

# Evaluation of educational intervention on knowledge and awareness regarding glaucoma among working adults in northeast of Malaysia

Wen Khang Chong, MMed<sup>1,2</sup>, Daniel Sen Kai Phang, MMed<sup>1,2</sup>, Ibrahim Mohd-Ismail, MMed<sup>3</sup>, Ab Hamid Siti-Azrin, MBBS<sup>4</sup>, Ahmad Tajudin Liza-Sharmini, MMed PhD<sup>1</sup>, Yaakub Azhany, MMed, PhD<sup>1</sup>

<sup>1</sup>Department of Ophthalmology and Visual Sciences, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia, <sup>2</sup>Department of Ophthalmology, Hospital Umum Sarawak, 93586 Kuching, Sarawak, Malaysia, <sup>3</sup>Department of Community Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia, <sup>4</sup>Unit of Biostatistics and Research Methodology, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

## ABSTRACT

**Introduction:** To determine the level of good awareness and knowledge on glaucoma and their associated factors as well as the effectiveness of the glaucoma educational intervention among the working adults in northeast of Malaysia.

**Materials and methods:** Participants from the governmental departments were recruited and divided into intervention group and control group. A translated and validated questionnaire on awareness and knowledge related to glaucoma were used. Educational interventions were given for both groups. Post-test assessments were completed at one month and three months post intervention.

**Results:** A total of 202 participants enrolled for the study (102 intervention group and 100 control group). 64.9% of the participants were aware of glaucoma and 49% of the participants had good knowledge score on glaucoma. Higher educational attainments (bachelor and diploma holders) were the only factors significantly associated with good glaucoma knowledge ( $p < 0.001$ ). There was significant increase in the proportion of good glaucoma knowledge in the intervention group one month after the educational intervention ( $p < 0.001$ ) and the effect persisted after three months ( $p < 0.003$ ). There was also significantly higher proportion of good post-test glaucoma knowledge between intervention and control group ( $p = 0.003$ ).

**Conclusion:** Although the public was well aware of glaucoma, there was relatively little understanding of the condition. Educational interventions can be effective to bridge the gap in promoting the glaucoma awareness and better understanding of glaucoma.

## KEYWORDS:

*Glaucoma awareness, Glaucoma knowledge, educational intervention*

## INTRODUCTION

One of the important aspects of public health measures is raising awareness and information about a particular

condition. It aims to increase knowledge and consciousness about specific diseases, risk factors, prevention measures, and health promotion initiatives by disseminating evidence-based information. Low health literacy hinders patients from comprehending the severity of a disease and the preventive measures as well as treatment options available for decision making.<sup>1</sup> The level of awareness and understanding of several communicable and non-communicable diseases has been found to be significantly lacking in numerous research.<sup>2-7</sup>

Glaucoma is an ocular disease with the hallmarks characterized by chronic, progressive optic neuropathy associated with structural damage to the optic nerve and resulting visual field abnormalities.<sup>8-10</sup> Glaucoma is frequently referred to as the "thief of sight" because it normally causes no symptoms in the early stages of the disease but may progress and eventually lead to blindness if untreated. Glaucoma is one of the major causes of blindness on a global scale; it is estimated to affect approximately 90 million people worldwide, and the number is increasing.<sup>11-13</sup> While in Malaysia, glaucoma is reported to be the third most prevalent cause of blindness, accounting for 6.6% of all cases of blindness, following untreated cataract and diabetic retinopathy.<sup>14</sup> Poor adherence to therapy and life-long clinic follow-ups are acknowledged as barriers to successful treatment.

Patients' ignorance about the glaucoma disease is one of several variables linked to treatment failure.<sup>15</sup> With early glaucoma diagnosis and prompt administration of effective treatment, progression of the disease and blindness can be averted. Various studies have been conducted to evaluate the level of awareness and knowledge of the patients as well as general population in different geographical locations.<sup>16-20</sup> The glaucoma awareness level was found to be between 61.3% and 68.9%. The effectiveness of educational intervention in raising the knowledge of glaucoma was also demonstrated in a few studies.<sup>21-22</sup> In this study, we aim to evaluate the level of awareness and knowledge regarding glaucoma among adults in northeast of Malaysia. as well as the effectiveness of glaucoma education intervention.

