

Health literacy of adult Vietnamese population in relation to common eye conditions and factors for not seeking an eye examination

Prakash Paudel¹, Thomas Naduvilath¹, Vilas Kovai¹, Ha Thanh Phuong¹, Suit May Ho¹, David Wilson^{1,2}

¹Brien Holden Vision Institute, Sydney, Australia; ²School of Optometry and Vision Science, University of New South Wales, Sydney, Australia

Contributions: (I) Conception and design: All authors; (II) Administrative support: HT Phuong, SM Ho; (III) Provision of study materials or patients: P Paudel, HT Phuong, SM Ho; (IV) Collection and assembly of data: P Paudel, T Naduvilath, HT Phuong, SM Ho; (V) Data analysis and interpretation: All authors; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

Correspondence to: Dr. Prakash Paudel, PhD. Research Fellow, School of Public Health and Community Medicine, Level 3, Samuels Building, University of New South Wales, Sydney, NSW 2052, Australia. Email: p.paudel@unsw.edu.au; paudel_prakash@yahoo.com.

Background: The aim of this study was to assess the health literacy of adult Vietnamese population in relation to common eye conditions and identify factors associated with respondents never having had an eye examination.

Methods: Four hundred households from two districts of Ba Ria-Vung Tau (BRVT) province were selected by multistage cluster random sampling. One adult from each household was administered a pre-tested knowledge, attitude and practices toward eye health questionnaire. Chi-square test and logistic regression were used for statistical analysis.

Results: Of the 400 subjects interviewed (mean age: 51.5±14.5 years; range, 30–90 years), 53.5% reported never having had an eye examination and 38.0% had spectacles. Awareness of eye conditions ranged from 7.0% for glaucoma to 52.8% for red eye. Low awareness of these conditions was significantly associated with rural habitation (odds ratio ranged from 1.65 to 2.78), lower educational attainment (odds ratio ranged from 1.78 to 2.59) and non-spectacle wear (odds ratio ranged from 1.88 to 4.55). Significant barriers to eye examination included lower educational attainment, reported absence of eye problems, non-spectacle wear, lack of affordability, and lack of health insurance.

Conclusions: Knowledge of and attitude or practices to eye health is low within the general public in Vietnam, especially among those who have never had an eye examination, are less educated and live in rural areas. Eye health promotion activities are warranted for the population and specific factors that influence eye examination visits should be addressed.

Keywords: Awareness; epidemiology; eye disease; public health; Vietnam

Submitted Jun 29, 2016. Accepted for publication Jul 15, 2016.

doi: 10.3978/j.issn.1000-4432.2016.08.02

View this article at: <http://dx.doi.org/10.3978/j.issn.1000-4432.2016.08.02>

Introduction

Vision impairment (VI) is a major avoidable public health problem worldwide in all age groups but most prevalent among people aged over 50 years (1-3). Fortunately, 65% of blindness and 76% of VI caused by cataract, uncorrected refractive error, trachoma, glaucoma and diabetic retinopathy is treatable or preventable (2).

According 2007 rapid assessment of avoidable blindness (RAAB) survey, the prevalence of VI and blindness in Vietnam is 13.6% and 0.59% respectively, and 69 % of blindness is treatable and 15% is preventable (4). Furthermore, with the ageing population in Vietnam (that is, with the ageing index doubling from 18% in 1989 to 36% in 2009) (5), it has been speculated that there will

be about an 80% increase in VI by 2020 (4). Despite the enormous need for eye care, 61% of Vietnamese people over 50 years have never had an eye examination and only 10–20% of people visit eye care facilities for an annual eye examination (6). The reasons for the low utilisation of services have not been documented previously.

Effective eye health promotion strategies such as health education, improvements in health services and advocacy for improved political support for blindness prevention policies have been recommended for the prevention of avoidable VI and blindness (7). Some studies have documented that a lack of awareness of eye conditions in the community hinders the implementation of prevention strategies and timely utilisation of eye care services, both in developing and developed countries (8–12). In Pacific island countries, eye care personnel reported increased uptake of eye care services following health promotion initiatives (13). Low uptake of services in Vietnam could be linked to low awareness of eye health conditions and treatment of ocular diseases. For instance, 21.2% of Vietnamese with VI due to cataract did not opt for cataract surgery because they were unaware of the treatment (4).

