

Awareness and Knowledge of Common Eye Diseases Among the Academic Staff (Non-Medical Faculties) of University of Malaya

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Summary

A cross sectional study was conducted to assess the level of awareness and knowledge of common eye diseases (cataract, glaucoma, diabetic retinopathy and refractive errors) among 473 academic staff (non-medical faculties) of University Malaya. The awareness of cataract was in 88.2%, diabetic retinopathy in 83.5%, refractive errors in 75.3% and glaucoma in 71.5% of the study population. The knowledge about all the above common eye diseases was moderate, except presbyopia which was poor. Multivariate analysis revealed that females, older people, and those having family history of eye diseases were significantly more aware and more knowledgeable about the eye diseases. Health education about eye diseases would be beneficial to seek early treatment and prevent visual impairment in the society.

Key Words: Cataract, Glaucoma, Diabetic Retinopathy, Refractive errors, Awareness, Knowledge

Introduction

Awareness and knowledge of common eye diseases play an important role in encouraging people to seek treatment for eye problems. This further helps in reducing the burden of visual impairment among the population in a society. Cataract, glaucoma, and diabetic retinopathy are leading causes of blindness worldwide^{1,6}. Some studies on awareness of eye diseases in the developed world have been carried out⁷⁻¹⁰, but no such information is available from Malaysia. Dandona et al¹ have reported that the awareness of cataract and night blindness was moderate but that of diabetic retinopathy was low, while that of glaucoma was very poor among the urban population of Hyderabad in south India. Lau et al⁶ have reported that the Hong Kong Chinese population had a limited

knowledge of common eye diseases. Increased community awareness and knowledge of common eye diseases and their treatment options are important in promoting preventive ophthalmic care. Since the majority of educated people might have heard about refractive errors and wearing of glasses for defective vision, awareness of this problem would educate the public about various modalities of treatment available for correction of refractive errors.

Eye health education that encourages people to seek consultation from an ophthalmologist is one of the most important steps to prevent visual impairment⁷. An exploration of knowledge and attitudes held and the self care practices undertaken by the community, can aid in the effective promotion of preventive approaches to eye health care. Therefore, a local study was

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conducted to assess the level of awareness and knowledge of common eye diseases (cataract, glaucoma, diabetic retinopathy and refractive errors) among the academic staff (non-medical faculties) of University Malaya.

Materials and Methods

The study population consisted of all academic staff of all the faculties of University of Malaya excluding the Faculty of Medicine. Since academic staff are well educated and might have some knowledge on common medical problems through various types of information facilities on health education, they were taken as subjects for this study. The data was collected by a self-administered questionnaire. A future visit was arranged if the subject was absent during the first visit. The subject was defined as "no contact" after two approaches were made on separate days.

A structured questionnaire was administered to collect data on socio-demographics (age, gender, ethnicity, occupation, level of education, previous diagnosis of eye diseases, and family history of eye diseases). Respondents were asked whether they were aware of cataract, glaucoma, diabetic retinopathy, and refractive errors. They were asked to describe the symptoms of these conditions, how they affected the eye, and to name their appropriate treatment only if they had heard about these diseases. All questions were open-ended. The response given by the subject was marked by the investigator against the response it most closely approached on the questionnaire. The response given by the subject was documented fully if it did not match with any of the responses listed on the questionnaire. Having heard of the eye disease in question was defined as "awareness" and having some understanding of the eye disease was defined as "knowledge".

The reasonable knowledge (description) of the eye diseases are considered as follows: (i) Cataract -- lens opacity; white thing in the eye, causes blurred vision/vision loss, affects elderly people (ii) Glaucoma -- pressure problem related to the eye, causes vision loss/blindness, causes tunnel vision, problem at the back of the eye. (iii) Diabetic retinopathy -- complication of diabetes which causes changes in the retina, blurring of vision, causes vision loss/blindness. (iv) Refractive errors -- Myopia: nearsightedness, distant objects blurred, often seen in childhood, progresses throughout the teenage years, people with high power

have risk of getting retinal detachment. Hyperopia: farsightedness, close objects blurred. Presbyopia: aging of the lens in the eye, occurs after age of 40 years, the lens of the eye becomes more rigid, more difficult to read at close range.

Chi square analysis and t-test were used to test the statistical significance of various factors on the awareness of the eye diseases univariately, and odds ratio was calculated. A multivariate logistic regression models were used to examine the effects of various factors on the knowledge of eye diseases. The Statistical Package for Social Sciences (SPSS) was used for data analyses.

Results

A total of 823 academic staff were on the rolls at the time of conducting this survey (December 2002), of which 473 people participated in this study (57.5% participation rate). The age of participants ranged from 23 to 58 years. The mean age of males (234) was 42.7 years, and of females (239) was 43.6 years. Two hundred and thirty of the respondents were Malays, followed by Chinese (148), Indians (68) and other nationals (27). The majority of the participants were lecturers (81.8%), followed by professors (8.2%), tutors (5.5%) and associate professors (4.5%). All the participants received tertiary education. More than half (56.9%) of them were doctorates, 34.9% were masters and the others were graduates (8.2%). Two hundred and twelve (44.8%) of the participants had a family history of eye diseases, which included any one of the four diseases (cataract, glaucoma, diabetic retinopathy and refractive errors).