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Corresponding Author: Azhany Yaakub

Email: azhany@usm.my

## MATERIALS AND METHODS

### Subjects

This study was approved by the Universiti Sains Malaysia Ethical Committee (USM/JEPeM/21020150) and was conducted in accordance with World Medical Association Declaration of Helsinki ethical principles for medical research involving human subjects. The confidentiality of the data was strictly safeguarded. A quasi-experimental study was conducted between 1st June 2021 and 31st December 2022. A total of 202 subjects were recruited. The sample size was calculated using G power software version 3.9.4 using a two proportional comparison formula. The sampling method was simple random sampling. The Malaysian government officers in Kota Bharu, Kelantan were recruited according to inclusion and exclusion criteria. The inclusion criteria include adults aged between 25-55 years old who were working in Malaysian government sectors. The exclusion criteria include those who were healthcare-related staff or with the confirmed diagnosis of glaucoma. Those who were unable to participate in both pre and post-test questionnaire were also excluded from the study. The participations were voluntary and informed consents were obtained prior to the study. The subjects were divided into interventional group and control group. To avoid sample contamination, intervention group comprised subjects from the government departments located in Kota Bharu Federal Building, whilst the control group was consisted of the subjects from Kota Bharu Municipal Council.

### Translation and Validation of Questionnaire

*This study involved using a validated questionnaire as self-administered online survey and an educational intervention in the form of a short video, a brief lecture, and a brochure to the government officers in Kota Bharu, Kelantan. The questionnaire to evaluate the glaucoma awareness and knowledge among working adults in Kelantan was adapted from Baker et. al.<sup>23</sup> and was translated into Malay language through the stages which follows the guideline.<sup>24</sup> Forward translation of the questionnaire was performed by three independent translators who are proficient in both English and Malay language. A committee team comprised lecturers from department of Ophthalmology, Community Medicine, and Biostatistics, as well as ophthalmology trainees were involved in the process of review and reconciliation of the forward translation. The back translation of the questionnaire from Malay language to English was then performed by four translators which consisted of four ophthalmologists who are fluent in both languages. The committee team was then involved in the harmonization, proofreading and finalization of the translated questionnaire.*

The glaucoma knowledge questionnaire consisted of 14 items. The questionnaire was self-administered and the dichotomous-scale items in the questionnaire were analyzed using a two-parameter logistic model of item response theory (2-PL IRT). Analysis of the questionnaire showed good psychometric properties. The discrimination and difficulty index were good. Regarding the difficulty parameter, all the knowledge items in the questionnaire were within the acceptable range of -3 to +3. For discrimination, most of the items in the questionnaire were within the acceptable range of 0.35 to 2.5. The item goodness-of-fit showed that 14 of the

items did fit well ( $p = 0.054$ ). The amount of total information trapped by the items between the -3 to +3 ranges of ability was 99.0%. Internal consistency by marginal reliability was 0.91.

### Data Collection

Glaucoma Awareness and Knowledge questionnaires including the sociodemographic information were distributed in the form of Google Forms online system via email. A comprehensive summary of the study was presented, and a consent form was signed before proceeding to the questionnaire. This was a self-administered questionnaire; the data was then recorded for further analysis. Awareness was considered present when a participant had heard of or knows the existence of glaucoma. Each glaucoma knowledge question was given one mark if answered correctly, zero mark if the answer was incorrect or unsure. If a participant answered seven or more questions correctly, he or she was considered to have good glaucoma knowledge.

### Educational Intervention

Educational intervention was conducted by presenting a short video, a lecture, and a brochure to the participants after they had completed the pre-test questionnaire. For the interventional group, the educational intervention consisted of a two-minute video on glaucoma information, a 30-minute slides presentation by the Glaucoma consultant as well as a brochure with the general information in glaucoma. The sessions of video and lecture presentations were conducted via online using Webex by Cisco. The same questionnaire was then completed by the same subjects one month and three months after the sessions of educational intervention. Nevertheless, for the control group, the subjects received 30-minute slide presentations on cataract by an ophthalmologist. The sessions of slide presentations were conducted via online using Google Meet and similar questionnaire was then completed by the same subjects one month and three months after the sessions.

### Statistical Analysis

Data were analysed using IBM SPSS Statistics version 27.0 (IBM Corp., Armonk, NY, USA). All data was entered and checked for incomplete entry and double entry using SPSS version 27.0. For the descriptive statistics data, numerical variables were presented by means (standard deviations) and categorical variables were presented in frequency (percentage). We used comparative statistic to examine the potential association between sociodemographic factors and glaucoma awareness as well as the high level of glaucoma knowledge. Simple logistic regression and multiple logistic regression were used to in our study to evaluate for the association. The McNemar's test was used to determine the difference on the proportion of subjects with good glaucoma knowledge scores between pre-intervention, one-month post-intervention and three-month post intervention. To ensure the normal distribution of the sample, central limit theorem (CLT) was used which as the sample size increases, the distribution of the sample means approximates a normal distribution. The sample size equal or greater than 30 are often considered to fulfill the CLT. P-value <0.05 was considered statically significant for all statistical analyses.