Availability and accessibility of health services is crucial for service uptake. The only eye care facilities available in BRVT province before 2013 were a provincial eye centre and private clinics with optical dispensary units. The Brien Holden Vision Institute plans to introduce basic eye care services through vision centres firstly in two districts: Xuyen Moc and Dat Do, and subsequently in the remaining six districts. The objective of planned vision centres in the areas is to deliver primary eye care services, dispense affordable spectacles, and increase awareness about potential blinding and VI conditions. To improve the services and utilisation of the vision centres, it was firstly essential to conduct an investigation into knowledge of the general public in relation to eye conditions and their attitude or practices toward seeking eye care services.

This study is aimed to assess the health literacy of Vietnamese people aged 30 years and older in relation to common eye conditions including refractive errors, and their attitudes to prevention and treatment practices. The study also aims to determine the critical factors for the lack of awareness and knowledge, and poor utilisation of eye care services, which data can inform government and health organisations to develop and implement effective eye health strategies including health promotion.

Methods

Study design and sampling

A population-based cross-sectional study was conducted in March–April 2012, interviewing subjects aged 30 and above from 400 randomly sampled households in Dat Do and Xuyen Moc districts of BRVT province in Vietnam. These two districts represent the locality where the Brien Holden Vision Institute plans to organise health promotion programs and establish vision centres. A sample of 400 subjects was estimated to be sufficient to determine a prevalence of awareness of common ocular conditions of 50% with an absolute precision of 15%, and accounting for 15% non-response rate and a cluster design effect of 2.0.

A multistage cluster random sampling was undertaken to select the communes, villages, hamlets and households from each district (*Figure 1*). The number of study subjects in each district was proportionate to the population size of the two districts. To interview the targeted sample population, two communes were randomly selected from each district—one representing an urban area and another rural area. From each commune, two villages were selected—one near to the commune health station and another far from the health station. In each selected village, two hamlets were chosen and then systematic random sampling was used to select households. Based on the geographical characteristics of each village, a local field coordinator chose the starting point, such as the village gate, house of the village chief, or the start-point of the main road, for the household selection process. From the start point, the interviewers selected every third house following the right track. This sampling interval was arrived at by dividing the total number of households in the residential area by the sample size needed from this residential area. One subject from each selected household was the final sampling unit. At the household level, a quota system was undertaken for equal representation of subjects by age group (30 to 49 years, and 50 years and above) and gender. The next household was visited when the selected respondent refused to participate or was not available for the interview after a second visit to the original household.

Questionnaire

A knowledge, attitude and practice questionnaire on eye health (KAP-EH) implemented in Cambodia was adopted in the present study (12). The questionnaire was revised to include questions relating to most prevalent ocular

