topic areas, with the greatest increase in understanding occurring in the topics of stroke-related vision, DR, and AMD.

However, despite messaging in each presentation indicating that symptoms may only present in the end-stage, analysis of Section B revealed that attendees were still under the impression that all ocular disease will manifest with symptoms. Although the presentations highlighted this point, the emphasis was potentially not sufficient to capture the audience's attention. Also, since the presentations did include symptoms that occurred at some point during the disease process, the results may reflect a limitation of the survey question. The question "I will notice symptoms if I have an eye disease" may have been too general and should have asked if symptoms will always or usually be

noted. Another possibility would be to break the question into two parts and ask about early vs. late stages of ocular conditions.

Apparently, the attendees had received previous messaging that regular eye examinations are the best method of preventing vision loss. The results from Section C did not demonstrate any statistically significant difference in understanding pre- vs. post-conference. Almost all attendees indicated that they already agreed with this statement in the pre-conference survey, but it is clear from the current study that they do not know why. This may negatively impact eye care-seeking behaviours if they do not understand the consequences of forgoing such examinations. Future studies should include some participant information to determine whether the attendees had or have the conditions discussed.

Overall, patient education conferences appear to be an effective method for disseminating information to the public regarding various eye conditions and diseases. There seems to be an awareness of the need for regular eye care but minimal awareness of the consequences of failure to receive such care, and therefore little indication that more visits, in the absence of symptoms, will occur. Further research will be required to determine if these conferences attract only those affected by the specific eye condition discussed and should continue to explore methods to disseminate the information regarding the potential lack of symptoms in early stages and the importance of early detection, which will hopefully translate into a better understanding of why regular eye examinations are necessary to ensure appropriate vision care. ●

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REFERENCES

- Shah T, Milosavljevic S, Bath B. Geographic availability to optometry services across Canada: mapping distribution, need and self-reported use. *BMC Health Serv Res* 2020;20, 639.
- Jin YP, Trope GE. Eye care utilization in Canada: disparity in the publicly funded health care system. *Can J Ophthalmol* 2011;46(2):133-8.
- Sloan FA, Picone G, Brown DS, Lee PP. Longitudinal analysis of the relationship between regular eye examinations and changes in visual and functional status. *J Am Geriatr Soc* 2005;53(11):1867-74.
- Picone G, Brown D, Sloan F, Lee P. Do routine eye exams improve vision? *Int J Health Care Finance Econ* 2004;4(1):43-63.
- Wang F, Ford D, Tielsch JM, et al. Undetected eye disease in a primary care clinic population. *Arch Intern Med* 1994;154:1821-8.
- Spafford MM, Jones DA, Christian LW, et al. What the Canadian public (mis)understands about eyes and eye care. *Clin Exp Optom* 2023 Jan;106(1):75-84.
- Venne J. Eye health month: the challenges of eye health in Canada. *Optik* 2012;10:18-21.
- Atta S, Zaheer HA, Clinger O, Liu PJ, Waxman EL, McGinnis-Thomas D, Sahel J -A, Williams AM. Characteristics Associated with Barriers to Eye Care: A Cross-Sectional Survey at a Free Vision Screening Event. *Ophthalm Res* 2023;170-8. doi: 10.1159/000526875
- Irving EL, Sivak AM, Spafford MM. "I can see fine": patient knowledge of eye care. *Ophthalm Physiol Optics* 2018;38(4): 422-31.
- Scott AW, Bressler NM, Ffolkes S, Wittenborn JS, Jorkasky J. Public attitudes about eye and vision health. *JAMA Ophthalmol* 2016;134(10):188(17-18), E474-E483.
- Spafford MM, Rudman DL, Leipert BD, Klinger L, Huot S. When self-presentation trumps access: why older adults with low vision go without low-vision services. *J Appl Gerontol* 2009;29:579-602.
- Nia K, Markowitz SN. Provision and utilization of low-vision rehabilitation services in Toronto. *Can J Ophthalmol* 2007;42(5):698-702.
- Lam N, Leat SJ. Barriers to accessing low-vision care: the patient's perspective. *Can J Ophthalmol* 2018;48(6):458-62.
- O'Day B. Employment barriers for people with visual impairments. *J Vis Impair Blind* 1999; 93(10): 627.
- Capella-McDonnal ME. Predictors of competitive employment for blind and visually impaired consumers of vocational rehabilitation services. *J Vis Impair Blind* 2005; 303-15.
- Ivers RQ, Cumming RG, Mitchell P, Attebo K. Visual impairment and falls in older adults: the Blue Mountains Eye Study. *J Am Geriatr Soc* 1998 Jan;46(1):58-64.
- Burmedi D, Becker S, Heyl V, Wahl H-W, Himmelsbach I. Emotional and Social Consequences of Age Related Low Vision. *Vis Impair* 2002;4(1):47-71.
- Weinreb RN, Aung T, Medeiros FA. The Pathophysiology and Treatment of Glaucoma: A Review. *JAMA* 2014;311(18):1901-11.