Table I: Demographic characteristics of the participants (n=202)

Sociodemographic features	Interventional group n (%)	Control group n (%)	P value
Gender			
Male	42 (41.2)	28 (28.0)	0.049 <sup>a</sup>
Female	60 (58.8)	72 (72.0)	
Age* (years)	40.43 ± 5.22	39.95 ± 5.16	0.510 <sup>b</sup>
Ethnicity			
Malay	101 (99.0)	100 (100.0)	0.505 <sup>c</sup>
Non-Malay	1 (1.0)	0 (0.0)	
Marital Status			
Single	6 (5.9)	22 (22.0)	0.001 <sup>a</sup>
Married	96 (94.1)	78 (78.0)	
Highest Education Level			
Secondary	38 (37.3)	32 (32.0)	0.535 <sup>a</sup>
Diplom <sup>a</sup>	21 (20.6)	18 (18.0)	
Bachelor and above	43 (42.1)	50 (50.0)	
Household Income			
B40	31 (30.4)	39 (39)	0.083 <sup>c</sup>
M40	70 (68.6)	56 (56)	
T20	1 (1.0)	5 (5)	
Medical co-morbidities			
Yes	29 (28.4)	31 (31.0)	0.690 <sup>a</sup>
No	73 (71.6)	69 (69.0)	
Other ocular disorders			
Yes	27 (26.5)	23 (23.0)	0.568 <sup>a</sup>
No	75 (73.5)	77 (100.0)	
Family history			
Yes	6 (5.9)	7 (7.0)	0.746 <sup>a</sup>
No / Unsure	96 (94.1)	93 (93.0)	

<sup>a</sup> Pearson chi-square, <sup>b</sup> independent t-test, <sup>c</sup> Fisher Exact test

\*Mean (SD)

Table II: Determinants of good awareness of glaucoma

Variables	B (S.E)	Crude OR (95%)	P value
Age	-0.03 (0.03)	0.98 (0.92, 1.03)	0.382
Gender			
Male*			
Female	-0.04 (0.31)	0.96 (0.53, 1.77)	0.902
Marital status			
Single*			
Married	-0.21 (0.42)	0.81 (0.36, 1.85)	0.622
Highest Education level			
Secondary*			
Diploma	-0.07 (0.41)	0.94 (0.42, 2.09)	0.875
Bachelor and above	-0.44 (0.33)	0.65 (0.34, 1.24)	0.189
Household income			
B40*			
M40	0.23 (0.32)	1.26 (0.67, 2.34)	0.474
T20	0.78 (0.86)	2.18 (0.41, 11.68)	0.362
Medical co-morbidities			
Yes*			
No	-0.30 (0.32)	0.74 (0.40, 1.39)	0.349
Presence of other eye diseases			
Yes*			
No	0.07 (0.34)	1.07 (0.55, 2.10)	0.845
Previous eye screening			
Yes*			
No	0.25 (0.71)	1.28 (0.32, 5.11)	0.727

Values are presented as OR (95%CI). By multiple logistic regression model

Note: b, regression coefficient; OR, odds ratio; CI, confidence interval

\*used as reference category

Significant results (p-value < 0.05)

**Table III: Determinants of good glaucoma knowledge scores at 1 month post intervention**

Variables	B (S.E)	Crude OR (95%)	P value
Age	-0.05 (0.03)	0.95 (0.90, 1.01)	0.088
Gender			
Male*	0	1	
Female	-0.41 (0.30)	0.66 (0.37, 1.19)	0.166
Marital status			
Single*	0	1	
Married	-0.21 (0.41)	0.81 (0.36, 1.80)	0.603
Highest Education level			
Secondary*	0	1	
Diploma	1.66 (0.44)	5.27 (2.24, 12.41)	<0.001
Bachelor and above	1.94 (0.36)	6.99 (3.43, 14.27)	<0.001
Household income			
B40*	0	1	
M40	0.72 (0.31)	2.05 (1.13, 3.73)	0.019
T20	1.22 (0.90)	3.39 (0.58, 19.78)	0.176
Medical co-morbidities			
Yes*	0	1	
No	-0.15 (0.31)	0.86 (0.47, 1.57)	0.624
Presence of other eye diseases			
Yes*	0	1	
No	-0.05 (0.33)	0.95 (0.50, 1.80)	0.872
Family history of glaucoma			
Yes*	0	1	
No / Unsure	-0.82 (0.62)	0.44 (0.13, 1.48)	0.184
Previous eye screening			
Yes*	0	1	
No	-0.47 (0.66)	0.63 (0.17, 2.29)	0.479
Intervention			
No*	0	1	
Yes	0.84 (0.29)	2.33 (1.32, 4.09)	0.003