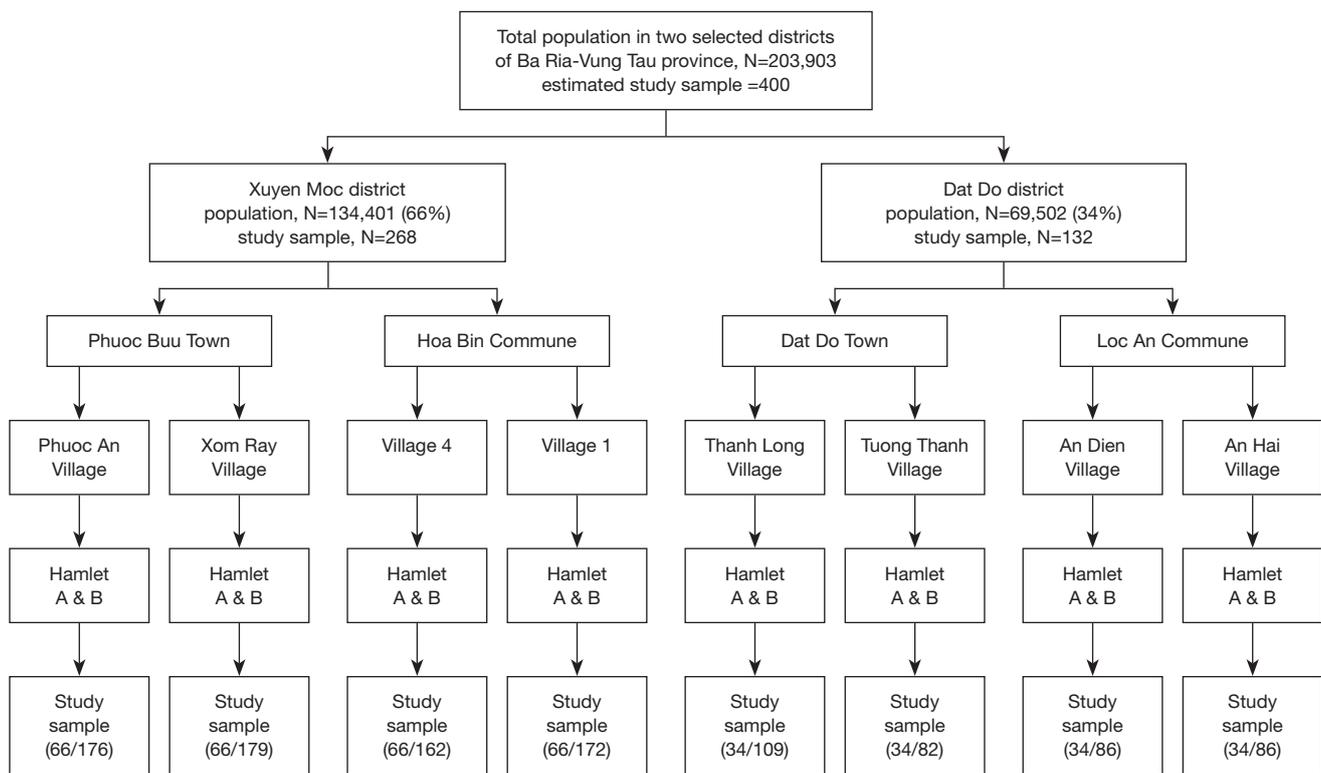


Figure 1 Multistage cluster random sampling undertaken in the study for the selection of households.

conditions in the province and excluded rare conditions such as trachoma (4). The first part of questionnaire included questions relating to awareness and knowledge of red eye, cataract, refractive error, glaucoma, diabetic retinopathy and presbyopia. As described in previous publications (11,14), “having heard of the condition” was defined as “awareness,” and having some understanding of the basic aetiology, symptoms of the condition and treatment options was defined as “knowledge”. The knowledge questionnaire included one open question about cataract, glaucoma, and diabetic eye disease. Remaining questions about knowledge were semi-structured. The second part of questionnaire contained questions eliciting attitudes to disease prevention, treatment and eye care practices while the third part explored knowledge and awareness of affordability and accessibility to service. Additionally, the fourth part contained questions around attitude to people with disabilities. All close-ended questions comprised of a list of possible responses.

The questionnaire was translated from English into Vietnamese and re-translated back into English for verification of the translated version. A pilot study (for

clarity, comprehension and content validity) was carried out administering the questionnaire to 50 participants comprising equal numbers of subjects ($n=25$) from one commune of each district. Following the pilot, questionnaire items and responses were revised for clarity and description of specific terminology in the local language. The final questionnaire was administered to 400 subjects within their households by four trained in-country interviewers. The questionnaire was self-administered by the participant. For people with literacy problem, interviewers provided the assistance.

Statistical analysis

Data were entered and verified in a Microsoft Access database. Data were analysed using SPSS version 21.0 software (IBM SPSS Inc., Chicago, IL, USA) and summarised as frequencies and percentages. Association of awareness and eye examinations with demographic factors were analysed using logistic regression with robust estimate of variance to account for the multi-stage sampling design. Strengths of association were determined

Table 1 Awareness of common ocular conditions according to subject characteristics

Subject characteristics	Aware of ocular conditions, N (%)						
	Total	Red eye	Cataract	Refractive error	Glaucoma	Diabetic eye disease	Presbyopia
All participants	400 (100.0)	211 (52.8)	107 (26.8)	187 (46.8)	28 (7.0)	60 (15.0)	198 (49.5)
Location							
Rural	200 (50.0)	107 (53.5)	34 (17.0)	80 (40.0)	8 (4.0)	22 (11.0)	86 (43.0)
Urban	200 (50.0)	104 (52.0)	73 (36.5)	107 (53.5)	20 (10.0)	38 (19.0)	112 (56.0)
Age (years)							
30–49	200 (50.0)	117 (58.5)	51 (25.5)	97 (48.5)	10 (5.0)	24 (12.0)	94 (47.0)
≥50	200 (50.0)	94 (47.0)	56 (28.0)	90 (45.0)	18 (9.0)	36 (18.0)	104 (52.0)
Gender							
Female	200 (50.0)	111 (55.5)	48 (24.0)	91 (45.5)	15 (7.5)	29 (14.5)	102 (51.0)
Male	200 (50.0)	100 (50.0)	59 (29.5)	96 (48.0)	13 (6.5)	31 (15.5)	96 (48.0)
Education							
Primary or less	258 (64.5)	124 (48.1)	56 (21.7)	99 (38.4)	15 (5.8)	31 (12.0)	112 (43.4)
Secondary or higher	142 (35.5)	87 (61.3)	51 (35.9)	88 (62.0)	13 (9.2)	29 (20.4)	86 (60.6)

using odds ratio and its 95% confidence limits. Level of significance was set at 95%.