A total of 117 respondents reported that they were diagnosed to have refractive errors; 57 reported to have cataract; 78 were diagnosed to have diabetic retinopathy; while 135 persons have not heard of glaucoma at all. The responses among the participants who were aware of cataract, glaucoma, diabetic retinopathy, and refractive errors are shown in Tables I-IV. The difference in the figures in these tables was due to the previous diagnosis among the respondents or lack of awareness of the disease. Awareness and knowledge of the eye diseases in the study population is summarized in Table V. The majority of the participants were aware of all the four eye diseases. However, their knowledge was more about cataract than other diseases.

To evaluate the association of specific socio-demographic characteristics among those with awareness about the various types of eye diseases, chi square test and t-test were used. The association of previous eye disease among the participants and their awareness of the particular diseases were evaluated. There was a significant association between previous history of cataract and the awareness of cataract among the participants, ($p=0.009$). None of the participants were ever diagnosed to have glaucoma and therefore, there was no data to show the relationship between previous history of glaucoma and the awareness of this disease.

The previous history of diabetic retinopathy was not significantly associated with awareness of diabetic retinopathy among the participants ($p=0.14$). However, it was noticed that there was a significant association between the previous history of refractive errors and the awareness of refractive errors among the study population ($p=0.001$).

The association between the family history of eye diseases among the subjects and their awareness towards the eye diseases were also evaluated. The awareness and knowledge of cataract, glaucoma, diabetic retinopathy and refractive errors were found to be significantly associated with family history of eye diseases among the subjects ($p<0.001$ for each disease).

The association between the age of the participants and the knowledge of the eye diseases was evaluated by t-

test. The mean age for those who were aware of cataract (43.9 years) and those who were not aware of cataract (37.8 years) was significantly different ($p=0.001$; 95% CI of difference: 3.188 – 9.153). The mean age for those who were aware of glaucoma (45.5 years) and those who were not aware of glaucoma (37.5 years) was significantly different ($p=0.001$; 95% CI of difference: 6.084 – 9.831). The mean age for those who are aware of diabetic retinopathy (44.7 years) and those who are not aware (35.33 years) was significantly different ($p=0.001$; 95% CI of difference: 6.938 – 11.878). The mean age for those who were aware of refractive errors (43.8 years) and those who were not aware (41.3 years), was not significantly different ($p>0.05$, 95% CI of difference: 0.452 – 4.483).

Odds ratio (OR) was calculated to measure the magnitude of association. Crude OR value of cataract, glaucoma, diabetic retinopathy and refractive errors were then adjusted for age, given as adjusted OR. The individual variables were adjusted for age, gender, previous history of eye disease and family history of eye disease, and the adjusted odds ratio for the eye diseases is shown in Table VI. A multivariate logistic regression model was constructed using all the factors from the univariate analyses. Chi square test was also used to evaluate the association between the gender of the participants and their knowledge of various eye diseases. There was a significant difference between males and females regarding the knowledge of cataract, glaucoma, diabetic retinopathy and refractive errors ($p=0.001$ for each disease).

Table I: Knowledge responses among those who were aware of cataract (n=417)

Response	No. and (%)
What is cataract?	
Opacity of the lens inside the eyes*	161 (38.6)
Skin growing over the inside of the eye	13 (3.1)
white thing in the pupil*	104 (24.9)
Cloudiness of vision*	52 (12.5)
Blindness*	4 (1.0)
Growth over the retina	1 (0.2)
Aging	17 (4.1)
Eye disease	26 (6.2)
Do not know	39 (9.3)
How is it treated?	
Surgery*	365 (87.5)
Drugs	13 (3.1)
Laser treatment	26 (6.2)
Do not know	13 (3.1)

* reasonable knowledge of the disease

Table II: Knowledge responses among those who were aware of glaucoma (n=338)

Response	No. and (%)
What is glaucoma?	
Pressure in the eyes*	95 (28.1)
Problem at the back of the eye*	26 (7.7)
Tunnel vision*	4 (1.2)
Blindness*	52 (15.4)
Eye disease	69 (20.4)
Inflammation/infection	13 (3.8)
Do not know	79 (23.4)
How is it treated?	
Surgery*	138 (40.8)
Drugs*	52 (15.4)
Laser treatment*	13 (3.8)
Visiting ophthalmologist	13 (3.8)
Do not know	122 (36.0)

* reasonable knowledge of the disease

Table III: Knowledge responses among those who were aware of diabetic retinopathy (n=395)