Values are presented as OR (95%CI). By Simple logistic regression  
 Note: b, regression coefficient; OR, odds ratio; CI, confidence interval  
 \*Used as reference category  
 Significant results (p-value < 0.05)

**Table IV: Factors associated with good glaucoma knowledge scores at 1 month post intervention**

Factors	B (SE)	Adjusted OR (95% CI)	p-value
Intervention			
No*	0	1	
Yes	1.09 (0.31)	2.96 (1.60, 5.48)	<0.001
Eye Screening			
No*	0	1	
Yes	2.34 (1.13)	10.41 (1.13, 96.03)	0.039
Education level			
Secondary*	0	1	
Diploma	0.81 (0.43)	2.24 (0.97, 5.18)	0.060
Bachelor and above	1.37 (0.36)	3.95 (1.96, 7.94)	<0.001

Values are presented as OR (95%CI). By Multiple logistic regression. Backward LR method applied  
 Note: b, regression coefficient; OR, odds ratio; CI, confidence interval  
 \*Used as reference category  
 Significant results (p-value < 0.05)

**RESULTS**

*Demographic Features*

There were 202 participants recruited in this study. 102 (50.5%) subjects were assigned to the interventional group while 100 (49.5%) subjected were in the control group. The mean ages of the interventional and control groups were 40.43 (SD ± 5.22) and 39.95 (SD ± 5.18), respectively. There were more women than men in both groups. Majority of the participants are of Malay ethnicity and Muslims (99.5%). Most of the respondents were married (86.1%).

The majority of the participants attained a degree or higher as their highest attained academic qualification. As classified based on the Household Income and Basic Amenities survey of 2019, Department of Statistics, Malaysia, household income can be classified into three categories: B40, M40, and T20. B40 represents the bottom 40% with a monthly household income of RM 4850 (approximately USD 1,030) or less. M40 represents the middle 40%, which means a household income of RM 4851–RM 10,970 (approximately USD 1,030-2,334). T20 represents the top 20% which earns a monthly household income more than RM 10,970

(approximately USD 2,334). Majority of participants were in the M40 category.

Approximately three quarters of the participants had no ocular disorders diagnosed previously. The main complaints from those with ocular disorders were refractive errors (94%). Apart from that, there were three participants with allergic conjunctivitis, retinal detachment, and giant cell arteritis, respectively. The sociodemographic characteristics of the participants were summarized in Table I.

#### *Awareness about Glaucoma*

There were 64.9% participants out of the total 202 who were aware of glaucoma. Prior to the educational intervention, 60.8% from intervention group were aware of glaucoma while 69% from the control group had heard of glaucoma previously.

5.3% participants out of 131 who were aware of glaucoma had attended eye screening previously. 9.9% out of 131 participants who had awareness regarding glaucoma had positive family history of glaucoma. Conversely, those were not aware of glaucoma did not have family history of glaucoma. However, no significant association between the demographic features and good awareness of glaucoma was found in this study using simple and multiple logistic regression tests as shown in table II. The main sources of information of glaucoma reported were social media and internet (72.5%), followed by printed material such as magazines, newspapers, and pamphlets (47.3%). However, only 7 out of 10 participants who had joined eye screening programme previously knew about glaucoma.

#### *Knowledge about Glaucoma*

There were 49% out of a total of 202 participants had good glaucoma knowledge before the intervention. Out of 99 participants with good glaucoma knowledge, 47.5% were in the interventional group while 52.5% were in the control group. The level of education was strongly associated with good knowledge of glaucoma. Simple logistic regression test showed that there were 5.27 and 6.99 higher odd ratio to have good glaucoma knowledge for those who attained Diploma and bachelor education respectively, as compared to those who completed secondary education ( $p < 0.001$ ). Participants who were in the M40 group were found to have 2.05 higher odd ratio to have good glaucoma knowledge score than those in B40 group ( $p < 0.019$ ).