Ethics approval

The Vision Cooperative Research Centre and Institute for Eye Research Human Research Ethics Committee in Australia provided the ethics approval (VIHEC No. 11/14). The Vietnam National Institute of Ophthalmology and BRVT Provincial Eye Centre in Vietnam provided the in-country permission to conduct this study in Vietnam. The study was conducted in accordance with the Declaration of Helsinki with written informed consent obtained from the participants.

Results

Four hundred subjects were interviewed within their households. Mean age of the subjects was 51.5 (SD 14.5) years and their age ranged from 30 to 90 years. There was equal representation of male and female subjects, rural and urban subjects, and subjects aged 30 to 49 years and above 50 years. However, the proportion of male subjects who had secondary or higher education was significantly higher

than females (42.5% vs. 28.5%; P<0.001).

Awareness of common ocular conditions

Overall awareness among subjects for red eye was 52.8% (n=211), presbyopia 49.5% (n=198), refractive error 46.8% (n=187), cataract 26.8% (n=107), diabetic eye disease 15% (n=60) and glaucoma 7% (n=28). About a quarter of subjects (n=98) were unaware of any of these conditions. Awareness of these conditions was low predominantly among subjects who were less educated and lived in rural areas (Table 1).

Unawareness of common ocular conditions was associated with rural locality, primary or lower education and non-spectacle wear (Table 2). Awareness of red eye was not associated with rural-urban locality. Age and gender were not associated with awareness of any condition. However, subjects with primary education or lower were about twice as likely to be unaware of ocular conditions compared to those with secondary or higher education. The difference in awareness levels of glaucoma was not associated with education level. Subjects in rural locations and those who had primary or lower education were half as likely to know that some blindness could be prevented compared to their counterparts. Similarly, those who had

Table 2 Factors related to unawareness of common ocular conditions

Factors	Odds ratio (95% CI)					
	Red eye	Cataract	Refractive error	Glaucoma	Diabetic eye disease	Presbyopia
Rural vs. urban	0.91 (0.61–1.36)	2.78* (1.73–4.47)	1.69* (1.13–2.54)	2.66* (1.14–6.22)	1.88* (1.06–3.33)	1.65* (1.11–2.47)
≥50 years vs. 30–49 years	1.57 (1.05–2.34)	0.84 (0.53–1.33)	1.12 (0.74–1.68)	0.50 (0.22–1.14)	0.59 (0.33–1.04)	0.79 (0.53–1.18)
Male vs. female	1.36 (0.91–2.04)	0.82 (0.51–1.31)	1.03 (0.68–1.55)	1.28 (0.58–2.82)	1.02 (0.58–1.80)	1.26 (0.84–1.89)
Primary education or less vs. secondary or higher	1.78* (1.16–2.73)	1.94* (1.21–3.12)	2.59* (1.68–3.98)	1.72 (0.78–3.82)	1.91* (1.08–3.37)	2.07* (1.35–3.17)
Spectacles non-wearers vs. wearers	1.13 (0.75–1.69)	2.38* (1.51–3.73)	1.40 (0.94–2.10)	4.55* (1.95–10.6)	1.94* (1.11–3.36)	1.88* (1.25–2.83)

*, statistically significant at $P < 0.05$.

never worn glasses were less likely to be aware of age-related and/or posterior segment conditions.

Knowledge of common ocular conditions and disability

Of those 221 who had heard of red eye, 25% ($n=53$) perceived dust/foreign body as the main cause for red eye while 19.4% ($n=41$) reported an epidemic or infectious cause and 9.5% ($n=20$) said seasonal or environmental pollution. Over one third (36%) do not know causes for red eye while the remaining 9% reported other causes such as poor eye hygiene, swollen eyes, high temperature and not wearing sunglasses. Most commonly reported prevention measures for red eye were use of eye drops (19%; $n=42$), regular hand washing (17.6%; $n=39$), use of clean water (13.6%; $n=30$) and avoiding physical contact (10.6%; $n=24$).

Among those who had heard of cataract, 25.2% ($n=27/107$) explained cataract as clouding of the lens while 56.1% ($n=60/107$) stated that they did not know and the remaining expressed cataract as dust in eyes, exposure to smoke, lack of nutrient, or cornea damage. Over 60% (67/107) reported surgery as the best treatment for cataract and 57% (61/107) stated that vision could be restored from cataract blindness. Similarly, 58.3% (109/187) answered spectacles as the best treatment for refractive error and 57.6% (114/198) for presbyopia.