Response	No. and (%)
What is diabetic retinopathy?	
Blurring of vision*	15 (3.8)
Blindness*	177 (44.8)
Do not know	203 (51.4)
How is it treated?	
Surgery*	39 (9.9)
Drugs*	79 (20.0)
Laser treatment*	13 (3.3)
Nutrition treatment	125 (31.6)
Do not know	139 (35.2)

* reasonable knowledge of the disease

Table IV: Knowledge responses among those who were aware of refractive errors (n=356)

Response	No. and (%)
What is myopia?	
Focus before retina*	43 (12.1)
Cannot see distant object*	188 (52.8)
Wearing glasses	13 (3.7)
Do not know	112 (31.4)
How is myopia treated?	
Wearing spectacles*	300 (84.3)
Do not know	56 (15.8)
What is hyperopia?	
Focus beyond retina*	43 (12.1)
Cannot see near objects*	175 (49.2)
Do not know	138 (38.8)
How is hyperopia treated?	
Wearing spectacles*	257 (72.2)
Do not know	99 (27.8)
What is presbyopia?	
Impaired vision due to aging*	82 (23.0)
Do not know	274 (77.0)
How is presbyopia treated?	
Wearing spectacles*	130 (36.5)
Do not know	226 (63.5)

* reasonable knowledge of the disease

Table V: Percentage of awareness and knowledge of eye diseases in the study population

Eye disease	Awareness of eye disease	Reasonable description of eye disease	Reasonable treatment of eye disease
Cataract	417/473 (88.2%)	321/417 (77.0%)	365/417 (87.5%)
Glaucoma	338/473 (71.5%)	177/338 (52.4%)	203/338 (60.0%)
Diabetic retinopathy	395/473 (83.5%)	192/395 (48.6%)	131/395 (33.2%)
Refractive errors			
Myopia	356/473 (75.3%)	231/356 (64.9%)	300/356 (84.3%)
Hyperopia	356/473 (75.3%)	218/356 (61.2%)	257/356 (72.2%)
Presbyopia	356/473 (75.3%)	82/356 (23.0%)	130/356 (36.5%)

Table VI: Adjusted odds ratio (OR) for the common eye diseases

Socio-demographic factors	Adjusted OR (95% confidence interval)					
	Knowledge of cataract	Knowledge of glaucoma	Knowledge of diabetic retinopathy	Knowledge of myopia	Knowledge of hyperopia	Knowledge of presbyopia
Age	1.09 (1.23-4.13)	1.13 (1.09-1.17)	1.03 (1.00-1.07)*	0.98 (0.95-1.01)*	0.99 (0.97-1.02)	1.04 (1.00-1.07)*
Gender	0.80 (0.46-1.40)*	0.48 (0.29-0.79)	6.58 (3.84-11.29)	2.19 (1.33-3.59)	1.74 (1.08-2.81)	4.06 (2.16-7.65)
Previous history	1.56 (1.05-1.13)	N.A.	N.A.	1.44 (1.17-1.76)	1.39 (1.15-1.69)	1.00 (0.79-1.27)*
Family history	2.25 (1.26-1.92)	2.65 (1.49-4.71)	12.00 (6.80-21.17)	5.29 (2.95-9.50)	3.12 (1.83-5.34)	0.61 (0.34-1.10)*

* Not significant, N.A. = Not available

Discussion

This study examined the awareness and knowledge of individuals in a highly educated population sample. The study was undertaken to identify information that could help in enhancing a public campaign designed to reduce the prevalence of visual impairment of the four most common eye diseases i.e. cataract, glaucoma, diabetic retinopathy and refractive errors. The results of this study show that the majority of the participants were aware and had correct knowledge of one or more of the four eye diseases. However, this was mainly attributable to respondents providing a lay description of cataract i.e. cloudiness of vision, and opacity of the lens inside the eyes etc.

In this study it was found that older people, females, and those with family history of eye diseases were more likely to have a better understanding of glaucoma and diabetic retinopathy. People with previous history of cataract had better knowledge of the disease. The knowledge of myopia and hyperopia were influenced by female gender, positive family history and previous diagnosis of myopia and hyperopia. The knowledge of presbyopia was only influenced by female gender (Table VI). Education level did not affect the result in this study as all of the study participants received

tertiary education. Michielutte et al ¹² found that females and people who reached higher levels of education had the highest levels of knowledge of glaucoma and diabetes.

There are limitations to this study that need to be considered when interpreting the results. Firstly, self-report measures can be influenced by recall bias. However, inaccuracies are unavoidable when self-report measures form part of the study design. Besides, various descriptions of eye diseases (reasonable knowledge) taken into consideration may also influence the percentage of knowledge of the respondents.

Conclusion

Notwithstanding these limitations, the results indicate that the study population had a high level of awareness of the eye diseases but their knowledge of the diseases was still limited. Educating the society on cataract, glaucoma, presbyopia and diabetic retinopathy will be an important component in the promotion of preventive ophthalmic care, and in reducing visual impairment in the elderly population of the society.

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