Multiple logistic regression showed that intervention group, eye screening and university education level were significantly associated with good glaucoma knowledge score as shown in Table IV. Those with intervention had 2.96 higher odd to have good glaucoma knowledge compared to those without intervention after controlling for eye screening and education level. Those with eye screening had a 10.41 higher odd to have good glaucoma knowledge compared to those without eye screening after controlling for intervention and education. Those with bachelor and above education level had a 3.95 higher odd ratio to have good glaucoma knowledge compared to those in secondary education after controlling for intervention and eye screening.

#### *Educational intervention on glaucoma knowledge score*

There was an increase of proportion of participants in intervention group who had good knowledge score from pre-intervention ( $n = 47, 46.1\%$ ) to one month ( $n = 68, 66.7\%$ ) and three months ( $n = 64, 63.7\%$ ) post educational intervention. The statistical analysis using exact McNemar's test determined that there was a statistically significant difference in the proportion of those with good glaucoma knowledge score between pre- and one-month post-intervention ( $p < 0.001$ ) as well as between pre- and three months post intervention ( $p = 0.003$ ). No statistical significance was found in the proportion of good glaucoma knowledge between one month post- and three months post-intervention ( $p = 0.541$ ).

In the control group, the proportion of participants with good glaucoma knowledge score were 52% pre-intervention, 46% at one-month post-intervention and 42% at three months post intervention. The exact McNemar's test showed that no significant difference in the proportion of good glaucoma knowledge among pre-, one month post- and three months post-intervention in the control.

However, there was significant difference between intervention group and control group in term of proportion of good glaucoma knowledge at one month post and three months post-intervention ( $p = 0.003$ ). Higher proportion of participants with good glaucoma knowledge score was noted in the intervention group one month and three months after the educational intervention, as compared to control group. Table 5 showed the comparison of glaucoma knowledge score pre-intervention and 3-month post intervention.

## **DISCUSSION**

Multiple factors including poor awareness and understanding of glaucoma have been identified to be the leading causes of late presentation and treatment failure in glaucoma.<sup>25</sup> High levels of awareness and understanding are essential for the early diagnosis and treatment of glaucoma to prevent irreversible blindness. Various surveys on glaucoma awareness and knowledge showed that there are significant gaps in glaucoma patients.<sup>26</sup> Public health education interventions have been shown to be effective in changing behaviour in healthcare utilisation by increasing awareness and knowledge of a variety of ophthalmic and non-ophthalmic diseases.<sup>27-30</sup> Emphasis on the necessity and importance of eye health education should be in place to reduce the social and economic burdens caused by glaucoma.

In this study, there was generally high level of awareness of glaucoma among the participants (64.9%). Similar results were also observed in other studies from other developing countries with awareness level ranged from 61.3% to 68.9%.<sup>16-20</sup> However, a local population study conducted by Chew et al. in 2004 revealed that the glaucoma awareness level was 71.5% among non-medical academic staff in a Malaysian university.<sup>31</sup> A study by Gasch et al. also showed higher glaucoma awareness of 72% which was higher than our study.<sup>32</sup> The higher glaucoma awareness observed was possibly because the population surveyed was composed of individuals from urban metropolitan area with a high level of education and better access to public health information.

Interestingly, those with positive family history of glaucoma were all aware of the existence of glaucoma in this study. The contact with family members who are glaucoma patients is the significant contributor to the glaucoma awareness among the population ( $p < 0.001$ ). In contrary to other studies in which there were associations were noted in glaucoma awareness with younger age, higher educational attainment, positive family history and previous eye screening.<sup>18-19</sup> There were no significant associations between the sociodemographic features and the level of awareness observed in our study. This may be accounted for by the small age range of the participants in our study, which excluded children and the elderly. Only a minority of the participants in the study had undergone eye screening previously evidenced by wider 95% CI in our results. This small number had no impact on the study's statistical significance. The high awareness of glaucoma may be attributed to easy access to the internet and mass media, which were the primary sources of information on glaucoma in this study.