Of those who had heard of glaucoma, none of the subjects explained the condition correctly. Similarly, none of the subjects recognised glaucoma to be an irreversible condition. However, 57.1% (16/28) of the subjects correctly

reported eye drops and/or surgery as the best treatment for glaucoma. On the other hand, diabetic eye disease was recognised as the condition caused due to complication of diabetes by half of the subjects (30/60). Only 11.7% (7/60) reported surgery as the best treatment for diabetic eye disease and one third (20/60) recognised this to be a treatable condition.

Regarding knowledge of blindness prevention measures, 45.7% subjects believed 'keeping up good eye hygiene practice' and 32.9% said 'regular eye check' would prevent any cause of blindness. Other common prevention measures mentioned were 'wear eye protection' (25.0%), 'get treatment on the day problem appears' (23.8%), 'eat vitamin A rich food' (16.5%), and 'avoid playing dangerous games' (15.9%).

Over one third of subjects (35.5%; $n=142$) were aware of people with disability who live in their community. Of those, 25% of subjects identified VI and 23.9% reported intellectual problem as common disabilities. Genetic or birth defects were perceived as the main cause of disability by 54.2% of subjects. Other causes reported were disease/illness (29.6%), accidents (28.2%) and war injuries or mines (22.5%).

Regarding attitude to people with disabilities, the majority of study subjects (97%) recognised the contribution of people with disabilities to community decisions and their need for the support system. However, a small number of subjects (18%) perceived that people with poor vision cannot efficiently work for a living while just over half of subjects (52%) confessed that a child with poor vision can attend a normal school.

Table 3 Factors responsible for subjects never having an eye examination

Factors	History of eye examination		Odds ratio (95% CI)	P value
	Never had an eye examination N, (%)	Had eye an examination N, (%)		
Education				P<0.001
Secondary or higher	58 [41]	84 [59]	1	
Primary or lower	156 [60]	102 [40]	0.45 (0.29 to 0.68)	
History of eye problem				P<0.001
Yes	69 [41]	100 [59]	1	
No	145 [63]	86 [37]	0.41 (0.27 to 0.62)	
History of spectacle wear				P=0.001
Yes	65 [43]	87 [57]	1	
No	149 [60]	99 [40]	0.50 (0.33 to 0.75)	
Examination fee affordable				P<0.05
Yes	130 [46]	151 [54]	1	
No	25 [64]	14 [36]	0.48 (0.24 to 0.97)	
Possess health insurance				P=0.04
Yes	87 [48]	95 [52]	1	
No	127 [58]	91 [42]	0.66 (0.44 to 0.98)	

Source of information

The common sources of information for awareness and knowledge of common ocular conditions were also investigated. Family members or relatives (40.2%), health workers (15.7%) and newspaper (12.8%) were the three leading source of information for ocular conditions. Television, brochures and internet were the least acknowledged sources of information. Among the listed sources, 74.9% subjects believed health workers would be the most reliable source from which they would like to get eye care information.

Eye health practices

In this study, just over half of the subjects (53.5%) had never had an eye examination while only 17% had never had their general health checked. Subjects who had primary education or lower, never had an eye problem, never had worn spectacles, could not afford examination fee and had no health insurance were less likely to ever have had an eye examination (odds ratio, 0.41 to 0.66) (Table 3). Surprisingly, 43% of subjects who had worn spectacles

reported never having had an eye examination because most had ready-made spectacles for near vision.

A total of 58% subjects reported that they had never experienced an eye problem. Of the remaining who had experienced an eye problem (n=169), 55% subjects had ever experienced red eye, 18.3% had refractive error and 12.4% had cataract. Treatment was sought by 75% of the subjects and their preferred first place of treatment was an eye unit/ eye hospital (48%), self-treatment at home (29%), health centres (11%) and the remaining 12% from pharmacist, village health workers and traditional healers. As stated by the study subjects, the nearest facility can be accessed within about 37 minutes and means of transportation used were motorbike (45.5%), bus (6%), and bicycle (4.2%) while about 4% walked. Though 52% of subjects did not state the average transport cost, over 70% subjects pay more than US \$2.5 to reach the eye care facility.

In this study, 38% (n=152) subjects reported wearing spectacles. Only 20% (29/152) purchased spectacles from the district eye unit or eye hospital and the remaining purchased from the optical shops. Among the spectacle wearers, 43% (65/152) earned less than \$2 per day family income (that is, US \$50 per month). Non-wearers

(n=248) were mainly those who self-perceived no vision problem (75%) and do not like wearing spectacles (19%). Examination fees, medicine costs and transportation fees were affordable to more than two thirds of subjects.