Despite relatively high glaucoma awareness among the participants in this study, the overall understanding of the disease is still lacking. Approximately 50% of the study participants attained good glaucoma knowledge score. Similarly to our findings, other studies also produced comparable outcomes.<sup>17-20</sup> This finding would indicate that awareness of glaucoma does not necessarily translate into actual understanding of the condition. Our study found that the only factor associated with good glaucoma knowledge was highest educational attainment. Similar to numerous studies, a higher level of education is linked to a greater understanding of glaucoma.<sup>16-19</sup> Nonetheless the other factors such as younger age, family history of glaucoma, higher income and previous eye screening were not significantly related to good knowledge on glaucoma. This emphasizes the significance of glaucoma education being disseminated among the population, regardless of a person's sociodemographic background.

Our present study showed a significant increase in the proportion of participants with good knowledge of glaucoma one month and three months after the educational intervention. This beneficial impact of educational was shown to persist from one month to three months post-intervention. The significant improvement seen in the intervention group in terms of the proportion of good glaucoma knowledge stood in contrast to the control group. There were various studies conducted to evaluate the efficacy of an educational intervention on improving the knowledge for glaucoma patients.<sup>26</sup> In the analysis, various methods of educational interventions including videotape presentation and brochures, interactive and didactic approach as well as nurse-patient interaction in the waiting room were examined. Despite the variations on the methods of conducting educational intervention, all the studies showed a significant increase in the glaucoma knowledge score after educational intervention, demonstrating the potential of education as a tool for promoting awareness and understanding of this important eye disease.

Most studies were performed on individuals who had glaucoma; however, there are relatively few studies that examine how education affects public understanding and

awareness of glaucoma, which is crucial for promoting early detection and successful treatment of glaucoma. The educational workshops were conducted along with Philadelphia Glaucoma Detection and Treatment Project in the United States of America (USA) to assess the impact of education intervention using pre-test and post-test questionnaires and 30-minute presentation.<sup>21</sup> There was a significant increase in the composite scores of glaucoma questionnaire after the workshops, however only one third of the participants who attended the educational workshop scheduled and attended glaucoma screening examinations.<sup>21</sup> Interestingly, the response rate for eye screening following the educational session is still unsatisfactory, necessitating more research into the causes of the low response rate to screening and potential solutions.

In the age of technological advancement, electronic devices such as mobile phones and computers have become an essential tool in public health education. In a Chinese study done by Li et. al., it demonstrated that mobile-based education was remarkably effective in increasing public understanding of glaucoma.<sup>22</sup> Similarly, our study used online platform to conduct the lectures and video presentations for the educational intervention, we found that it is equally effective in increasing the level of glaucoma knowledge among the participants. There is an increase in awareness among our control group towards ophthalmic diseases which increased their understanding on ophthalmic related diseases. Having access to internet enables our control participants to better understand other ophthalmic diseases especially glaucoma. Minimum reduction in percentage is expected from the samples because it was about retained knowledge after certain period of time. However, the reduction is not significant. Similar observations were seen in other knowledge and awareness studies.<sup>21</sup>

There are several limitations of the study that should be acknowledged. Firstly, this is a single centre study which may limit the generalizability of the results to other populations in Malaysia. Moreover, the study relied on self-reported data, which is subject to bias and may not accurately reflect actual knowledge and awareness levels. Furthermore, the study had only follow-up for three months after the educational intervention, it may be difficult to determine if the intervention had a sustained impact on glaucoma knowledge and awareness. Ongoing research in this area would be beneficial to comprehend the implications of education and other factors on glaucoma knowledge and awareness as well as its impact on attitude changes in the population towards the disease that promote seeking regular eye examinations and adhering to the treatment recommendations.

Currently there is no standardized questionnaires that adequately assess the awareness and knowledge about glaucoma in a general population. There was considerable variability in the development as well as the format of the glaucoma questionnaires which were presented in the form of open-ended questions, close-ended questions or both.<sup>26</sup> Our questionnaire was adapted and translated from previous study by Baker et. al. which consisted of 14 self-administered, close-ended questions. Rigorous review of translated questionnaire by a panel of experts including glaucoma specialist, ophthalmologists, community medicine

consultant and medical biostatistics lecturer was conducted. Our questionnaire contained only 14 items, which may not cover many relevant aspects of knowledge and awareness of glaucoma. Despite these limitations, we believe the design and method of this study were reliable. The strength of our study is the suitability of the questionnaire to our local Malaysian population as it eradicated the language barrier in assessing the depth of understanding towards glaucoma.

## CONCLUSION

There are still significant gaps in awareness and knowledge about glaucoma in the public, this present study provides valuable insights into the impact of educational intervention on improving knowledge and awareness of glaucoma significantly. Therefore, education is an important tool for promoting eye health and preventing visual impairment.

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