Discussion

This study aimed to assess the level of awareness and knowledge of common eye conditions and factors associated with lower awareness among the Vietnamese adult population. The findings of the present study revealed that awareness of common blinding conditions such as cataract, diabetic retinopathy and glaucoma was quite low (7–27%) compared to other conditions such as refractive error, presbyopia and red eye (47–53%). Notably, a quarter of study populations (25%) were unaware of any of these ocular conditions.

Previous studies have documented that old age, female gender, rural habitation and lower levels of education have significant associations with low awareness of eye disease (8,10,11,14). However, rural habitation and lower education level were the factors associated with low awareness in the present study. Even though females and older people are more susceptible to live with VI, age and gender of study subjects were not significantly associated with awareness in this study. The reason for this remains speculative and has to be investigated in the future. More importantly, the results of this study clearly indicate that public health campaigns are required to promote people's general eye health awareness including knowledge of blinding ocular conditions.

Cataract

Even though cataract is the principal cause of blindness and VI in Vietnam (4), cataract awareness was not high in the present study. Cataract awareness is almost 2-fold lower than that in other Asia Pacific countries (8,11,14,15). Furthermore, low cataract awareness might be linked to low cataract surgical coverage in Vietnam (997 per million population in a year) (16). Surprisingly, cataract awareness is high (85%) in a neighbouring country, Cambodia (12) even though cataract surgical rate is comparatively low (749 per million population in a year) (16). The reasons for significant difference to these findings remain speculative. In general, low cataract awareness could be attributed to low availability of or accessibility to the clinics that are equipped with surgical facilities and also minimal

approaches of eye institutes to outreach screening and surgical camps. The low level of cataract awareness in Vietnam which is predominant among people who lived in rural communities, who never had an eye examination, and had not worn spectacles suggests that there is a great need for health promotion campaigns and cataract focused eye-health programs in the underserved communities.

Glaucoma and diabetic retinopathy

Glaucoma was the least aware condition (7%) in the present study, which is within the range of awareness levels in other developing countries (0.32–13.5%) (12,17–20). Very low awareness of glaucoma suggests that patients who are unaware of symptoms until very advanced stage are at high risk of permanent vision loss. As glaucoma is the third most common cause of blindness (6.4% of total blindness) in Vietnam (4), awareness of this should be improved significantly. The lack of an association between glaucoma awareness and educational levels meant glaucoma related health education is vital to all members of the community. In addition, the present study results also elicit that diabetic retinopathy awareness is low compared to findings of other studies (27–37%) (11,14,21). A low level of awareness of diabetic retinopathy in Vietnam may be attributable to low prevalence of diabetes (3.7%), and that 73% of people with diabetes did not know about their diabetes (22). Furthermore, indications in the present study that rural residents are 1.9 times more likely to remain unaware of diabetic retinopathy compared to urban residents is in keeping with the previously reported low prevalence and awareness of diabetes in rural locations (22).

Refractive error and presbyopia

Public awareness and knowledge of refractive error and presbyopia has not been well documented previously. In Vietnam, uncorrected refractive error is the main cause of VI among children (23) and the elderly (4). In addition, several million people (43.8% of the population over 40 years) have near VI due to uncorrected presbyopia (24). Although these conditions are highly prevalent, only about half of the study subjects were aware of refractive error and presbyopia, and 58% of those who were aware of these conditions knew that spectacles are the best treatment option. This is relatively lower than in Cambodia where awareness of refraction related problems was 63% among people aged 30 years and older (12). Since low level of awareness and

knowledge was predominant among rural residents and among people with lower education, possibly resulting in low utilisation of services (with only 38% having worn spectacles and 50% having worn spectacles in the 50 years plus category), awareness about spectacles wear and refractive error services need to be expanded at every level of care. Furthermore, 'no felt need for refractive correction' and possibility of insignificant uncorrected refractive error (with presenting visual acuity better than 6/18) could contribute to the low uptake of spectacles, which should be investigated in this population in the future.

Red eye

This study suggested that knowledge about preventive measures is higher among people than knowledge about the causes of eye diseases. Particularly, knowledge about disease is much higher among people who had experienced eye problems in the past. For instance, a relatively high awareness (53%) of red eye in Vietnam, even though exceptionally low than that in Cambodia (94%) (12), might be attributed to a significant proportion of subjects (55%) having had this problem in past. Consequently, such past exposure to disease might have improved their knowledge about red eye causes and prevention. Furthermore, among those who had better knowledge about eye disease, attitude and practices to prevention and treatment seeking behaviours were often good. For example, about 80% of subjects would either visit an eye care facility or maintain good eye hygiene practices.

Knowledge gaps and implications

Findings of the present study indicate the presence of a huge gap between awareness and deep understanding of eye diseases. For example, among those who have heard about cataract, only 63% reported surgery as the best treatment for cataract and similar population stated that vision could be restored. Surprisingly, none of the subjects adequately described glaucoma and very few had understanding that diabetic retinopathy is caused by diabetes. As a result, there was little or no understanding that vision loss due to glaucoma is permanent and diabetic retinopathy can be treated by laser. The results also showed that majority of subjects perceive old age as the cause of VI and blindness, and thus consider diseases of older age would be difficult to prevent. These data indicate that when people are ignorant of what causes an eye disease, they are also less likely to

know about symptoms or signs of the disease and the appropriate treatment.

Unlike television and print media that are popular sources of information in Nepal (11), the present study revealed family members or relatives, health workers and newspapers as the main sources of information for common ocular conditions in Vietnam. This finding was similar to a finding from Cambodia where relatives and friends (50%) and health centre staff (25%) were the most common source of information (12). As three-quarters of subjects (75%) preferred health workers over other sources for receiving health information, use of trained health workers should be the main strategy in health promotion programs.

Evidence suggests that poor knowledge of eye disease contributes to less likelihood of a visit for an eye examination and high occurrence of disease (10,12). The findings of the present study also indicate that subjects are likely to never have had an eye examination if they have lower level of education, no history of eye problem, no history of spectacle wear, and when they cannot afford the examination fee, and when they do not possess health insurance. Even when subjects had a history of eye problems, 41% never have had an eye examination suggesting that other aforementioned factors might have influenced the decision. Furthermore, the data suggest that even when affordability and distance are not major problems, about 50% people simply do not obtain an eye examination. This might be either linked to low awareness or a feeling that the problem is not serious enough to seek care. Of those who had a plan to visit eye doctor for an eye examination within next 6 months (n=119), 50% stated their motivation as due to a recently developed eye problem. This attitude to eye care indicates that 50% of people simply avoid a trip to an eye care facility if there is no episode of an eye problem. However, in people with diseases such as glaucoma and diabetic retinopathy are asymptomatic until at an advanced stage, delayed or lack of examination increases the likelihood of having severe VI or permanent blindness. A long-term approach for creating accessible eye care services along with health education initiatives is therefore essential for older and otherwise susceptible people.

The study had a few limitations. First, the study subjects were not examined to document their VI status. This limited us to make any comparison of health literacy and attitudinal issues between people with normal and abnormal vision. Second, a quota-based sampling was preferred over a Kish grid method for selecting potential subjects in the household. The Kish grid method showed increased

refusal rate during the pilot study as most of the household members were busy working in the paddy fields or had gone fishing. Finally, the findings of the present study were compared with the results from most clinic-based and urban-based studies. Even though such studies had a limitation with regard to sample representativeness, the results of this comparison provided a basis of understanding of the level of health literacy in Vietnam.

In conclusion, the outcomes of this study indicate that the adult Vietnamese population have low awareness of common ocular conditions; particularly among those who have never had an eye examination, are less educated, and live in rural areas. An appropriate health promotion strategy is essential to educate the specific groups in the community and increase the uptake of eye care services.

Acknowledgements

The authors acknowledge Dr. Nguyen Viet Giap at Ba Ria-Vung Tau Provincial Eye Centre, Vietnam for technical and administrative support, and public and social research team at TNS Vietnam for administering the survey. This study was conducted as a part of the Vietnam Australia Vision Support Program (VAVSP) financially supported by an Avoidable Blindness Initiative grant through the Department of Foreign Affairs and Trade, Australian Government.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The study was approved by the Vision Cooperative Research Centre and Institute for Eye Research Human Research Ethics Committee in Australia (VIHEC No. 11/14) and written informed consent was obtained from all patients.

References

- World Health Organization. Universal eye health: a global action plan 2014–2019. Accessed 19 June, 2014. Available online: http://www.who.int/blindness/AP2014_19_English.pdf?ua=1.
- Bourne RR, Stevens GA, White RA, et al. Causes of vision loss worldwide, 1990–2010: a systematic analysis. *Lancet Glob Health* 2013;1:e339–49.
- Wong TY, Loon SC, Saw SM. The epidemiology of age related eye diseases in Asia. *Br J Ophthalmol* 2006;90:506–11.
- Limburg H. Results of Rapid Assessment for Avoidable Blindness (RAAB) in 16 provinces of Viet Nam. Hanoi: Viet Nam National Institute of Ophthalmology, 2008.
- General statistics office of Vietnam. The 2009 Vietnam Population and Housing census: Major findings. Accessed 4 March, 2014. Available online: http://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=9813.
- Vela C, Samson E, Zunzunegui MV, et al. Eye care utilization by older adults in low, middle, and high income countries. *BMC Ophthalmol* 2012;12:5.
- Hubley J, Gilbert C. Eye health promotion and the prevention of blindness in developing countries: critical issues. *Br J Ophthalmol* 2006;90:279–84.
- Livingston PM, McCarty CA, Taylor HR. Knowledge, attitudes, and self care practices associated with age related eye disease in Australia. *Br J Ophthalmol* 1998;82:780–5.
- Huang OS, Tay WT, Tai ES, et al. Lack of awareness amongst community patients with diabetes and diabetic retinopathy: the Singapore Malay eye study. *Ann Acad Med Singapore* 2009;38:1048–55.
- Huang OS, Zheng Y, Tay WT, et al. Lack of awareness of common eye conditions in the community. *Ophthalmic Epidemiol* 2013;20:52–60.
- Shrestha MK, Guo CW, Maharjan N, et al. Health literacy of common ocular diseases in Nepal. *BMC Ophthalmol* 2014;14:2.
- Ormsby GM, Arnold AL, Busija L, et al. The Impact of Knowledge and Attitudes on Access to Eye-Care Services in Cambodia. *Asia Pac J Ophthalmol (Phila)* 2012;1:331–5.
- Hobday K, Ramke J, du Toit R. Eye health promotion in Western Pacific island countries. *Clin Experiment Ophthalmol* 2011;39:584–5.
- Dandona R, Dandona L, John RK, et al. Awareness of eye diseases in an urban population in southern India. *Bull World Health Organ* 2001;79:96–102.
- Lau JT, Lee V, Fan D, et al. Knowledge about cataract, glaucoma, and age related macular degeneration in the Hong Kong Chinese population. *Br J Ophthalmol* 2002;86c:1080–4.
- World Health Organization. Global initiative for the elimination of avoidable blindness: action plan 2006–2011. Accessed 27 June, 2014. Available online: <http://www.who.int/iris/handle/10665/43754>
- Krishnaiah S, Kovai V, Srinivas M, et al. Awareness of glaucoma in the rural population of Southern India. *Indian*

- J Ophthalmol 2005;53:205-8.
18. Sathyamangalam RV, Paul PG, George R, et al. Determinants of glaucoma awareness and knowledge in urban Chennai. *Indian J Ophthalmol* 2009;57:355-60.
 19. Tenkir A, Solomon B, Deribew A. Glaucoma awareness among people attending ophthalmic outreach services in Southwestern Ethiopia. *BMC Ophthalmol* 2010;10:17.
 20. Thapa SS, Berg RV, Khanal S, et al. Prevalence of visual impairment, cataract surgery and awareness of cataract and glaucoma in Bhaktapur district of Nepal: the Bhaktapur Glaucoma Study. *BMC Ophthalmol* 2011;11:2.
 21. Rani PK, Raman R, Subramani S, et al. Knowledge of diabetes and diabetic retinopathy among rural populations in India, and the influence of knowledge of diabetic retinopathy on attitude and practice. *Rural Remote Health* 2008;8:838.
 22. Quang Binh T, Tran Phuong P, Thi Nhung B, et al. Prevalence and correlates of hyperglycemia in a rural population, Vietnam: implications from a cross-sectional study. *BMC Public Health* 2012;12:939.
 23. Paudel P, Ramson P, Naduvilath T, et al. Prevalence of vision impairment and refractive error in school children in Ba Ria - Vung Tau province, Vietnam. *Clin Experiment Ophthalmol* 2014;42:217-26.
 24. Holden BA, Fricke TR, Ho SM, et al. Global vision impairment due to uncorrected presbyopia. *Arch Ophthalmol* 2008;126:1731-9.

Cite this article as: Paudel P, Naduvilath T, Kovai V, Phuong HT, Ho SM, Wilson D. Health literacy of adult Vietnamese population in relation to common eye conditions and factors for not seeking an eye examination. *Eye Sci* 2016;31(3):130-139. doi: 10.3978/j.issn.1000-4432.2016.08.02